From Eye to Insight

Leica
MICROSYSTEMS

ARveo 8x

Hybrid Surgical Microscope

ADVANCING
YOUR SURGICAL EXPERIENCE

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The ARveo 8x hybrid surgical microscope is designed to provide you with our best optical visualization for neurosurgery, spine, and plastic reconstructive surgery. Enhanced with digital capabilities and our latest 3D visualization technology, ARveo 8x empowers you to perform surgery precisely, thanks to the freedom and flexibility of the hybrid system.

Experience optical excellence, maximized comfort and efficiency during surgical procedures and teaching.

EXPERIENCE
OUR BEST OPTICAL VISUALIZATION

Leica: a pioneer in optics and imaging solutions

Our company history and passion for delivering the best optics span more than 175 years. Experience how we united our optical excellence with the latest digital visualization capabilities in the ARveo 8x hybrid surgical microscope.

Magnification multiplier for 40% boost

Fine focus for rear assistant

Get the optimal view that adapts to your needs

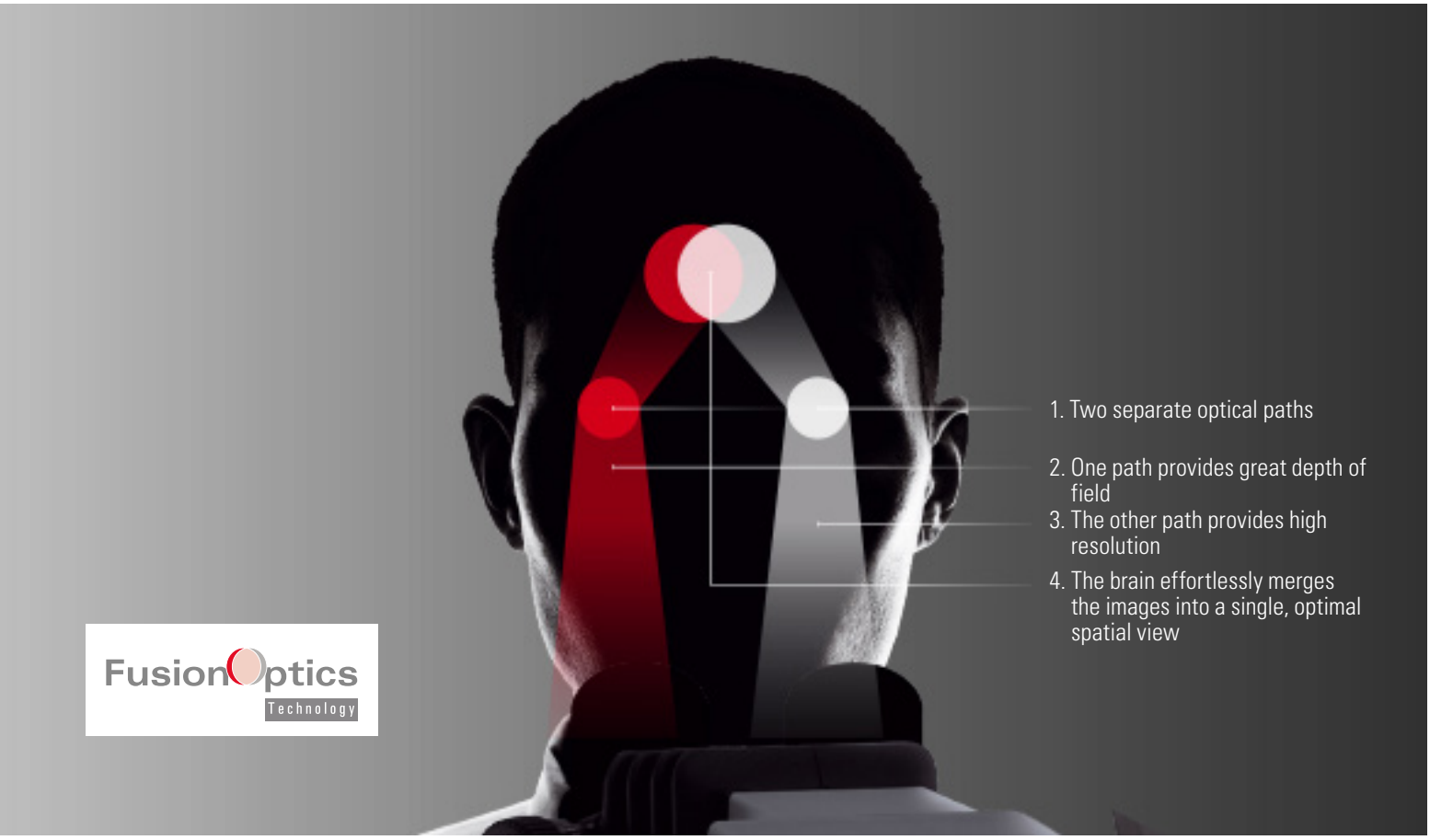
> Boost magnification by 40% with the optional magnification multiplier.

> Adapt your field of view during head-up-display surgery with three digital zoom options for the monitor.

> Quickly achieve a defined focus with SpeedSpot, using two laser beams as a focusing reference for all viewing positions (surgeon, assistant, and camera).

> Enable your rear assistant to have an independent fine focus.

> Choose from a range of binoculars, all adjustable to different heights and positioning due to full 360°-rotation.

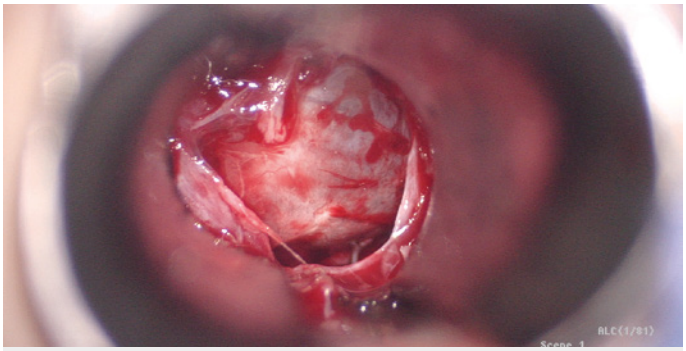


Enhanced depth of field with high resolution

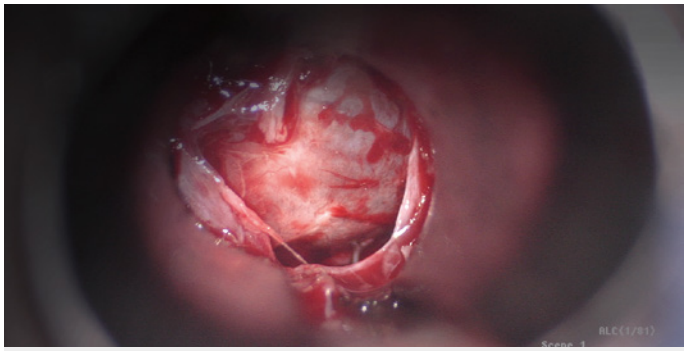
For too long, surgeons have had to compromise between high resolution and greater depth of field – no more! FusionOptics technology captures different information from each beam path, delivering the highest possible resolution to the left eye and the maximum depth of field to the right eye. The brain then easily merges the information into a single, sharp image with a significantly larger depth of field. And what's more, less refocusing helps streamline your workflow.

Deep insights

Small Angle Illumination (SAI) combined with a bright 400-watt xenon light provides a concentrated beam that penetrates deep, narrow cavities. This results in better illumination with less shadow. SAI offers more details and improved depth perception.



With SAI at 400 mm working distance



Without SAI at 400 mm working distance

Ensure patient safety with advanced illumination for tissue protection

The ARveo 8x hybrid surgical microscope features integrated illumination functions that protect sensitive tissue during procedures. Its efficient light transmission system ensures maximum light provision, allowing safer operation at optimal light levels while maintaining visibility.

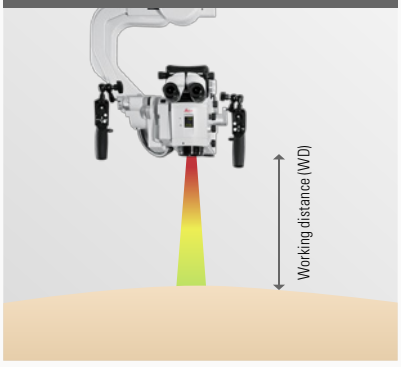
Reliable illumination with auto back up system

The microscope features two redundant 400-watt xenon arc-lamps with independent lamps and boards. It automatically switches to the second illumination system when needed.

Optimal light intensity

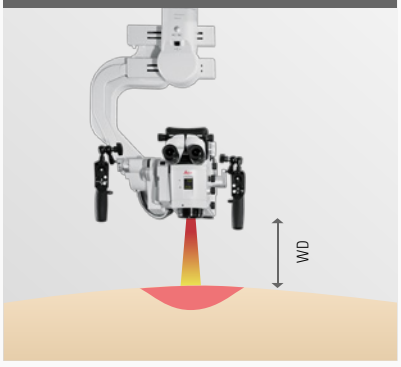
BrightCare Plus optimizes the light intensity relative to the working distance.

Maximum illumination



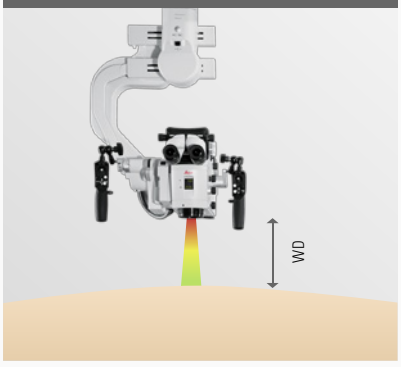
Long working distance

Maximum illumination with BrightCare Plus OFF



Decreased working distance at same illumination setting (left) creates burn potential in conventional microscopes.

Microscope with BrightCare Plus ON

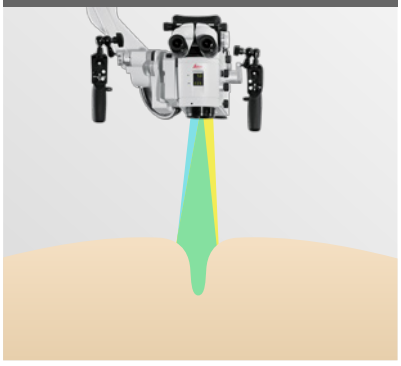


BrightCare Plus automatically adapts light intensity to the working distance, providing safer illumination (up to 60 % reduction of light intensity).

Auto-adjusted field of illumination

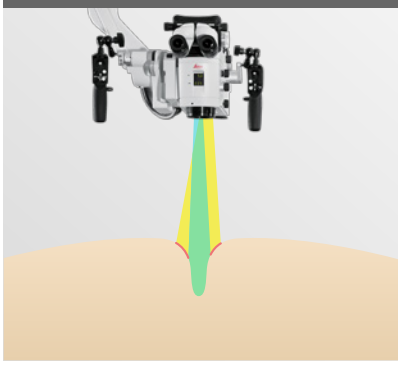
AutoIris automatically adjusts the diaphragm so that only the visible area is illuminated.

Conventional microscope at low magnification



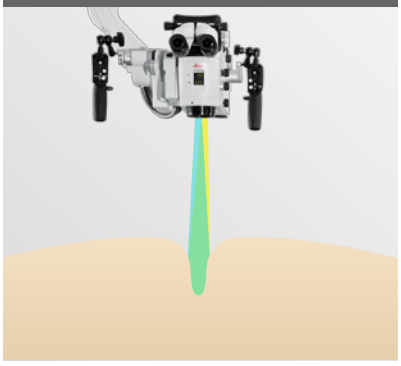
At low magnification, the field of illumination (yellow) fills the field of view (green) completely.

Conventional microscope at high magnification



Previously, as magnification increased, the field of view (FOV) became smaller, but the illumination outside the FOV could potentially cause tissue burns (red).

Leica microscope with AutoIris



AutoIris automatically works with the zoom, decreasing the field of illumination as the FOV decreases. There is no peripheral illumination to cause tissue burns outside the FOV.

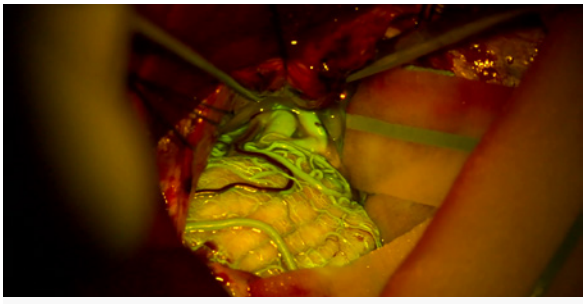
Enhance surgical precision with advanced fluorescence imaging solutions

To enhance your visualization and support intraoperative assessment, the ARveo 8x hybrid surgical microscope can be supplied with a choice of fluorescence imaging solutions, such as the groundbreaking 3D GLOW800 Augmented Reality vascular digital fluorescence application and the fluorescence filters FL560 and FL400. With only a few button clicks, you can easily switch between white light and fluorescence views.

Aneurysm clipping with GLOW800

> GLOW800 augmented reality fluorescence application

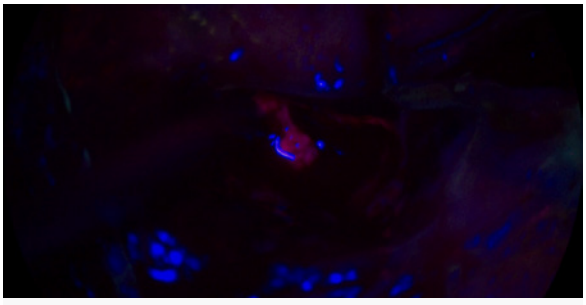
Next generation 3D augmented reality fluorescence for vascular procedures takes the high contrast of infrared (NIR) imaging with Indocyanine Green (ICG) and combines it with white light. The result is a single view of natural-colored cerebral anatomy augmented by real-time vascular flow in a pseudo color.



AVM viewed with FL560

> FL560 fluorescence

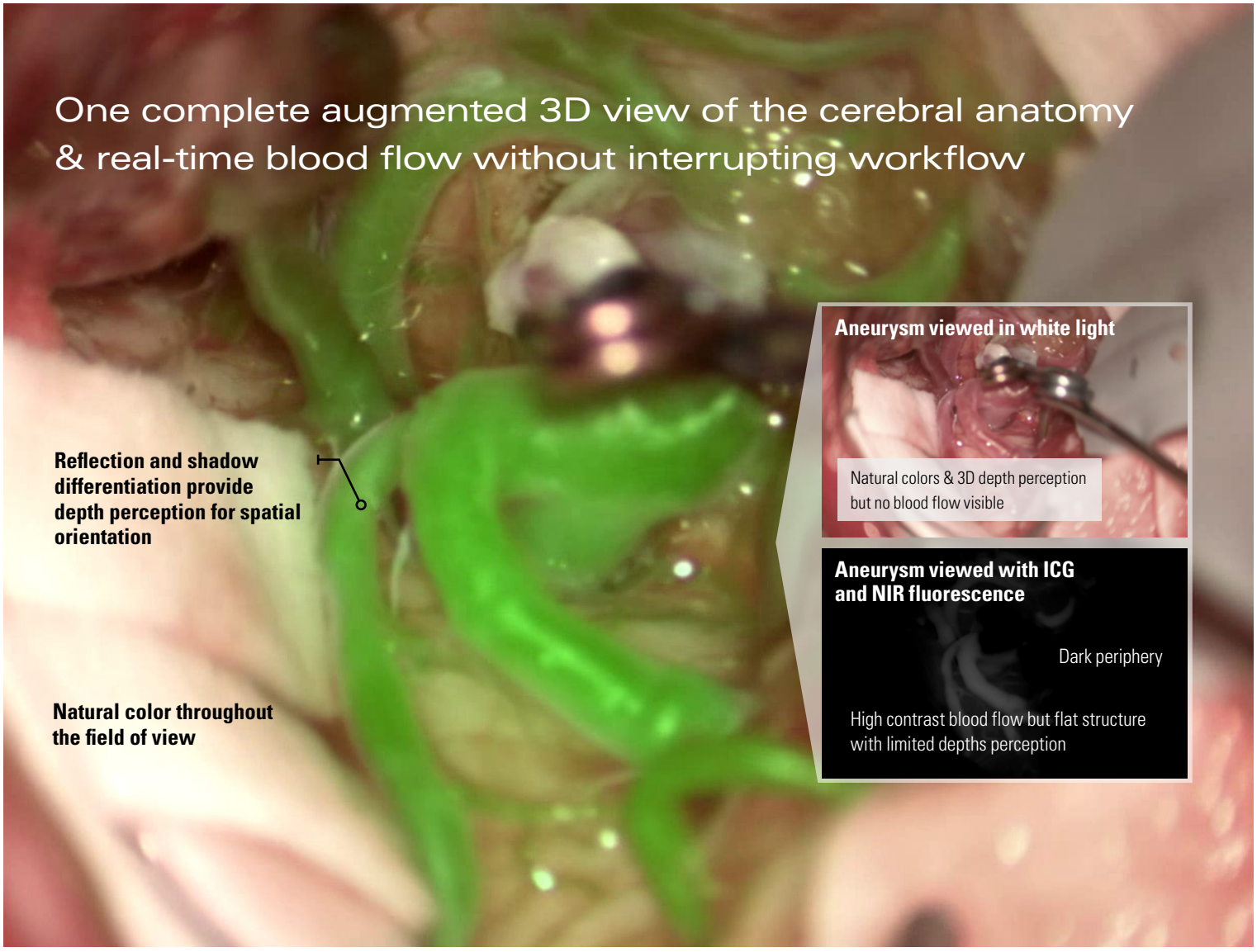
The FL560 for ARveo 8x enables fluorescence observation of fluorophores with an excitation peak between ~460 nm and ~500 nm (blue) and a fluorescence emission observation comprising the green, yellow, and red spectrum in a spectral band above ~510 nm.



Glioblastoma tumor viewed with FL400 and 5-ALA

> FL400 oncological fluorescence

The fluorescence FL400 is used during open neurosurgery in conjunction with the active substance 5 aminolevulinic acid (5-ALA). It supports resection by allowing differentiation of tumor tissue from healthy brain tissue.



Aneurysm viewed with ICG and the GLOW800 AR fluorescence application

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The 3D real-time aspect is very important to investigate pre- and post-results when you do vascular surgery. There is no interruption of the surgical workflow. The 3D depth perception is further helpful when you manipulate small vessels in the depth of the surgical field.

Prof. Raphael Guzman
Chair, Department of Neurosurgery, University Hospital Basel, Switzerland

EXPERIENCE
MAXIMIZED SURGICAL COMFORT & EFFICIENCY IN TEACHING

Adaptable to your surgical needs for comfort and efficiency

Integrated 3D visualization, built-in ergonomic features, and smooth maneuverability limit physical distractions and workflow interruptions so you can stay fully focused on the task at hand.

Level up your ergonomic comfort with...

> Ergonomic positions for main surgeon and opposite assistant.
> Lightweight handling and tilt plus a range of binocular tubes.
> Intuitive and user-friendly graphical user interface and drape air removal system.
> Control up to 12 functions via the wireless footswitch.
> Optimal 600 mm working distance to maneuver large instruments.
> Manually adjustable handles for maximum positioning freedom.

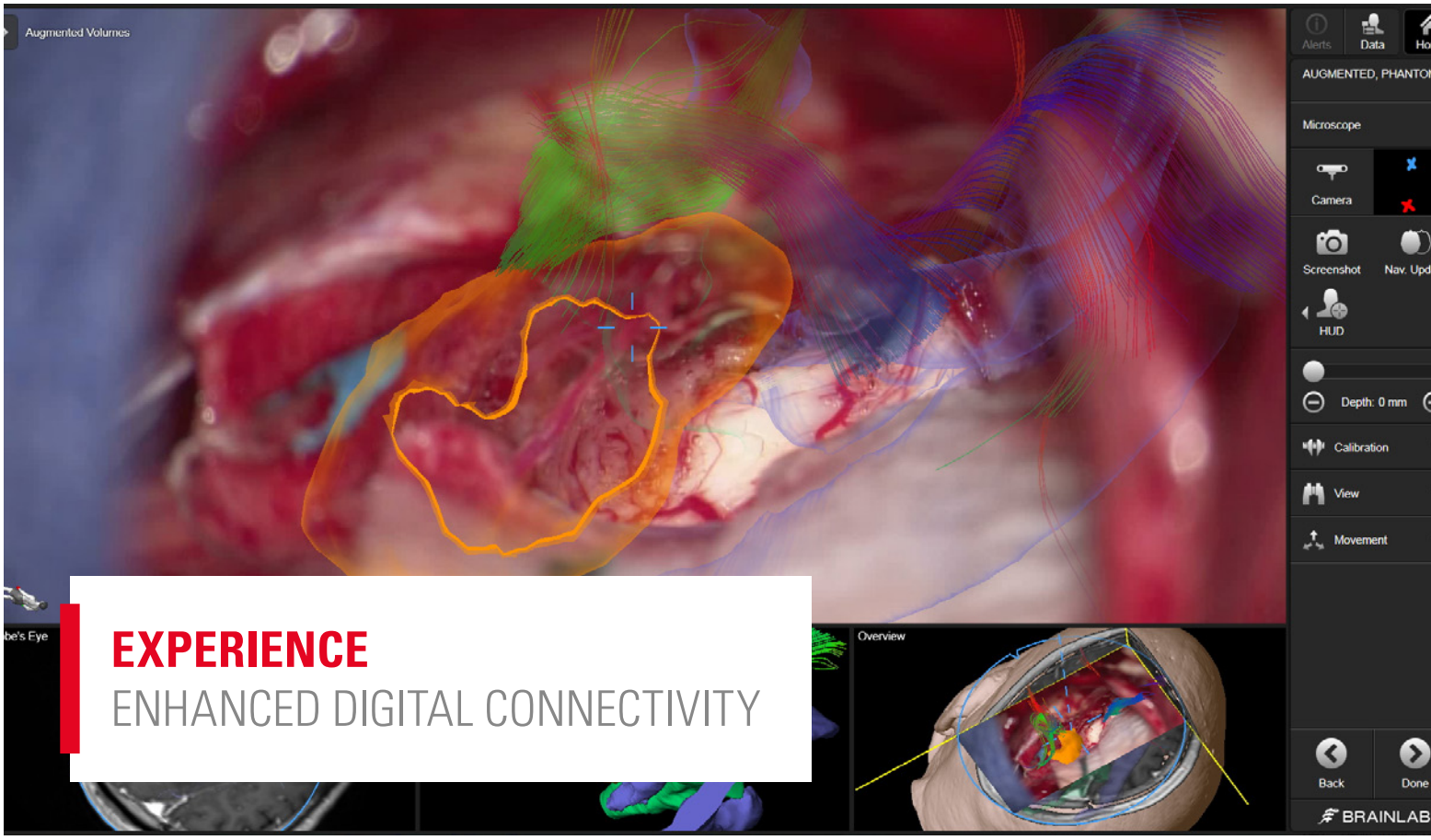
One 3D view for all: work and teach comfortably

ARveo 8x frees you and your team from eyepieces thanks to the integrated 3D visualization for exoscopic surgery.

> You can maintain focus and efficiency with a single integrated view. Enjoy head-up-display (HUD) surgery with an excellent depth perception via the large 55-inch 3D 4K monitor that you can flexibly position in your OR.

> Feel the benefits of visualization and positioning freedom, including a relaxed posture, reduced neck strain, and a familiar working position for natural hand-eye coordination.

> 3D visualization is also particularly beneficial in teaching. It can accelerate the learning curve as it eases understanding of anatomical details and spatial understanding.



EXPERIENCE
ENHANCED DIGITAL CONNECTIVITY

Seamless data integration from compatible surgical devices

The ARveo 8x hybrid surgical microscope is compatible with image-guided surgery (IGS) systems, allowing you to augment your microscope view by overlaying anatomical and functional data onto the white light and fluorescence views. You can integrate external video signals, such as those from an endoscope, for direct display on the monitor, adding even more layers of information directly in your line of sight.

IGS support during intraoperative assessment: align and view with ease

> Update image realignment during surgery using the microscope image.

> View information more ergonomically with picture-in-picture navigation options.

> Get support when assessing critical areas due to visualization of planned structures as semi-transparent volumes combined with a virtual 360-degree target view.

Robotic alignment of the microscope's optics carrier via the Brainlab IGS system

> Keep your image in focus during the entire neurosurgery with the focus function of Brainlab's latest cranial navigation software.

> Ensure a centered view despite microscope movement thanks to the "follow tip" or "move to pin" functions.

Hybrid setup: Quickly switch between optical and digital visualization

Enjoy the flexibility to move from binocular surgery to head-up display surgery whenever required. The ARveo 8x hybrid surgical microscope allows you to easily switch between optical and digital visualization.

Microscope settings and image documentation: Safe and easy

Benefit from a single graphical user interface for microscope operation and image acquisition. The ARveo 8x graphical user interface is self-explanatory for all OR team members.

It guides you through microscope setup, allows intraoperative adjustments, and enables image acquisition and transfer.

Easy microscope setup

> Hard keys for autobalancing and major microscope functions.
> Select and define different user roles and rights.
> Password protect default configurations and individual user settings, e.g., GLOW800 visualization.

Easy video and image recording

> Record in 2D or 3D quality utilizing a high-compression 2 TB storage space, corresponds to approx. 400 hrs of video.
> Quickly store images and export via USB.
> Optimized data processing and connectivity for PACS and DICOM.

Up to 40% more uptime, during repair time*

RemoteCare: Smart monitoring and cloud-based service

RemoteCare harnesses the power of connected devices with real-time system data to increase uptime and performance for your ARveo 8x. Designed with industry-leading security standards, RemoteCare detects system anomalies and alerts our Service team to proactively solve problems before they become critical. Plus, as a PremiumCare service contract holder, you can expect up to 40% more uptime during repair time for your ARveo 8x.

*On average, entitled systems experience 40% more uptime during repair time.

Technical Specifications

OPTICS AND ILLUMINATION

FusionOptics	For increased depth of field and high resolution for the main surgeon
Objective lens	Apochromatic
Magnification	6:1 zoom, motorized optional magnification multiplier
Objective / working distance	225–600 mm, motorized multifocal lens, continuously adjustable with manual adjustment option
Eyepieces	Wide-field eyepieces for people wearing glasses
Observation	Full stereo view for main surgeon and opposite assistant, semi stereo view for two side assistants
Integrated 360° rotatable adapter	For main surgeon and opposite assistant binoculars
SpeedSpot	Laser focusing aid for fast and exact positioning of the microscope
Illumination	- Two 400-watt Xenon arc-lamp systems with independent power supply - Light transmission via fiber optics cable - Continuously variable illumination field diameter - Continuously adjustable brightness at constant color temperature - Automatic activation of second illumination
AutoIris	Built-in automatic, zoom-synchronized illumination field diameter, with manual override and reset feature
BrightCare Plus	Safety function through working distance-dependent limitation of the brightness, controlled by built-in luxmeter

MANEUVERABILITY AND CONTROL

Stand	Premium overhead stand with long reach, designed for stability and durability
Robotic function	- Motorized XY movement - Externally controllable (optional)
Control	- Programmable handles
Balancing	- Automatic balancing of stand and optics - Automatic intraoperative balancing - Manual fine balancing
Microscope carrier	"Advanced Movement" system for balancing six axes and vibration damping technology
Carrier for monitor	Flexible arm with four axes for rotation and inclination

MODULAR OPTIONS

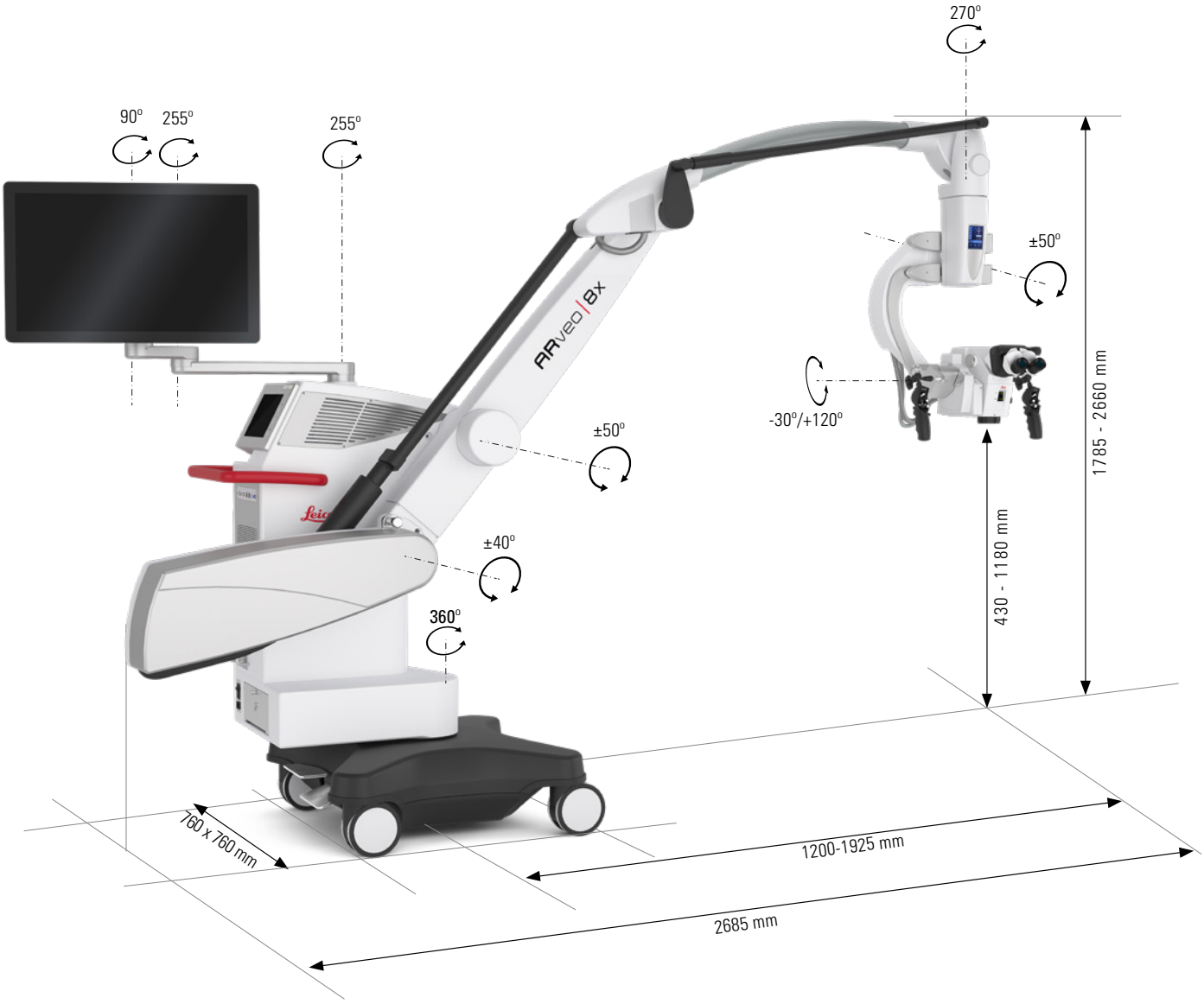
GLOW800 Augmented Reality fluorescence	- Fluorescence excitation 790 nm - Fluorescence signal 835 nm - Two 1/1.2" high sensitivity HD cameras for white light imaging - Two 1/1.2" high sensitivity HD cameras for fluorescence imaging (NIR) - 2D and 3D visualization
FL400 fluorescence	FL400 blue light fluorescence module
FL560 fluorescence	FL560 fluorescence module
2D/3D video options	- 4K 2D 27-inch monitor - 4K 3D 32-inch monitor on microscope - 4K 3D optional 55-inch monitor cart system - Integrated auto focus - 3 digital zoom levels - Integrated 4K upscaling software via HDSDI-connector
OpenArchitecture*	- Easy integration of IGS systems and video system feeds, e.g., from an endoscope
Leica Recording System	- Fully integrated 2D/ 3D recording - Optimized data processing & connectivity for DICOM/PACS
Integrated Air Removal System	- One-button drape air removal system - Compatible with surgical microscope drapes of leading manufacturers
Additional controls	- Mouthswitch to activate multi-directional movement - 12-function wireless footswitch
Cyber Security	- MDS2 Medical Device Security - Comply with international standards such as ANSI/UL

TECHNICAL DATA

Power connection ARveo 8x Protection class	- 1300 VA 50/60 Hz - 100 V - 240 V / 50 - 60 Hz - Class 1
Materials	- Entire solid metal construction coated with a paint which is designed to provide an antimicrobial effect on surfaces
Load	- Swing arm: min. 6.7 kg, max. 12.2 kg from microscope dovetail ring interface - Monitor arm: max. 16kg
Total weight	Approx. 335 kg (without load)

* Please contact your local sales representative for more information

Stand Dimensions



Specifications in mm

Leica MICROSYSTEMS

Leica Microsystems (Schweiz) AG
Max Schmidheiny-Strasse 201
9435 Heerbrugg, Switzerland

CE 0123

Class IIa medical devices ARveo 8x and GLOW800

CE

Class I surgical microscope accessories

Not all products or services are approved or offered in every market and approved labeling and instructions may vary between countries.
Please contact your local Leica representative for details.

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Leica Microsystems (Schweiz) AG · Max Schmidheiny-Str. 201 · 9435 Heerbrugg · Switzerland · T +41 71 726 3333

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