

**NAVILAS**®

# Navigated Laser Therapy ●

A New Era in Retinal Disease Management



# Bringing Navigation to Retina Treatment

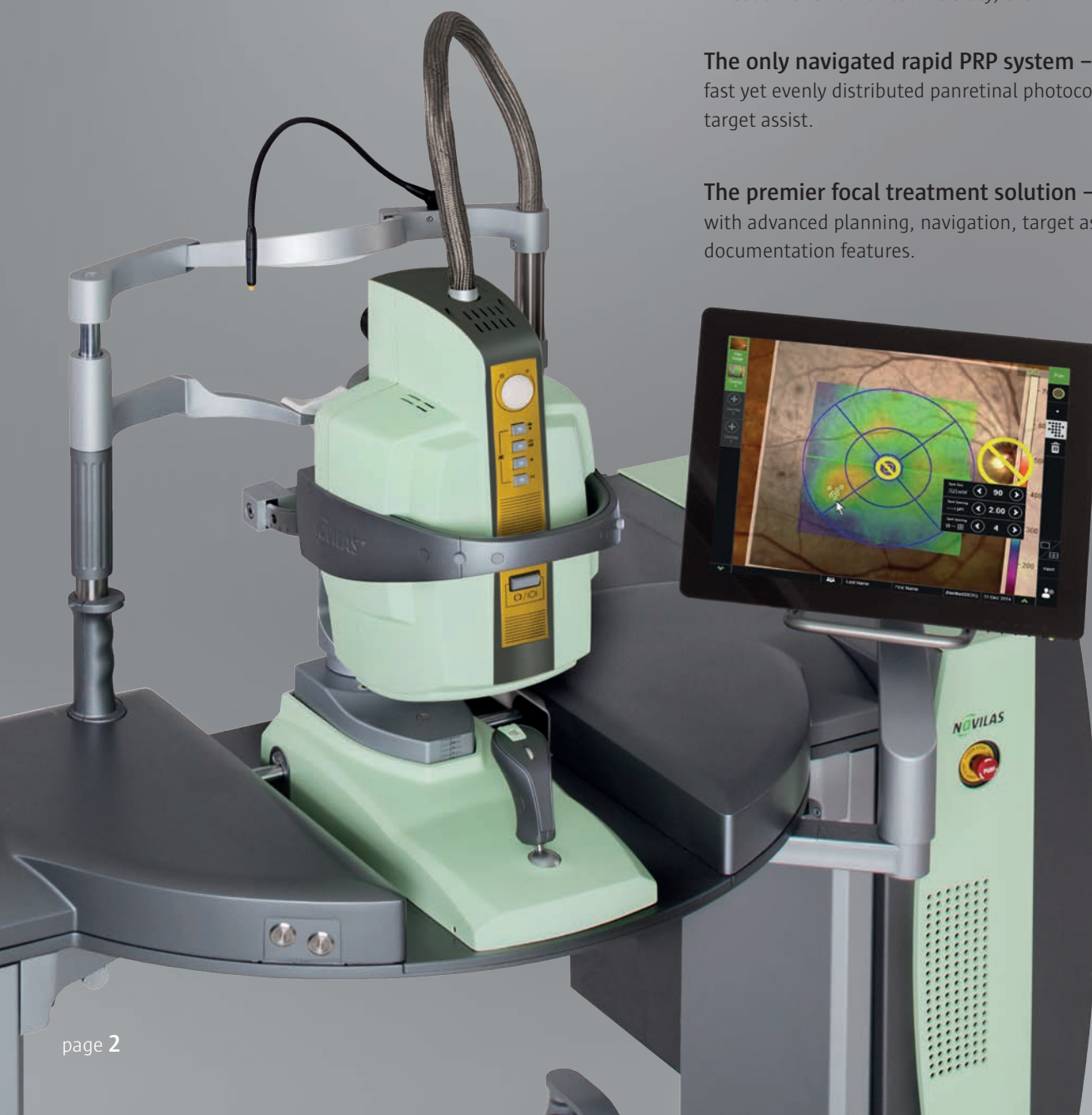
## Navilas® Laser System

To unleash the full potential of Retina Navigation, the Navilas® Laser System (Navilas®) contains three essential systems:

**A powerful fundus camera –** including fluorescein angiography, infrared & true-color imaging in real-time for enhanced visibility, even during treatment.

**The only navigated rapid PRP system –** fast yet evenly distributed panretinal photocoagulation with target assist.

**The premier focal treatment solution –** with advanced planning, navigation, target assist and documentation features.



Navilas® 577



The Navilas® Laser System was designed to address the imprecision of existing technology and to optimize the stability of retinal disease treatment:

**Better technology**

making the leap from analog to digital to enter a new era in retinal disease management.

**Better accuracy supported**

by navigation and target assist engineered to help physicians achieve their pre-defined treatment goals.

**Faster treatment phase**

through pre-planning and navigated, target-assisted single spots and patterns.

**Digital documentation**

of both visible and subvisible laser application for control and standardization of therapy.

## Retina Navigation with your preferred laser modality

### Navilas® 532 Green laser, the mainstay of photocoagulation

Navilas® 532 features the traditional green laser physicians have used as the standard in photocoagulation for decades. The precision of Retina Navigation allows you to apply the green laser exactly where you have planned for the effect that you need.

### Navilas® 577 The rising star for in-depth precision

Navilas® 577 has been designed to further extend the precision of navigated laser into the depth of retinal tissue with the yellow 577 nm wavelength.

### Navilas® Navigated Microsecond Pulsing Option

Minimize tissue damage even further with subvisible microsecond pulsed laser application.

Know where and what you have treated in real-time:

- OCT-guided planning and treatment
- Evenly spaced confluent freeform grids
- Digital spot documentation while you treat

# Retina Navigation

Pioneering Retina Navigation, Navilas® integrates the steps: Image > Plan > Treat > Document and allows a pre-planned, target-assisted and digitally documented treatment to be performed by the retina specialist.

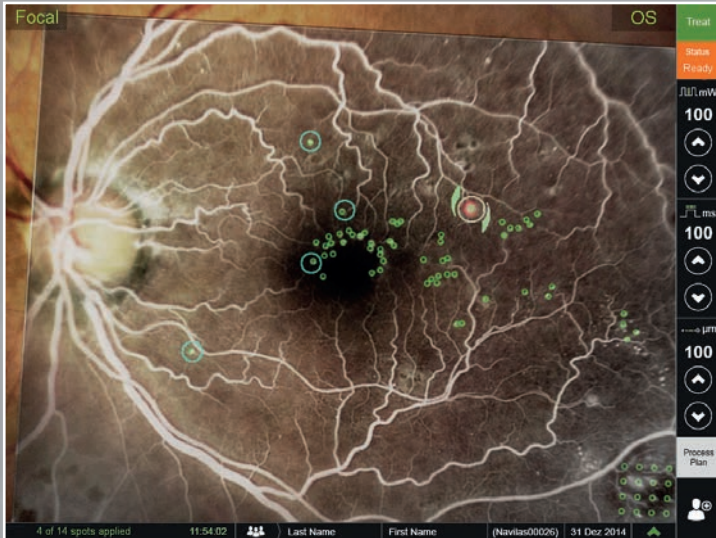
1. Real-time high definition imaging of posterior pole and periphery.

2. Digital planning with image integration and analysis.

3. Plan overlay and target assist for reproducible treatment accuracy.

4. Spot-by-spot digital documentation for outcome analysis and standardization of therapy.





Get an impression of navigated focal laser on our video page: [www.od-os.com/focal](http://www.od-os.com/focal)



## Focal

To spare precious retinal tissue and provide the best possible outcome, focal laser photocoagulation requires experience, careful planning and accuracy. Retina Navigation revolutionizes this process by providing you with digital planning features, live overlay of the plan and target assist during treatment.

Find out more about Retina Navigation in the posterior pole and the streamlined workflow on the following pages.



See how 150 spots can be applied in 10 sec on our PRP video page: [www.od-os.com/prp](http://www.od-os.com/prp)



## Panretinal

In extensive panretinal laser photocoagulation (PRP), treatment speed becomes a key factor for physician and patient comfort. Navilas® revolutionizes PRP with unique Retina Navigation features: adjustable patterns placed at the touch of a finger on a high definition, wide-field image, target-assisted aiming beam, and patterns rapidly applied with pulses down to 10 ms.

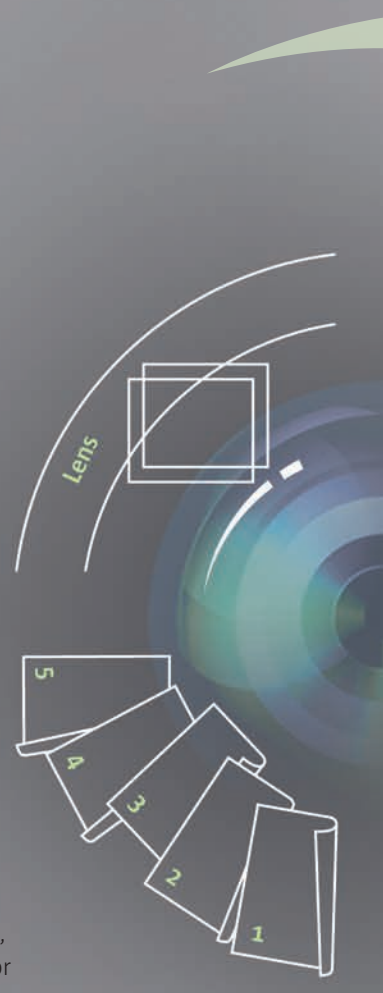
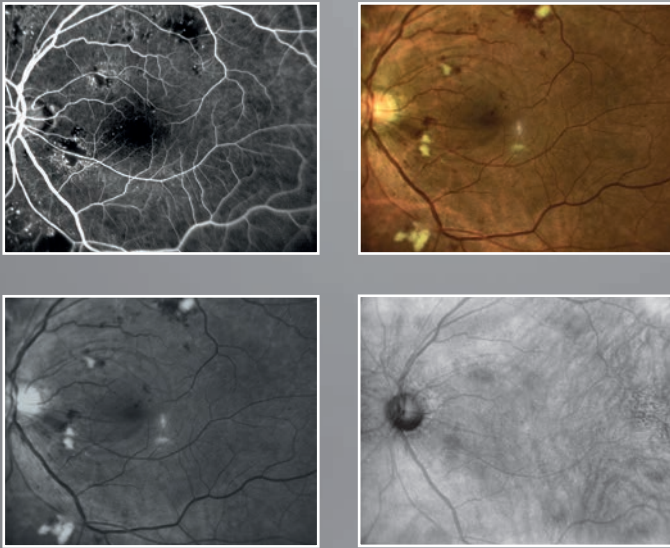
Read about the benefits of Navilas® PRP on pages 10 and 11.

# Focal Laser Treatment

Retina Navigation gives the retina specialist ultimate control. Transform retinal disease management by visualizing the treatment from beginning to end. Use the transparent workflow for discussion with colleagues and effective teaching.

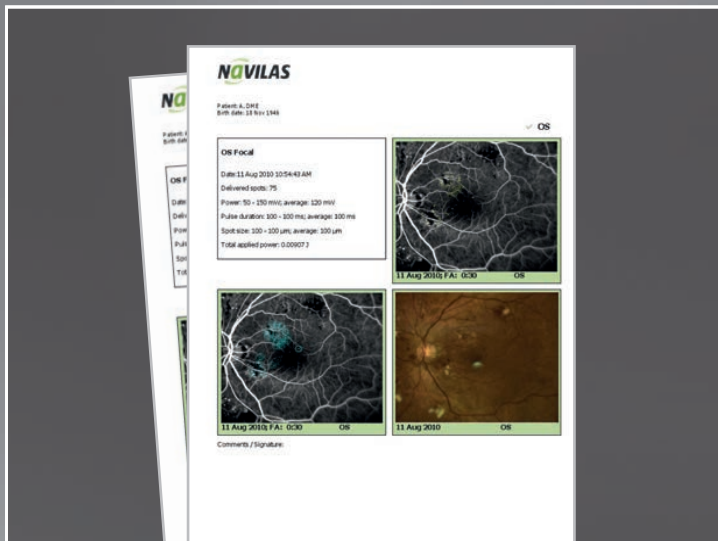
## 1. Image

Upon startup simply press the joystick button to obtain a high-resolution true-color image for laser planning. Use the in-built fluorescein angiography or import external images such as OCT maps to add relevant diagnostic information.



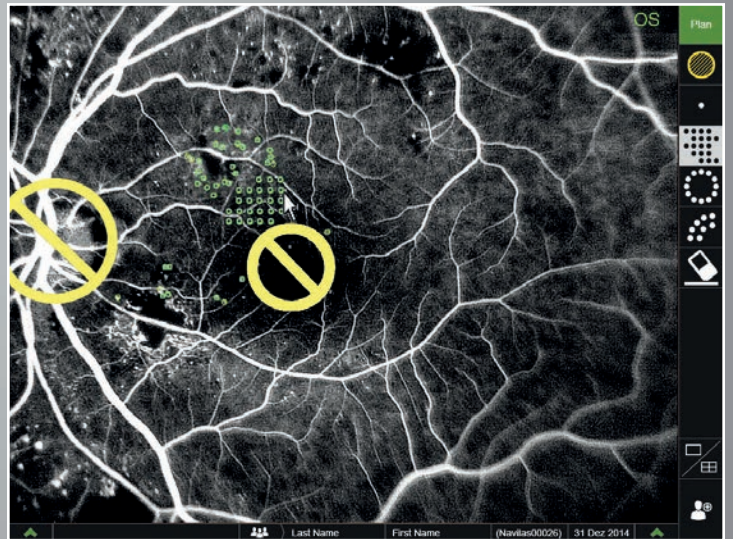
## 4. Document

After treatment, an automatically generated report containing the relevant parameters, treatment plan, and post-treatment image is ready for printout. Use this report for follow-up, decision-making, patient information, and teaching - with or without further customization.



## 2. Plan

While the patient sits back, designate areas for subsequent treatment. Use single spots for leaking microaneurisms, paint freeform grids on edematous areas and highlight the optical disc and fovea as caution zones. Simply press the joystick button again to initiate treatment.



## 3. Treat

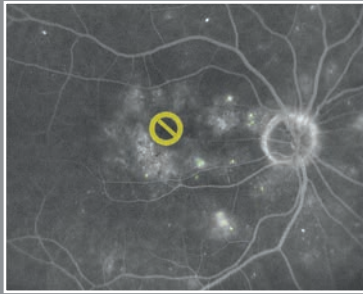
The pre-defined treatment plan is automatically overlaid onto the real-time infrared or color image. Navilas® helps you position the aiming beam sequentially at treatment locations for subsequent laser application. When using the patient-friendly infrared illumination, color images are readily acquired and displayed on-screen for effect evaluation.



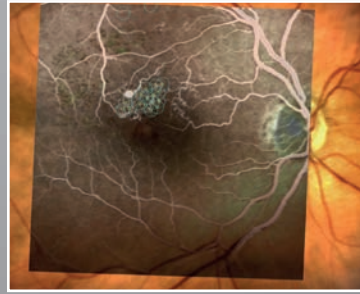
# Advanced Treatment Planning

Plan the treatment directly on Navilas® color fundus and fluorescein angiography (FA) images or use Navilas® unique digital planning options to integrate external images, such as FA, ICG angiography and OCT thickness maps.

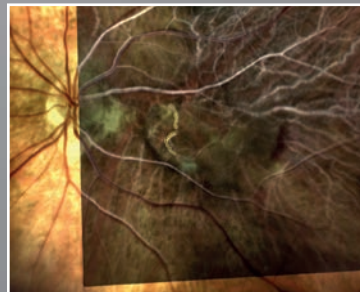
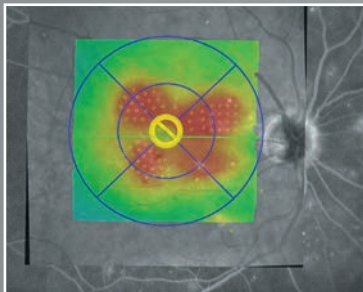
## Multimodal Planning



**Example OCT on FA**  
Perfectly pinpoint microaneurysms on Navilas® fluorescein angiography (FA). Alternatively, use Navilas® color fundus as a base image. Overlay external OCT and target areas of high retinal thickness.

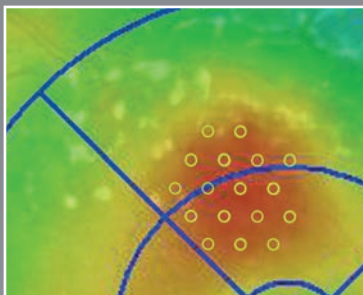


**Example FA on color**  
Overlay external FA on Navilas® color fundus image and plan on both images simultaneously.

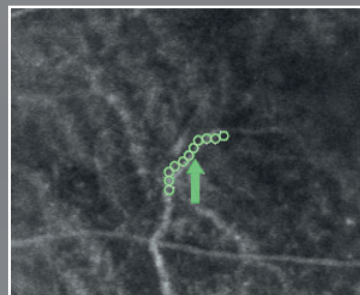


**Example ICGA on color**  
Use external ICG angiography to target feeder vessels of subfoveal CNV secondary to AMD.

## Advanced Planning Tools



**Freeform grid**  
Grids with equidistant spacing can now literally be painted onto the fundus image and further shaped using the eraser tool. Confluent and overlapping grids are available for subvisible/microsecond pulsed laser applications.

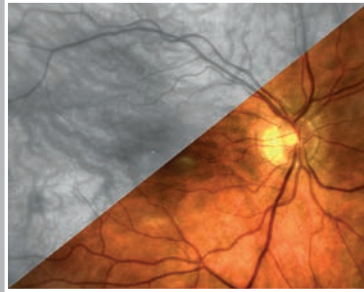


**Freeform directional line**  
Freeform line patterns were specifically designed to facilitate directional, sequential laser application, for example, in targeting feeder vessels.



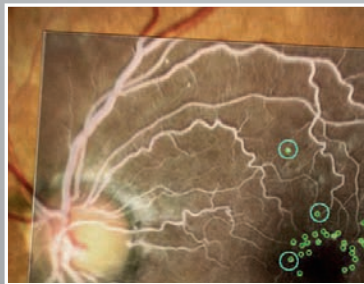
# Assisted Treatment

The Navilas® Laser System offers unique integrated functions developed to promote rapid yet complete execution of the pre-planned, target-assisted treatment. The retinal surgeon may now fully visualize and design the optimal treatment, and then execute to precision the first time.



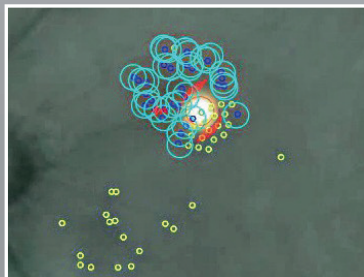
## Live color and infrared imaging

Unlike the slit lamp based photocoagulator, Navilas® focal optics give you a 50° view of the retina at all times. Treat with no glare from bright light and evaluate burn intensity with color snapshots. Toggle to live color imaging at your convenience.



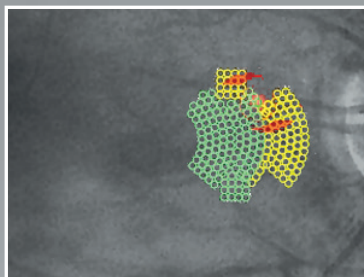
## Plan overlay

Throughout the treatment session the plan spots are visualized on top of the live image, with the option to overlay the original plan image at any time.



## Navigation & target assist

The Navigation and target assist features of the Navilas® helps you position the aiming beam sequentially at treatment locations for subsequent laser application.



## Complete spot documentation

Navilas® enables you to know exactly where you have treated and allows you to perform a systematic and standardizable microsecond pulsed laser treatment.

# Panretinal Photocoagulation

Navilas® brings Retina Navigation to panretinal laser photocoagulation. Benefit from unprecedented wide-field visualization, target assist and spot-by-spot documentation for a fast and comfortable PRP session.

## Fast, reproducible and uniform laser delivery

Navilas® PRP optics were specifically designed for delivering uniform circular spots to all quadrants including the far periphery with no need to constantly re-adjust laser energy. Customizable, precisely spaced patterns reduce a complete PRP session to a few minutes. Digital spot documentation alleviates the need for visible burn markers altogether.



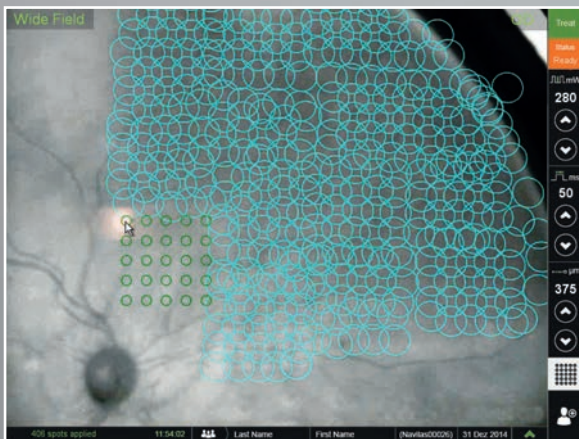
## Getting started with navigated PRP

Begin your navigated PRP treatment session immediately after patient and device positioning. Dedicated navigated PRP software functions assist you in delivering a rapid and effective panretinal treatment.



### Navigated patterns for speed and accuracy

Place patterns on the live retina using the touchscreen, trackball or mouse. Navilas® target assist, designed to detect inadvertent eye movements prior to laser application, allows you to apply evenly-spaced patterns with pulse durations exceeding 100 ms. Alternatively, for the fastest possible treatment, apply patterns with pulses down to 10 ms.



### Improved comfort and confidence

Navilas® is the only PRP laser which provides infrared illumination for improved patient comfort and compliance. Navilas® documents spots and patterns to ensure a complete treatment without overtreating. Pattern placement assists in skipping previously treated areas.



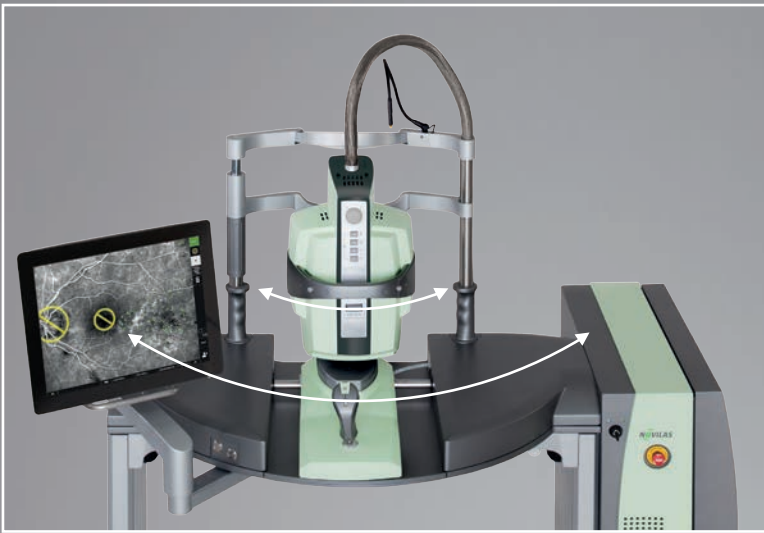
**“Using Navilas® we are able to deliver a much faster PRP treatment and our patients report a considerable reduction in overall treatment pain. It clearly helps patients lose their fear of laser treatment.”**

PD Dr. Marcus Kernt, LMU Munich, Germany

# Navilas® Laser System

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Flexible adjustment of touchscreen and device head for patient alignment, comfort and maximum field-of-view (110° dynamic).



Touchscreen for device operation, placement of plan spots and direction of aiming beam.

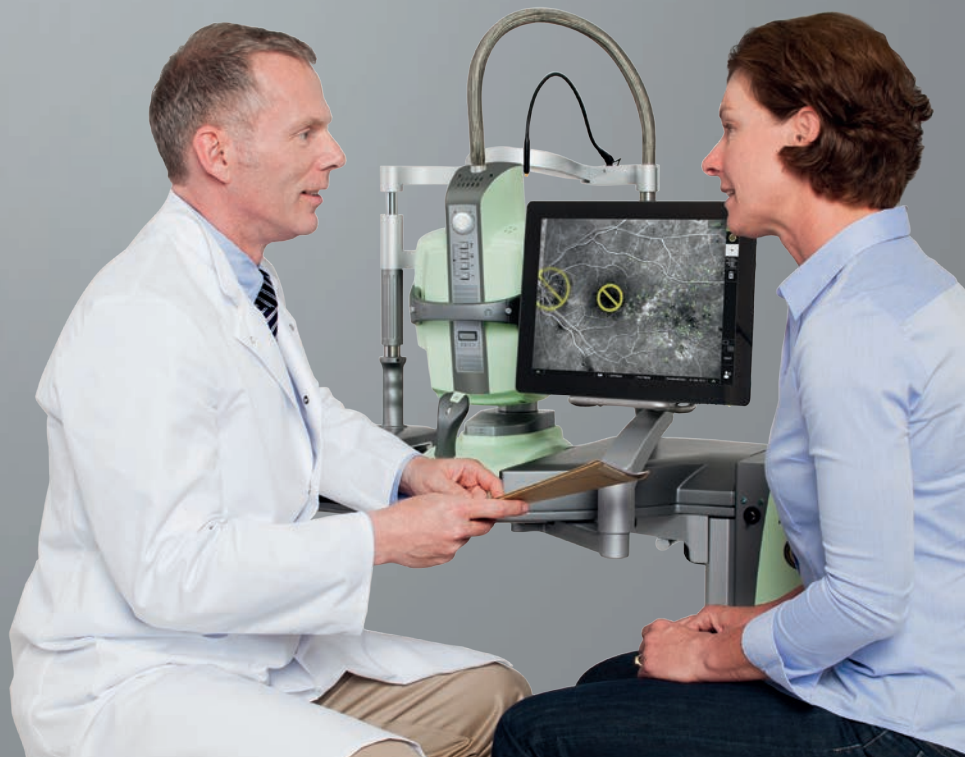
## Innovative design with patient and doctor in mind

The ergonomics of the Navilas® Laser System greatly contribute to the comfort of Navigated Laser Therapy – for the benefit of doctors and patients alike. The entire therapy session can be planned, viewed and administered on the touch-sensitive screen with the help of the multi-functional joystick and dedicated control elements.

Full transparency for effective doctor-patient communication.



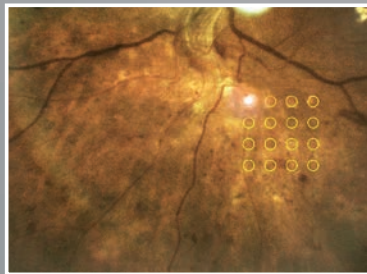
Fundus camera control elements and multi-functional joystick.



# Revolutionize Retinal Disease Management

The Navilas® treatment spectrum covers the entire range from rapid pattern application in the periphery to multimodal planning and navigated focal laser treatment. Retina Navigation therefore provides a revolutionary platform that can readily be adapted to the physician's needs.

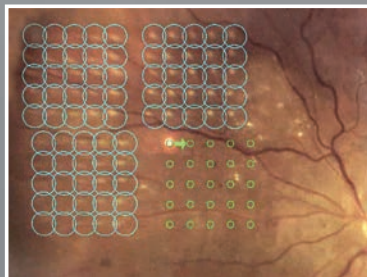
Conventional slit lamp laser



Navilas® conventional-mode laser

- + Wide field-of-view
- + Single spots
- + Patterns

Applications:  
Panretinal laser  
Grid laser  
Adding spots to planned focal laser.



Navilas® target-assisted laser

- + Target-assisted single spots
- + Target-assisted patterns
- + Spot-by-spot documentation

Applications:  
Focal laser  
Grid laser  
The most accurate option for focal treatments.



Navilas® planned navigated laser

- + Digital planning
- + Plan overlay
- + Spot-by-spot navigation

# Navilas® Laser System – Technical Specifications

Indications for use	<p>The Navilas® Laser System, Navilas® Laser System 532+, and Navilas® Laser System 577+ are indicated for use:</p> <ul style="list-style-type: none"> <li>• In Retinal Photocoagulation for the treatment of Clinically Significant Diabetic Macular Edema (Focal or Grid Laser), Proliferative Diabetic Retinopathy (Panretinal Photocoagulation), Sub-retinal (Choroidal) Neovascularization (Focal Laser), Central and Branch Retinal Vein Occlusion (Scatter Laser Photocoagulation, Focal or Grid Laser), Lattice Degeneration, Retinal Tears and Detachments (Laser Retinopexy).</li> <li>• For the imaging (capture, display, storage and manipulation) of the retina of the eye, including via color, fluorescein angiography and infrared imaging; and for aiding in the diagnosis and treatment of ocular pathology in the posterior segment of the eye.</li> </ul>
Controls	<ul style="list-style-type: none"> <li>• Touchscreen interface 15", wireless mouse and keyboard</li> <li>• Multi-functional joystick, with top and front buttons, focus wheel and trackball</li> <li>• PC-based digital processing unit and software for imaging, planning and image-guided treatments including specialized image-overlay algorithms</li> </ul>
Imaging technology	<ul style="list-style-type: none"> <li>• Custom-designed camera for real-time digital fundus imaging</li> <li>• Multi-color high-power LED illumination</li> <li>• Scanning technology with patented reflex-suppression method</li> </ul>
Imaging modes	<ul style="list-style-type: none"> <li>• True-color (including non-myd snap)</li> <li>• Infrared (treatment default)</li> <li>• Fluorescein angiography (posterior pole)</li> </ul>
Focal optics	<ul style="list-style-type: none"> <li>• Field-of-view: 50°/30°/10° static, 110° dynamic</li> <li>• Focal adjustment: +/- 15 Dpt</li> </ul>
Peripheral optics	<ul style="list-style-type: none"> <li>• Proprietary optical design including custom no-tilt contact lens</li> <li>• Field-of-view: TE-lens equivalent</li> </ul>
Laser type	<ul style="list-style-type: none"> <li>• Photocoagulation laser: 532 nm or 577 nm; Diode-pumped solid state frequency-doubled Nd:YVO or optically pumped semiconductor (OPSL); Class IV</li> <li>• Aiming beam: 635 nm diode laser (Class II, &lt;1 mW adjustable)</li> </ul>
Laser integration	<ul style="list-style-type: none"> <li>• Computer-guided X-Y scanning system for assisted pre-positioning</li> <li>• Coupling via fiber-optic cable and dichroic mirror</li> </ul>
Laser parameter range	<ul style="list-style-type: none"> <li>• 50-500 µm focal spot size / 75-750 µm peripheral spot size</li> <li>• 50-2000 mW laser power</li> <li>• 10-4000 ms pulse duration; with microsecond pulsing option: 50-500 µs pulse duration (duty cycle: 5 %, 10 %, 15 %, variable)</li> </ul>
Navigated treatments	<ul style="list-style-type: none"> <li>• Pre-planned, individually navigated laser spots and grid patterns</li> </ul>
Pattern generation	<ul style="list-style-type: none"> <li>• Fully navigated patterns with individual spot positioning</li> <li>• Navigated fast patterns</li> <li>• Conventional mode fast patterns</li> </ul>
Network access	<ul style="list-style-type: none"> <li>• RJ45 ethernet connector, sharing of images/data/treatment plans, network printing, remote service</li> </ul>
Footprint (LxDxH)	<ul style="list-style-type: none"> <li>• 1260 mm x 830 mm x 1270-2300 mm (floor to headrest) / 50" x 33" x 50"-91"</li> </ul>
Electrical requirements	<ul style="list-style-type: none"> <li>• 100–120 VAC, 50/60 Hz, single-phase, max. 10 A</li> <li>• 220–240 VAC, 50/60 Hz, single-phase, max. 5 A</li> </ul>
Conformity	<ul style="list-style-type: none"> <li>• CE conformity in accordance with the Medical Device Directive 93/42/EEC and US FDA 510(k) clearance</li> </ul>
Manufacturer	<ul style="list-style-type: none"> <li>• OD-OS GmbH, Teltow, Germany</li> </ul>

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## ● Discover Navilas®

The platform of the future for managing retinal disease today.



Join us for a hands-on demonstration of the Navilas® Laser System:  
[www.od-os.com/events](http://www.od-os.com/events)



Visit our website for further information:  
[www.od-os.com](http://www.od-os.com)

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