Finally, a Cataract Laser Designed With You in Mind

Indications


The LENSAR Laser System is contraindicated in patients who are not able to maintain adequate visual acuity following surgery, who have a history of severe dry eye that has not responded to therapy, who have glaucoma, who have corneal disease or pathology that precludes transmission of light at the laser wavelength, who have a history of herpes zoster or herpes simplex keratitis, or who have corneal opacities, residual, recurrent, active ocular or uncontrolled eyelid disease.

Potential contraindications are not limited to those included in the list.

WARNING: The safety and effectiveness of this laser have NOT been established in patients with diabetic retinopathy, a history of uncontrolled glaucoma, or prior intraocular surgery.

Visit www.LENSAR.com to learn more about the strength of the LENSAR® Laser with Streamline® IV.

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Orlando, FL 32826
888-536-7271

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Manage Astigmatism With the Strength of LENSAR, Now With Streamline IV

Streamline IV, the fourth LENSAR system upgrade in two years, provides surgeons with the most advanced technology for confidently managing astigmatism and optimizing patient outcomes. LENSAR, the leader in next-generation femtosecond cataract laser technology, has focused this and other rounds of Streamline enhancements on astigmatism because the overwhelming majority of cataract patients suffer from this condition, which is often difficult to manage and can have a major impact on visual outcomes. Now with Streamline IV, surgeons can deliver the outstanding outcomes their astigmatic patients will be happy to see.
SPECS

System Dimensions and Weight

- Width: 32 in (0.81 m)
- Height: 65 in (1.65 m)
- Length: 80 in (2.03 m)
- Weight: Entire LLS-fs 3D System: 1,421 lbs (645 kg)

Electrical: The LLS-fs 3D Laser System requires a dedicated electrical service of 208-240 VAC (±10 %) single phase, minimum of 10 amps, with ground, 50/60 Hz.

Surgical Laser Specifications

- Laser Center Wavelength: 1030 ± 2 nanometers
- Laser Maximum Average Power: ≤1.2 ± 3% watts
- Laser Maximum Energy / Pulse: ≤15 ± 3% µjoules
- Maximum Pulse Repetition Rate (PRF): 80 ± 0.5 kHz (kilohertz)
- Laser Classification, IEC 60825-1:2007: Class 4

Scanning Illumination

- SLD Wavelength Emission Range: 845 to 920 nanometers
- SLD Maximum Average Power: ≤4 milliwatts
- Laser Classification, IEC 60825-1:2007: Class 3B

Laser Suite

- Electrical:
  - 208-230-240 VAC (+/- 10%) single-phase, ground, 50/60 Hz, 10 amp minimum service receptacle in wall (NEMA L6-30R or equivalent; based on location. i.e., European Type E/F) 222 VAC
  - 2 standard 110/220 VAC receptacles installed near main system outlet with common ground 122 VAC

- Internet Connection:
  - At least one internet connection in the room or within 50 feet of the system

Environmental Control

- Humidity: 35% - 70% range, non-condensing
- Temperature: 65-75°F/18-23.9°C range, above dew point. 66°
  - The room temperature should be maintained to a temperature of ± 2°C of a set temperature that is in the range of 65-75°F / 18-23.9°C.

**CONFIDENCE**

The LENSAR laser with Streamline IV offers a new level of surgeon confidence. Superior Augmented Reality™ provides comprehensive imaging, including biometric data, for confident treatment planning. Iris registration and automatic cyclorotation adjustment replace the need for manual ink marking for more confident arcuate incision planning and toric IOL alignment.

**Iris Registration**

- WAIR (LENSAR’s iris registration) is faster, anyone can have the highest level of confidence when planning astigmatism treatment. It provides automatic, software-controlled cyclorotation adjustment, helping eliminate the potential for errors caused by ink marking the cornea and/or manual cyclorotation adjustment.

**Iris Registration Image Compatibility**

Surgons can be confident in LENSAR’s automatic cyclorotation adjustment and their own astigmatism treatment planning with the IR image compatibility feature. LENSAR automatically confirms image compatibility at the point of capture during the pre-op® diagnostic exam (e.g., detecting poor focus or an eyelid blocking the iris), so the topography can be retaken if the image is suboptimal.

*Available using the Pentacam® HR or AXL or the Cassini® Corneal Shape Analyzer.

**Augmented Reality Biometric Data Capture**

Augmented Reality gives surgeons a more complete visualization of the eye for informed and confident treatment decisions. This is uniquely accomplished with anterior segment imaging and biometry captured at 2 angles at up to 8 different positions. The result is an accurate 3-D Augmented Reality model of the actual ocular anatomy for each patient. Additionally, with up to 2 times faster scanning and imaging than before, Streamline can reduce treatment times by up to 20 seconds.
SAFETY

The LENSAR® Laser with Streamline® IV was designed specifically with patient safety in mind. Cataract density imaging (available for density categories 1-5), superior use of Augmented Reality™, and a non-applanating patient interface can help you feel secure knowing that you can provide an optimized custom treatment that will help maximize outcomes while minimizing risk of corneal folds and striae that could affect laser treatment accuracy.

Cataract Density Imaging

Only LENSAR with Streamline IV automatically categorizes the density of each cataract and determines the location of the nucleus, increasing treatment efficiency and potentially decreasing laser energy used in the eye. LENSAR is able to provide cataract density imaging because of Augmented Reality’s superior imaging capabilities for identifying varying lens layers and depth of field advantage.

Corneal Incision–Only Mode

Surgeons can now perform laser corneal incisions independent of capsulotomy and fragmentation, providing surgeons with the flexibility to treat patients who may benefit from post-op arcuate incisions. Corneal incision–only mode contributes to overall efficiency of the procedure, with abbreviated scanning.

Small Laser Footprint

The LENSAR Laser System has a small footprint that is configurable, facilitating improved patient flow and staff utilization. Surgeons can seamlessly integrate the LENSAR Laser into their existing workflow because of the compact design and other thoughtfully designed features, including a deployable laser head, intuitive graphic interface, and no fixed-bed design.
EFFICIENCY

The LENSAR® Laser System with Streamline® IV was designed with your efficiency in mind, built with thoughtful ergonomic features and levels of automation never before seen in femtosecond cataract lasers, allowing for seamless integration into your existing workflow without increasing procedure time. And with up to 2 times faster scanning and efficient laser energy delivery, Streamline can reduce laser treatment times by up to 20 seconds.

Automatic Customized Fragmentation Patterns

Surgeons can experience greater procedural efficiency by utilizing automatic customized fragmentation patterns and energy settings that can be optimized for different cataract densities, including density categories 1 to 5. LENSAR automatically categorizes each cataract using cataract density imaging and selects the pre-programmed, surgeon-customized fragmentation pattern and energy settings based on the density category for a customized treatment.

Non-Applanating Liquid Interface

LENSAR’s non-applanating, fluid-filled patient interface contributes to precise laser placement and clean imaging by maintaining the integrity of the cornea, so surgeons can be assured that they are delivering treatment precisely where intended.

Augmented Reality Imaging

Augmented Reality imaging was specifically designed to produce a high-resolution image from the anterior cornea to the posterior lens capsule, so surgeons can be confident they are using an accurate eye model required for delivering a safe and efficient patient treatment. To provide this level of visualization, Augmented Reality marries Scheimpflug tomography with advanced imaging technologies, including a variable-rate scanning superluminescent diode (SLD) illumination. And with Streamline, scanning and imaging are up to 2 times faster, which reduces time under the laser and contributes to the overall safety of the patient treatment and subsequent outcomes.

Lens Tilt Detection and Compensation

LENSAR’s ability to detect and compensate for lens tilt contributes to the safety of the laser treatment by helping ensure the fragmentation pattern fits within the capsular bag without encroachment on the capsule. LENSAR is able to detect and compensate for lens tilt by collecting accurate biometric data used in the creation of a precise 3-D model.

Wireless Integration With Pre-Op Diagnostic Data

To save staff time and reduce potentially costly transcription errors, patient name, pre-op images, and preoperative data, including Total Refractive Power from the OCULUS Pentacam® HR and AXL and Total Corneal Astigmatism from Cassini Corneal Shape Analyzer, can be transferred wirelessly to the LENSAR Laser. Pre-op data can also be transferred via USB from other pre-op diagnostic devices.

*Compared to Streamline I and II.
†Distributed by Marco in the USA.
The LENSAR® Laser with Streamline IV employs several features that allow for precise astigmatism treatment planning and precise laser delivery, so you can make every cataract procedure an individual success.

**Accurate Incision Surgeon Tables**
LENSAR’s surgeon tables add a level of precision to convenient, one-touch accurate incision planning and eliminate possible transcription errors by using the most current pre-programmed nomogram data, individual patient biometric measurements, and other factors defined by the surgeon (e.g., white-to-white, with-the-rule, or against-the-rule adjustment) to automatically determine optimal accurate incision depth, location, and length.

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**Toric IOL Selector**
LENSAR with Streamline IV includes an enhanced toric IOL selector with manufacturer-defined toric IOL power at the corneal plane to account for SIA, allowing for precise residual corneal astigmatism treatment planning.

**IntelliAxis-L Steep Axis Capsular Marking**
Now with Streamline IV, surgeons can master toric IOL alignment like never before with IntelliAxis-L steep axis capsular marking. IntelliAxis-L gives surgeons the ability to establish biomechanically stable and permanent landmarks on the capsule, which can be used to verify the location of the steep axes relative to toric IOL orientation, both intra- and postoperatively. IntelliAxis-C steep axis corneal marking is also available.

**Surgically Induced Astigmatism (SIA)**
To further increase the precision of astigmatism treatment planning, LENSAR’s software compensates for SIA. A graphical interface that can be manipulated by touch demonstrates the impact of SIA on the expected residual astigmatism, showing predictive changes from the surgeon-preferred treatment programmed into the LENSAR Laser.

**Intelligent Incisions**
Intelligent Incisions™ employ localized imaging to monitor the position of the cornea immediately before each incision to ensure the precise location of each incision. LENSAR is the only femtosecond cataract laser system that re-images the cornea prior to incision making, enabling precise incisions that are easy to open and that consistently seal at the end of the procedure.
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Surgical Laser Specifications

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- **Maximum Pulse Repetition Rate (PRF)**: 80 ± 0.5 kHz (kilohertz)
- **Laser Classification, IEC 60825-1:2007**: Class 4

Scanning Illumination

- **SLD Wavelength Emission Range**: 845 to 920 nanometers
- **SLD Maximum Average Power**: ≤ 4 milliwatts
- **Laser Classification, IEC 60825-1:2007**: Class 3B

Laser Suite

**Electrical**

- 208-230-240 VAC (+/- 10%) single-phase, ground, 50/60 Hz, 10 amp minimum service receptacle in wall (NEMA L6-30R or equivalent; based on location. i.e., European Type E/F) 222 VAC
- 2 standard 110/220 VAC receptacles installed near main system outlet with common ground 122 VAC

**Internet Connection**

- At least one internet connection in the room or within 50 feet of the system

**Environmental Control**

- **Humidity**: 35% - 70% range, non-condensing
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Indication
The LENSAR Laser System – fs 3D (LLS-fs 3D) is intended for use in patients undergoing cataract surgery for removal of cataracts. Cataract surgery include anterior capsulotomy, laser phacofragmentation, and the creation of full and partial thickness single-plane and multi-plane arc cuts/incisions in the cornea, each of which may be performed either individually or consecutively during the same procedure.

Laser capsulotomy, laser phacofragmentation and/or corneal incisions surgery is contraindicated in patients:
- who are of uncontrolled diabetes, uncontrolled systemic glaucoma or have a history of severe ocular hypertension. Laser capsulotomy, laser phacofragmentation and/or corneal incisions surgery is also contraindicated in patients who have medical conditions that will prevent adequate access to the eye, such as: corneal opacities, residual, recurrent, active ocular or uncontrolled eyelid proliferation, ectropion, entropion, etc. In addition, the patient must have corneal conditions that will allow the laser capsulotomy, laser phacofragmentation and/or corneal incisions cuts/incisions to provide adequate access to the eye.
- who have conditions that would cause inadequate clearance between the intended capsulotomy cut and the corneal endothelium, such as: corneal edema, corneal scar, corneal trauma, corneal vascularization, atrophic cornea, etc.
- who have conditions that would cause inadequate clearance between the intended phacofragmentation cut and the lens capsule, such as: anterior capsule plaque, posterior capsular plaques, etc.
- who have conditions that would cause inadequate clearance between the intended corneal incision and the eye, such as: thin or scarred cornea, etc.

Potential contraindications are not limited to those included in the list.

WARNING: The safety and effectiveness of this laser have NOT been established in patients with diabetic retinopathy, a history of uncontrolled glaucoma, or prior intraocular surgery.

Patent pending for IntelliAxis-L.

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<table>
<thead>
<tr>
<th>Stowed Length</th>
<th>Maximum Potential Travel</th>
</tr>
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<tr>
<td>Length</td>
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</tr>
<tr>
<td>Width</td>
<td>± 8 in / ± 101.6 mm</td>
</tr>
<tr>
<td>Height</td>
<td>± 8 in / ± 203.2 mm</td>
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</table>
Indication

The LENSAR Laser System—fs 3D (LLS-fs 3D) is intended for use in patients undergoing cataract surgery for removal of the lens cap. Standard use in cataract surgery includes laser capsulotomy, laser phacofragmentation, and the creation of single-plane or multi-plane arc cuts/incisions in the cornea, each of which may be performed either individually or consecutively during the same procedure.

Laser capsulotomy, laser phacofragmentation and/or corneal incisions surgery is contraindicated in patients:

- who are of normal age and whose eyes are not expected to dilate or remain dilated to a diameter greater than that of the intended treatment and for capsulotomies and/or laser phacofragmentation with intended diameters of less than 4 mm or greater than 7 mm.
- who have existing corneal scars that might provide a potential space into which the gas produced by the procedure can escape.
- who have conditions that would cause inadequate clearance between the intended capsulotomy cut and the corneal endothelium. Examples of such conditions include corneal edema, decompensation of glaucoma, corneal vascularization, corneal melting, or corneal scar.
- who have conditions that could cause corneal stromal edema or the formation of a corneal wound.
- who have conditions that could cause inadequate visual access for the laser, such as: corneal opacities, residual, recurrent, active ocular or uncontrolled eyelid inflammation, punctate epitheliopathy, epithelial basement membrane dystrophy, guttata, recurrent corneal erosion, etc.
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