Intensity
By Hanita Lenses

Vision Redefined
Hanita is a global leader in innovative solutions for cataract surgery.

**Intensity Lens™** employs Dynamic Light Utilization technology for maximal light efficiency that transcends the traditional boundaries of conservative diffractive IOL patterns, bringing unprecedented vivid vision to cataract patients. A revolution in ophthalmic optics, Intensity IOL - as its name suggests - enables intensified vision with far, intermediate and near visual acuity with no compromise at any distance from infinity to 40 cm. Intensity increases quality of life for cataract patients enabling them to perform the full range of day to day activities.
Vision Redefined

Intensity combines four core elements that together revolutionize and redefine vision for cataract patients and their surgeons.

A new generation of presbyopia correcting IOL with maximum light intensity utilization for clear vision throughout the whole range of functional vision. Dynamic Light Utilization Technology (DLU) based on the Gerchberg Saxton algorithm together with Hanita merit function.

Smooth & symmetrical 5 foci distribution and 9 steps in different heights. Zone dependent pupil aperture.
Intensity technology

Accurate Polish-Free Production Process
The Intensity Lens is manufactured using a proprietary lathe process designed to enable maximum accuracy of both the lens profile and its diffractive rings. Through this lathe process, the lens reaches optimal sharpness and is an identical replica of the profile design for maximal contrast sensitivity.

Lens Profile
The lens has a special profile that enables the creation of continuous, uninterrupted vision throughout the entire vision range. The profile is built of smooth shapes with a total of 9 steps with a central ring in 0.5mm radius. Step heights vary along the lens radius with a maximum step height 3.6 microns.

Sharpest Square Edge
Intensity lenses offer the sharpest square edge in the industry – 72% sharper than the sharpest edge available today. It also has additional features that promote PCO reduction including a wide-angle contact with the capsular bag and a 360-degree sharp square edge.

Intensive technology
Pupil Aperture Optimization

The lens profile consists of three zones, each of which is optimized by the Dynamic Light Utilization algorithm. Multiple areas allow for better performance, diverse pupil sizes and all lighting conditions. The special division of zones, derived from the dynamic Light Utilization Algorithm, helps to obtain higher MTF values at far vision for large pupils.

Dynamic Light Utilization (DLU)

Intensity's proprietary iterative algorithm works on a concept of multiple loops between target plane and source plane in order to maximize light intensity utilization. It proposes phase solutions at the source plane in order to get the desired target intensity and results.
Optimal Light Distribution

Intensity is the first lens with a symmetrical foci distribution around the zero order. Based on a unique proprietary design developed using the Dynamic Light Utilization algorithm, the modulated transfer function (MTF) is increased in the area between far-intermediate and inter to near, enabling a continuous defocus curve.

Maximum Light Utilization

The lens profile is highly energy efficient with 40% less energy lost in comparison to competing lenses, significantly decreasing visual disturbances and intensifying vision in patients’ daily life.

Through Focus Response

The through focus response represents MTF values in the vertical axis and the position of diopters in the horizontal axis. MTF information is used to obtain information on the ability of a given IOL to transfer detail from an object to an image in a certain resolution.

Energy Utilization [%]

*5 foci of the lens, far intermediate and near. Far and near intensifiers are 0.9D and +2D.
DLU
Dynamic Light Utilization

Amplitude vs. Diffractive Orders

Approximation to Target Amplitude → Target Amplitude

→ Fourier Transform

Source Amplitude

→ Inverse Fourier Transform

Approximation to Source Amplitude

Phase

Source Plane

Target Plane
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Dynamic Light Utilization

Source Plane

Source Amplitude → Fourier Transform → Approximation to Target Amplitude

Approximation to Source Amplitude ← Inverse Fourier Transform ← Target Amplitude

Target Plane

Phase

Amplitude vs. Diffractive Orders
Lens specification

Intensity optimized GSH algorithm

Optic design |
Posterior surface: Aspheric - Diffractive
Anterior surface: Spherical
Pupil aperture optimized

Diffractive area | 5.2 mm
Refractive index | 1.46
Spherical Aberration | -0.13μ

Material | 25% Hydrophilic Acrylic
Light filtration | Natural Yellow Violet Filter
Optic body | 6 mm
Diameter |
Intensity SL: 13mm
Intensity BN: 11mm D>16 11.5mm D<16
Intensity Toric: 11mm D>16 11.5mm D<16

For clinical research results, please scan the QR code.