## Ocular MaxField® Indirect Diagnostic / Laser Lenses

| CE | Product Code/ Lens Name | Used With | Image Mag. | Approx. Laser Spot Mag Factor | Static Field of View | Dynamic Field of View | Working Distance from Cornea (mm) | Clear Aperture (mm) | Weight (grams) |
|---|---|---|---|---|---|---|---|---|---|
|  | **OI-14M** MaxField® 14D | BIO | 4.17x | 0.24x | 38° | na | 72 | 52.0 | 57 |
|  | **OI-18M** MaxField® 18D | BIO | 3.40x | 0.29x | 44° | na | 55 | 48.0 | 58 |
|  | **OI-20M** MaxField® 20D | BIO | 2.97x | 0.34x | 50° | na | 47 | 48.0 | 56 |
|  | **OI-20MS** MaxField® 20D Small | BIO | 2.97x | 0.34x | 40° | na | 47 | 38.0 | 34 |
|  | **OI-22M** MaxField® 22D | BIO | 2.73X | 0.37X | 60° | na | 39 | 52.0 | 73 |
|  | **OI-25M** MaxField® 25D | BIO | 2.40x | 0.42x | 63° | na | 33 | 48.0 | 59 |
|  | **OI-28M** MaxField® 28D | BIO | 2.11x | 0.47x | 58° | na | 27 | 38.0 | 39 |
|  | **OI-30M** MaxField® 30D | BIO | 1.97x | 0.51x | 63° | na | 26 | 38.0 | 38 |
|  | **OI-35M** MaxField® 35D | BIO | 1.71x | 0.58x | 74° | na | 17 | 34.0 | 32 |
|  | **OI-40M** MaxField® 40D | BIO | 1.49x | 0.67x | 82° | na | 14 | 34.0 | 32 |
|  | **OI-54M** MaxField® 54D | Slit Lamp | 1.10x | 0.90x | 86° | 137° | 10 | 29.0 | 25 |
|  | **OI-60M** MaxField® 60D | Slit Lamp | 1.00x | 1.00x | 85° | 154° | 10 | 29.0 | 32 |
|  | **OI-66M** MaxField® 66D | Slit Lamp | 0.91x | 1.10x | 91° | 144° | 8 | 27.0 | 25 |
|  | **OI-72M** MaxField® 72D | Slit Lamp | 0.83x | 1.20x | 102° | 155° | 7 | 27.0 | 21 |
|  | **OI-78M** Osher MaxField® 78D (Formerly Osher Panfundus) | Slit Lamp & Surgical Microscope | 0.77x | 1.30x | 98° | 155° | 7 | 27.0 | 21 |
|  | **OI-HM-78M** MaxField® High Mag. 78D | Slit Lamp | 0.98x | 1.02x | 88° | 154° | 10 | 29.0 | 32 |
|  | **OI-84M** MaxField® 84D | Slit Lamp | 0.71x | 1.40x | 105° | 158° | 5 | 27.0 | 28 |
|  | **OI-STDM** MaxField® Standard 90 | Slit Lamp | 0.75x | 1.34x | 94° | 153° | 5 | 19.0 | 9 |

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|---|---|---|---|---|---|---|---|---|---|
|  | **OI-STDM-LR** MaxField® Standard 90 with Large Ring | Slit Lamp | 0.75x | 1.34x | 94° | 153° | 5 | 19.0 | 18 |
|  | **OI-100M** MaxField® 100D | Slit Lamp | 0.60x | 1.67x | 110° | 146° | 4 | 21.0 | 18 |
|  | **OI-120M** MaxField® 120D | Slit Lamp | 0.50x | 2.00x | 120° | 173° | 4 | 21.0 | 19 |
| Lens Coating | The Laserlight® HD, high efficiency, broad band, anti-reflective coating provides optimal image contrast, minimizes bothersome reflections, and maximizes visible and diode laser transmission. | | | | | | | | |

## Design

- § MaxField BIO Lenses are made of high transmittance glass for bright, clear images.
- § MaxField 14D, 18D, 20D, 22D and 28D lenses feature computer optimized aspheric designs for maximum resolution and field of view.
- § MaxField Slit Lamp Lenses are made of high refractive index glass and precision double aspheric designs that yield an extremely wide field & sharp image.
- § MaxField Slit Lamp Lenses range from 54D for detailed examination of the macula and optic disc to 120D for a quick clear view of a wide retinal area.
- § Lenses also available in colored mounts. Contact Ocular Instruments for further information.

## Technique

- § Commonly known indirect ophthalmoscopy techniques using either the slit lamp or binocular indirect ophthalmoscope should be used.
- § The tapered end of the lens (silver end of the 14D, 18D, 20D, 22D, 28D, 30D, 35D, 40D and Standard 90) should be held toward the patient's eye during examination. It is important to recognize that this unidirectional design provides the best image quality possible.
- § Keep the lens centered on the patient's pupil.
- § Hold the lens far enough from the patient's eye so that the retinal image is the same diameter as the lens.
- § Keep the illumination source as dim as possible to minimize reflections and loss of image contrast.
- § Use the *Ocular Lens Cleaning Cloth* (OLCC) to keep lens clean and minimize glare from the lens surface.

## ***Surgical Technique - Osher MaxField 78 Diopter*** *(Formerly called Osher Panfundus, OOSPF)*

- § A non-contact Surgical Panfundus Lens designed to allow the surgeon to quickly view the retina through the surgical operation microscope with minimal refocusing.
- § Its wide field of view facilitates the diagnosis of an intraoperative choroidal hemorrhage of an effusion.
- § It is also helpful in identifying lens fragments, a dislocated intraocular lens, or the site of a perforated globe.
- § Offers an exceptionally wide field of view for a non-contact lens and has superb resolution for evaluation purposes.
- § Some retinal surgeons use the Osher MaxField lens to check the retina after band/buckle surgery, thus eliminating the need to use the more cumbersome indirect ophthalmoscope.
- § Under the surgical microscope, position the lens approximately 7mm above the patient's cornea.
- § Elevate the surgical microscope between one and two inches (2.5 to 5 centimeters) until the patient's retina becomes clearly focused.

## Cleaning & Disinfection

See Cleaning Method 2

Ocular® Instruments

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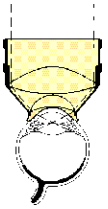
# Ocular Mainster PRP 165 Laser Lens


| Product Code CE | Static FOV | Dynamic FOV | Image Mag | Laser Spot Mag | Contact Diam | Lens Height | *Designed with: Martin A. Mainster, Ph.D., M.D. Kansas City, KS* |
|---|---|---|---|---|---|---|---|
| **OMRA-PRP-165** | 165° | 180° | .51x | 1.96x | 17.5mm | 28.0mm | |
| ***OMRA-PRP-165-2** | 165° | 180° | .51x | 1.96x | 16.5mm | 27.5mm | |



## Lens Design

- § The Mainster PRP 165 Laser Lens has an unequaled 165° static field of view, which is the widest available.
- § Its ultrasharp aspheric optics provide exquisite fundus detail and distortion free laser beam transmission.
- § Its LASERLIGHT® HD anti-reflective coatings are optimized for argon, dye, krypton and diode photocoagulators.
- § Has a SECUREFIT® flange for easy lens manipulation to treat the far periphery.
- § Access the retinal periphery with unparalleled ease to treat proliferative diabetic retinopathy, neovascular retinal vein occlusions or retinal breaks.
- § It is an excellent lens to view and treat through small pupils and opaque media.

*No methylcellulose is required during routine eye examinations on the OMRA-PRP-165-2 style.

## Technique

- § Mainster-series lenses are optimized for the most common retinal applications. As with any new device, there is a brief learning period before lens use becomes instinctive. The following approach works well in most situations:
  - § Keep the slit lamp arm in the central position so that illumination, observation and the laser beam (when used) are lined up parallel to each other.
  - § Start with low slit lamp magnification.
  - § Apply gonioscopic solution to the contact lens element and place it on the patient's cornea.
  - § Move the slit lamp forward until a red reflex, and then a retinal image, comes into view.
  - § Optimize the image by tilting the lens on the patient's cornea (up, down, left, right).
  - § Avoid the natural tendency to let the front surface of the lens drop down.
  - § Once the retinal image is seen clearly, increase slit lamp magnification to obtain the desired magnification for your retinal application.
  - § Keep illumination as dim as possible and the slit lamp beam as narrow and short as possible to decrease back-scattered slit lamp light that can decrease image contrast and the quality of your retinal view.

## Caution

**English:** To avoid excessive energy to the crystalline lens, laser spot settings of greater than 275 microns are not recommended. **Bulgarian:** За да избегнете излишно подаване на енергия към лещата, не се препоръчва настройване на лазерния лъч на повече от 275 микрона. **Czech:** Aby se zabránilo nadměrnému působení energie na krystalické čočky, nastavení velikosti laserové stopy vetší než 275 mikronů se nedoporučuje. **Danish:** Overdreven energi på krystallinserne bør undgås og derfor er det ikke anbefalelsesværdigt at benytte laserprikindstillinger, der er større end 275 mikron. **Dutch:** Om te veel energie op de kristallens te voorkomen, worden laserspotinstellingen groter dan 275 microns niet aanbevolen. **French:** Pour éviter toute énergie excessive sur le cristallin, les paramètres du point laser supérieurs à 275 microns sont déconseillés. **German:** Um übermäßige Energieeinwirkung auf die Linse zu vermeiden, wird von Laserspoteinstellungen von mehr als 275 Mikrometer abgeraten. **Greek:** Για να αποφευχθεί η υπερβολική ενέργεια στον κρυστάλλινο φακό, οι ρυθμίσεις για σημείο λέιζερ μεγαλύτερο των 275 micron δεν συνιστώνται. **Hungarian:** A kristálylencsét érő túlzott energia-behatás kivédése érdekében nem javasolt 275 mikrométer feletti lézerfolt beállítás használata. **Italian:** Per evitare di applicare un'energia eccessiva alla lente cristallina, sono sconsigliate impostazioni dello spot laser superiori a 275 micron. **Latvian:** Lai izvairītos no pārmērīgas enerģijas pievadīšanas acs lēcai, nav ieteicami lielāki lāzera stara laukuma izmēri par 275 mikroniem. **Lithuanian:** Energijos pertekliui į kristalinius lęšius išvengti, nerekomenduojami daugiau nei 275 mikronų lazeriniai įtvarai. **Polish:** Aby uniknąć oddziaływania zbyt wysokiej energii na soczewki, zaleca się, aby nie stosować ustawień wiązki laserowej powyżej 275 mikronów. **Slovak:** Odporúča sa používať nastavenie veľkosti laserového lúča väčšie ako 275 mikrometrov. Predíde sa nadmernému pôsobeniu energie na kryštalickú šošovku. **Spanish:** Para evitar un exceso de energía al cristalino, no se recomiendan posiciones del spot láser mayores que 275 micrones. **Swedish:** Undvik hög energi på kristallinser med laserpunktinställningar över 275 mikron, som inte rekommenderas. **Romanian:** Pentru a evita energia în excess asupra lentilei cristaline, nu sunt recomandate reglaje ale spotului laser mai mari de 275 de microni. **Portuguese:** Para evitar um excesso de energia para a lente cristalina, não se recomendam definições do ponto laser superiores a 275 mícrones.

## RETINA LENS COMPARISON CHART

| Lens | | PRP 165 | Wide Field | PDT 1.6X | ProRetina 120 PB[3] | Reichel-Mainster 1X | Reichel-Mainster 2X | (Standard) Focal/ Grid[4] | High Mag |
|---|---|---|---|---|---|---|---|---|---|
| **Static Field of View** | | 165° | 118° | 120° | 120° | 102° | 117° | 90° | 75° |
| **Dynamic Field of View** | | 180° | 127° | 133° | 136° | 133° | 142° | 121° | 88° |
| **Image Magnification** | | .51x | .68x | .63x | .50x | .95x | .50x | .96x | 1.25x |
| **Laser Spot Magnification Factor**[2] | | 1.96X | 1.50X | 1.60X | 2.00X | 1.05X | 2.00X | 1.05X | .80X |
| **Retinal Disorder**[1] | **Procedure** | +++ Optimal ++ Very useful + Useful - Not useful | | | | | | | |
| NVD, NVE or NVI | PRP, Clear Media | +++ | ++ | ++ | ++ | ++ | ++ | + | - |
| NVD, NVE or NVI | PRP, Vitreous Hemorrhage | ++ | +++ | +++ | +++ | ++ | +++ | + | - |
| Macular Edema | Focal + Grid | + | + | + | + | +++ | ++ | +++ | ++ |
| CNV in ARMD or OHS | Focal | - | - | - | - | +++ | - | +++ | +++ |
| | PDT, TTT | + | +++ | +++ | + | +++ | +++ | +++ | +++ |
| Retinal Holes | Peripheral | +++ | + | + | + | + | + | - | - |

[1] NVD, NVE, NVI: neovascularization - disc, retinal elsewhere, iris; CNV: choroidal neovascularization; ARMD: age-related macular degeneration; OHS: ocular histoplasmosis syndrome

[2] Multiply the laser photocoagulator spot size setting by this magnification factor to calculate the retinal spot size produced by each lens. Note that "x" and "X" are used for image magnification and laser spot magnification, respectively.

[3] The ProRetina's tubular design facilitates examination and treatment of patients with prominent brows. It also allows easy lens manipulation for examination and treatment of the retinal periphery.

[4] Focal/Grid is the new name for the Mainster Standard.

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See Cleaning Method 1

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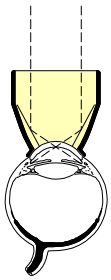
# Ocular Four Mirror Mini Gonio Lenses

| CE | Product Code | Gonio Mag | Static Spot Mag | Contact OD | Lens Height | Ring OD | Static Gonio FOV | | |
|---|---|---|---|---|---|---|---|---|---|
|  | **ARGON/DIODE LASER** | | | | | | | *Journal Reference: Optometric Management, Vol. 35, No. 6, June 2000* |  |
| | **O4GFA** | .80x | 1.25x | 15mm | 23.5mm | 23.5mm | 120° | | |
| | **O4GFA-LR** | .80x | 1.25x | 15mm | 27mm | 32.5mm | 120° | | |
| | **DIAGNOSTIC** | | | | | | | | |
| | **O4GF** | .80x | na | 15mm | 22.5mm | 23.5mm | 120° | | |
| | **O4GF-LR** | .80x | na | 15mm | 26mm | 32.5mm | 120° | | |

## Lens Design

- § For anterior chamber observation and photocoagulation procedures.
- § The Four Mirror Mini Gonio Lens was developed in conjunction with Asian doctors to increase the ease of use and examination of Asian eyes and small palpebral fissures.
- § The small diameter endpoint allows the lens to be tilted slightly in either direction for optimum viewing and makes it ideal for use on children or adults with small palpebral fissures.
- § Its four mirrors are inclined at 62° and are positioned 90° apart to allow complete observation of angle with little rotation.
- § Field of View through central window = 33°
- § A broadband anti-reflective coating is bonded to the O4GFA and O4GFA-LR lenses to minimize reflections and maximize light transmission during Argon/Diode Laser Treatment.
- § Available with a standard or large holding ring.

## Technique

- § After the lens is placed on the anesthetized eye, indirect observation is used.
  - § With the mirror placed at 12:00 using a narrow slit beam at approximately 10°, a section of the angle can be observed at the 6:00 area.
  - § To observe the 3:00 and 9:00 areas, the slit lamp should be rotated in a horizontal position.
- § Four mirrors allow the lens to only need a slight rotation to view the entire anterior chamber angle.
- § The mirrors may be set at either of two positions (the square position or the diamond position).
  - § The latter position, with the mirrors at 1:30, 4:30, 7:30 and 10:30 meridians, permits the slit lamp beam to be readily used in all four quadrants of the angle.
- § Examination of a narrow angle can be facilitated in two ways.
  - § The lens can be shifted or rocked slightly on the corneal surface in any direction for a millimeter or so.
  - § This often brings a hidden angle recess or structure into view.
  - § This can be further aided by shifting the position of the fixation light in the required direction.

| | |
|---|---|
| **Caution** | When using the lens for photocoagulation, use extreme care to keep the laser away from the edges. If the beam strikes the area around the mirror, it may be absorbed and burn the area. Mirrors damaged in this manner cannot be repaired. |

## Cleaning & Disinfection

See Cleaning Method 1

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