



## SLIT LAMPS

The difference is inside

**Tradition and innovation** – Since 1858, visionary thinking and a fascination with technology have guided us to develop innovative products of outstanding reliability: Anticipating trends to improve the quality of life.

 **HAAG-STREIT**  
DIAGNOSTICS

02 | 03

TIMELESS QUALITY

## Haag-Streit slit lamps **Tradition and innovation**

As a leading manufacturer of medical-practice equipment, Haag-Streit is committed to excellence, craftsmanship and independent thinking. While the traditional Swiss values of quality and reliability have always been at the heart of our organization, we have also successfully anticipated technological trends, setting the pace in ophthalmics and supplying researchers and eye care professionals with precision instruments to improve their patients' quality of life.

1958

1968

2010



# The Haag-Streit slit lamp family

## Timeless quality in every detail

Since its introduction in 1958, the famous Goldmann slit lamp BM 900 has enjoyed remarkable popularity amongst our customers because of its excellent optics and impressive longevity. As a result, there are well over 100,000 of these original Haag-Streit slit lamps in daily use – including many from the first years of manufacturing.

Based on the knowledge and experience gained from this large user base, other slit lamps have been introduced by Haag-Streit over the years and they all show the same high performance and, equally as important, durability and longevity as their famous predecessor.

BQ 900

BP 900

BI 900

BM 900

BX 900



## Excellent optics

The quality of the optical system determines the results of whatever application a slit lamp is used for. All Haag-Streit slit lamps are equipped with elaborated microscopes, manufactured for highest quality requirements. The result is a superb view, allowing accurate diagnostics, safe patient treatment and stunning imaging results.



EXCELLENT OPTICS

## Optimum illumination

The new LED illumination systems on our slit lamps deliver our sharpest, brightest and most homogeneous slit ever. The light spectrum has been specially designed for Haag-Streit to meet the highest quality standards and to achieve results that are even superior to those delivered by tungsten light. This ensures optimal diagnostic details from the cornea to the retina.

A tilting frame allows good posterior segment observation, while the defocusing option enhances observation with indirect illumination. All filter and slit controls are conveniently situated for ease of use and, as with the cross slide mechanism, have a silky smooth, effortless movement. The slit mechanism is a masterpiece of engineering in itself, affording faultless precision in both shape and movement.



OPTIMUM ILLUMINATION

## Perfect mechanics

Since its foundation more than 150 years ago, Haag-Streit has stood for high-precision mechanics. This experience, combined with outstanding Swiss engineering and the use of high grade materials, ensures perfect mechanics in all our slit lamps, which can last for decades.

Perfection in design, materials and construction allow all movements to be made smoothly and effortlessly without any wrist or finger strain – and to continue doing so for the very long lifetime of a Haag-Streit slit lamp.



PERFECT MECHANICS

06 | 07 | 08 | 09

THE MOST VERSATILE SLIT LAMP

# BQ 900

## Sophisticated microscopy – outstanding performance

Thanks to its excellent optics, versatility and ease of operation, the BQ 900 has become the standard for those requiring advanced slit lamp microscopy. A wide range of optional accessories provide convenient conditions for every examination.

BQ 900 with Imaging Module IM 900





## Zoom objective

With the zoom objective, the magnification, can be continuously changed from 6 up to 40x. Reference points are set at magnifications 10x, 16x and 25x to allow easy orientation. The zoom objective offers excellent diagnostic capabilities – especially when used in conjunction with the video function. Any existing BQ 900 can be modified from a standard model to a BQ 900 – Zoom



## Inclined eyepiece adaptor

With the inclined eyepiece adaptor, the view into the microscope is inclined at 20 degrees to the horizontal. Consequently, the examiner is able to maintain his head in a fatigue-free position.



## Stereo variator

Unique to the BQ 900, the stereo variator reduces the angle of stereoscopic observation from 13° to 4.5°. This facilitates the stereoscopic examination of the fundus, peripheral parts of the retina and the vitreous, even under unfavourable conditions such as high myopia and small pupils. The reduction of the angle enlarges the stereoscopic field of view under the described conditions, maintaining depth information in the stereoscopic observation.





## Contrast enhancing filter

This yellow barrier filter provides additional contrast to fluorescein images. It can be mounted permanently on the slit lamp and easily inserted or removed as required.



## Beam splitter

The beam splitter diverts a portion of the light to secondary attachments such as the second observer tube, video or digital cameras. Beam splitters are available in different versions. The beam splitter for cameras diverts 70% of the light to the secondary attachment, the one for co-observation under equal conditions diverts only 50% of the light. Video or digital cameras can be connected to the beam splitter with a range of C-mount adaptors, which offer different focal lengths for variable sensor sizes.



## Second observer tubes

Haag-Streit's second observer tubes are designed to permit professional colleagues, students or technicians to participate in the examination. There are two versions of second observer tubes available: a short version for co-observing in sitting position and a long version for co-observing in upright position.



## Microscope

The BQ 900 is equipped by default with a Galilean Microscope providing a magnification range from 6.3x up to 40x selectable in 5 fixed steps. The high light transmission and the optical excellence ensure a superb clinical view. The large diameter of the exit pupils allows fatigue-free examination even on long working days.



MICROSCOPE

## Tonometer

Because it is fast and reproducible, Goldmann applanation tonometry has been the gold standard of tonometry for many decades. It is based on the Goldmann principle – tried and tested during more than 50 years of usage with millions of patients.



GOLDMANN TONOMETER

## Imaging modules

The Imaging Modules IM 900 and IM 600 are fully integrated compact imaging solutions for the BQ 900 slit lamp. These cameras, manufactured by Haag-Streit, have excellent sensitivity, a wide dynamic range and unique ergonomics that provide full control over the imaging process without detracting from the clinical examination. The included EyeSuite software package contains a comprehensive imaging program and permits integration of the BQ 900 into your practice network.



IMAGING MODULES

BP 900

## Advanced microscopy – comprehensive application

Designed for routine practice, the BP 900 is equipped with a modern optical system offering 10×, 16× and 25× magnifications and imaging capabilities. As with all Haag-Streit slit lamps, a Goldmann tonometer – the gold standard in IOP measurement – may be added to the system.

BP 900 with Imaging Module IM 600



## Microscope

A Galilean Microscope with a magnification range from 10× to 25× provides the BP 900 with a powerful observation system. The optical excellence and wide aperture allow comfortable and fatigue-free examination even on long working days.



MICROSCOPE

## Imaging Module IM 600

The Imaging Module IM 600 is a fully integrated compact imaging solution for the BP 900 slit lamp. This camera, manufactured by Haag-Streit, has excellent sensitivity, a wide dynamic range and unique ergonomics that provide full control of the imaging process without detracting from the clinical examination. The included EyeSuite software package contains a comprehensive imaging program and permits integration of the BP 900 into your practice network.



IMAGING MODULE IM 600

## Contrast enhancing filter

The yellow barrier filter provides additional contrast to fluorescein images. It can be mounted permanently on the slit lamp and easily inserted or removed as required.



CONTRAST ENHANCING FILTER

# BI 900

## Simplified operation – high reliability

Equipped with an improved version of the BM 900 microscope, an enhanced illumination system and the traditional high-precision mechanics, the BI 900 is the predestined successor to the legendary BM 900. With this new slit lamp, Haag-Streit combines simplicity and reliability in a modern system which offers integrated digital imaging as an option.

BI 900 with Imaging Set



## Microscope

The BI 900 is equipped with a Kepler microscope providing the default magnifications 10× and 16×. With a set of optional oculars it can be extended to 25× and 40× magnification. A yellow barrier filter provides additional contrast for fluorescein applications. The maximised diameter size of the ocular view ensures fatigue-free examination even on long working days.



MICROSCOPE

## Imaging Set

The optional Imaging Set provides a fully integrated compact imaging solution for the BI 900. It has been designed to simplify the image capturing process. A fast and accurate automatic exposure control and the established History Trigger function allow simple image capturing while you are concentrating on your patient. The included EyeSuite software package contains a comprehensive imaging program and permits integration of the BI 900 into your practice network.



IMAGING SET

## Control panel

Located in front of the joystick, the control panel can be operated blindly while examining the patient. It provides not only full control over the slit lamp illumination, but also a release bar for the camera, as well as simple and ergonomic management of the camera settings.



CONTROL PANEL

# BM 900

## Reliable optics – enduring performance

The BM 900 has been the standard in modern slit lamp microscopy for more than 55 years – and still is! Over 100,000 professionals all over the world who own a BM 900 agree that it was the best investment they ever made for their practice. As with all Haag-Streit slit lamps, a Goldmann tonometer – the gold standard in IOP measurement – may be added to the system.

BM 900





## Microscope

Equipped with a Kepler microscope, the BM 900 provides two standard magnifications: 10× and 16×. With a set of optional oculars it can be extended to 25× and 40× magnification. Like any other Haag-Streit slit lamp, the BM 900 features the best optical components to show all structures of the human eye in every detail.



MICROSCOPE

## Illumination system

Over the last years, LED illumination has become standard in modern slit lamp microscopy. It delivers our sharpest and most homogeneous slit ever. A tilting frame allows good posterior segment observation, while the defocusing option enhances observation with indirect illumination. All filter and slit controls are conveniently situated for ease of use and, as with the cross slide mechanism, have a silky smooth, effortless movement. The slit mechanism is a masterpiece of engineering in itself, affording faultless precision in both shape and movement.



ILLUMINATION SYSTEM

## Cross slide

This cross slide mechanism, incorporated into all Haag-Streit slit lamps, introduced one-handed operation of the slit lamp many decades ago. Perfection in design, materials and construction allow these movements to be made smoothly and effortlessly without any wrist or finger strain – and to continue doing so for the very long lifetime of this classic slit lamp.



CROSS-SLIDE

## BX 900

# Superior technology – reliable instrument

The Haag-Streit BX 900 slit lamp combines the latest imaging technology with the proven versatility, optical brilliance and mechanical quality of the Haag-Streit tradition. The BX 900 is the leading slit lamp imaging device and is designed to assist the Ophthalmic Photographer in his demanding profession.

Ophthalmic imaging of the highest possible quality is ensured with an integrated flash, fully synchronised with camera and slit and background illumination, all controlled through a re-

lease mechanism directly beside the slit lamp joystick, as well as adaptors for a variety of top-of-the-range digital single lens reflex cameras.

The camera is mounted above the microscope, thus allowing ease of access to the patient. This is especially useful when photographing in conjunction with hand-held diagnostic lenses.

BX 900



## Xenon flash

The high power flash illumination is delivered via a xenon tube that lies coaxially to the LED illumination and thus exactly reproduces the slit illumination pattern to provide images of stunning quality. The brightness of the flash is individually adjustable for slit and background illumination.



## Mirror housing

The heart of the BX 900 is the mirror housing with its built-in diaphragms. When capturing an image, all light is directed via a mirror to the camera. This allows the maximum utilisation of the available light: 100% for the examination and 100% for the image. The built-in diaphragm setting with five apertures is applied automatically on image capture.



## Shutter release

Conveniently mounted close to the operator's hand, this can easily be utilised whilst continuously maintaining focus with the slit lamp joystick. As it is symmetric on the cross slide, it allows right and left-handed operation.



# Accessories Improved efficiency – optimal examination

As supplier of complete solutions, Haag-Streit offers a wide range of accessories of great benefit to the ambitious user.





## Eyepieces

A large range of different eyepieces are available, such as a reticule eyepiece for estimating length and angles, McIntire grid for estimating endothelial cells or crosshair reticule for imaging.

## Contact lenses

The best-known lens of the Haag-Streit range of diagnostic lenses is the 903 original Goldmann three-mirror lens, offering the traditional 59°, 66° and 73° angles. But besides this very famous contact glass, Haag-Streit lenses cover all areas of the eye and are available as diagnostic and laser lenses.

## Stery Cup

Stery Cup is a disposable shield for use with 3-Mirror and Retina 145 lenses. The optically neutral, sterile cups are designed for single use and significantly reduce the risk of bacterial transfer. Stery Cup can also increase the life of the lens thanks to a reduction in the number of disinfection processes required.

## Headrest with fixation device

The headrest has been designed according to anatomical criteria and includes an adjustable chinrest. The fixation device permits uninterrupted observation and simultaneous guidance of the patient's eye. Both help to make examination comfortable for operator and patient.

## Instrument table

Haag-Streit offers a wide range of instrument tables for professional examination. Our mechanical and electrical tables have internal channels to conceal wiring from instruments or accessories such as camera cables and fibre optics.



# IM 900 and IM 600

## Intuitive imaging – best results

For many years slit lamp imaging was almost exclusively the domain of the ophthalmic photographer, but since documentation and patient education has become more important, every eye care professional has the need for imaging.

As the leader in slit lamp imaging, Haag-Streit is meeting this need with the introduction of two new imaging systems – the IM 600, a more basic, and the new IM 900, a very sophisticated version. With both solutions Haag-Streit sets new standards in digital slit lamp imaging. Now it is possible for every clinician to produce pictures of very high quality without being distracted from the clinical examination.





FROM THE LEADER IN SLIT LAMP IMAGING

IM 900

## Outstanding image quality

Equipped with an ultra-sensitive camera, the IM 900 produces images of exceptional quality even under difficult light conditions. Thus the information value of your pictures achieves a new dimension. Furthermore patient comfort is improved as you can record your findings without excessively dazzling the patient. The wide dynamic range ensures that situations with high contrasts are accurately recorded and the beyond-HD resolution of the sensor ensures crystal clear reproduction of detail on modern monitors.

Like any professional camera, the IM 900 is equipped with Depth of Field Control (DFC), which permits selection of a shallow depth of field when maximum light is required and a deep depth of field when it is important to have different structures of the eye in focus. With DFC, the camera can be ideally adjusted, regardless of the location of the pathology.



# Easy-to-use optimal imaging More convenient than ever before

The Imaging Modules IM 900 and IM 600 are more than just cameras. They are fully integrated compact imaging solutions providing you with features which make slit lamp imaging more convenient than ever before.

## Ideal workflow – no distraction

The control panel allows you to operate both the camera and the slit lamp illumination. Located in front of the joystick of the slit lamp, it can be used blindly while you are focused on your patient. The release bar is at your finger tip! The compact and modern design conforms to the design of the slit lamp. Thus the Imaging Module comes as a component of the whole system, thereby supporting an ideal examination workflow.

## Simple image capturing

Our fast and accurate automatic exposure control ensures correct illumination of the image while you are concentrating on your examination. Thanks to the History Trigger function, you do not need to worry about a patient blinking or moving when you take an image. The History Trigger does not just capture a single image, but records the last few seconds in real time and lets you select the perfect image.

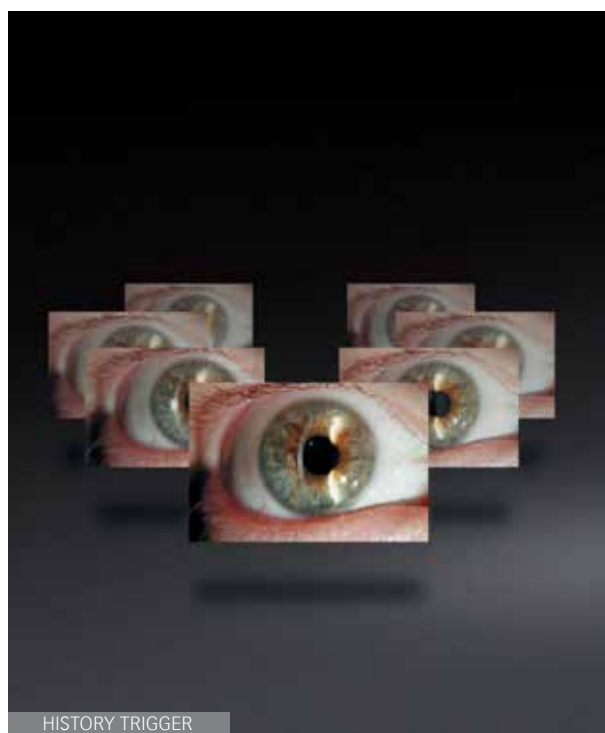
## Intuitive software

EyeSuite Imaging is a straightforward imaging software supporting the Haag-Streit imaging solutions. Easy image capture, efficient image editing and a well-structured patient management system make the software a perfect team player for daily practice.

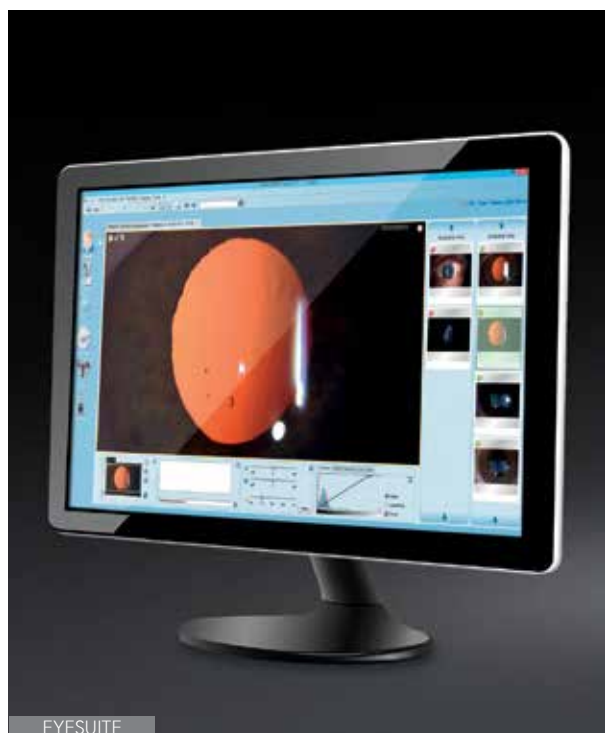
EyeSuite makes your slit lamp networkable both with other Haag-Streit devices and your practice network. It does not require any proprietary third-party software to provide connectivity.



CONTROL PANEL



HISTORY TRIGGER



EYESUITE

# Technical specifications

## IM 900 and IM 600

	IM 900	IM 600
Compatibility	BQ 900	BP 900 and BQ 900
Beam path	Right side	Right side
Control panel	RM02	RM02
Depth of focus control	Yes	No
Camera interface	USB 3.0	USB 3.0
Shutter system	Global shutter	Rolling shutter
Pixel size	5.86 $\mu\text{m}$	4.5 $\mu\text{m}$
Dynamic range (sensor)	73 dB	66 dB
Quantum efficiency at 525 nm	76%	48%
Sensor size	1/1.2"	1/1.8"
Resolution	1936 $\times$ 1216	1600 $\times$ 1200
Frame rate	30 (frames per second)	20 (frames per second)
Software	EyeSuite Imaging	EyeSuite Imaging
EMR interfaces	EyeSuite script language, DICOM (SCU) GDT	EyeSuite script language, DICOM (SCU) GDT



## AT 900 and AT 900 D\*

# The gold standard in IOP measurement

Because it is fast and reproducible, Goldmann applanation tonometry has been the gold standard in tonometry for many decades. It is based on the Goldmann principle – tried and tested during more than 50 years of usage with millions of patients.

Furthermore, thanks to the high precision of manufacturing at Haag-Streit, the Goldmann applanation tonometer offers reliable performance over many years without the need for manufacturer maintenance.

AT 900 is the original version of the Goldmann tonometer and works 100% mechanically. The digital Goldmann tonometer AT 900 D\* adds the advantages of state-of-the-art digital technology.

Wireless transfer of the IOP readings and left/right eye position allows direct integration of the AT 900 D\* tonometer into an existing patient information system, thus facilitating an ergonomic workflow.

\*AT 900 D is not available in the US



TONOSAFE – THE DISPOSABLE TONOMETER PRISMS

## Convenient – Safe – Accurate

Tonosafe avoids the need for time-consuming and laborious cleaning and disinfection without compromising the original Goldmann quality. It has been developed for single use only and thus reliably eliminates the risk of cross-infection even in the most difficult situations. Calibrated to Goldmann standards, Tonosafe delivers accurate results with all Goldmann and Perkins contact tonometers.

GOLDMANN TONOMETER PRISMS

## Excellent optical quality

Goldmann measuring prisms are distinguished by their optical and mechanical performance which allows for fast and reliable measurements in daily practice. They are largely handmade by experienced workers, and are checked for tight tolerances in weight, optical quality, durability and for consistent measurement results.

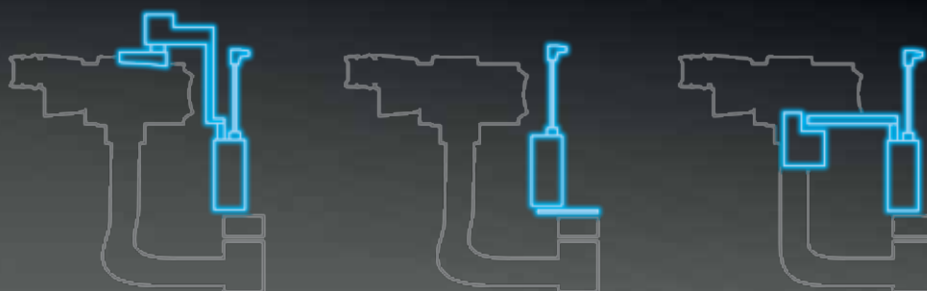


TONOSAFE



GOLDMANN TONOMETER PRISMS

Slit lamp model	mod. R	mod. T	mod. BQ
BD 900	■		
BM 900	■	■	
BI 900	■	■	
BP 900		■	■
BQ 900		■	■



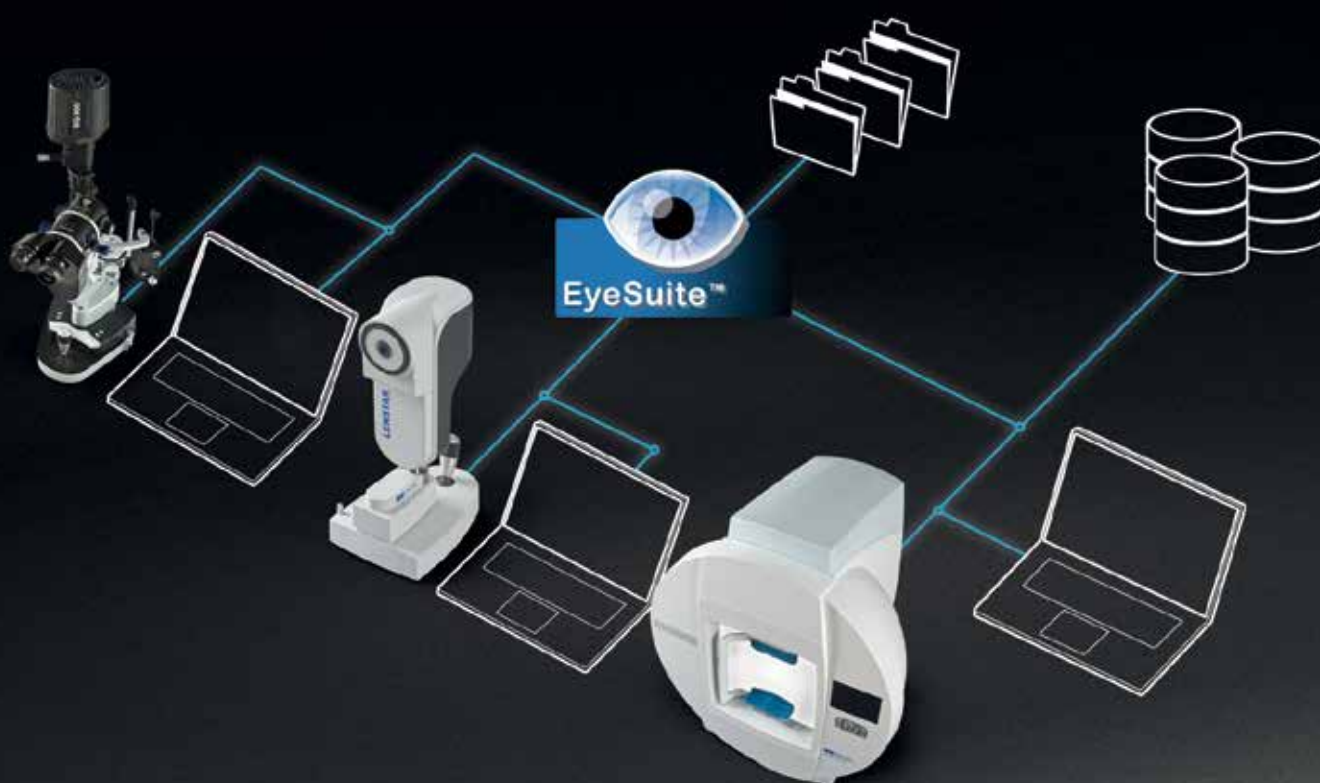
## EyeSuite platform

# Flexible interfaces for easy integration into your network

The EyeSuite software is designed for optimal patient flow in busy practices. Supporting the Haag-Streit imaging solutions, the software makes your slit lamp networkable both with other Haag-Streit devices and your practice network. EyeSuite does not require any proprietary third-party software to provide connectivity.

If the slit lamp is connected to an EyeSuite server, all the images taken can be accessed remotely from any number of viewing stations connected to the same database.

Furthermore, the EyeSuite Script Language or standardized interfaces, such as GDT or DICOM, connect easily to almost any electronic medical record (EMR) system. Patient orders can be received from the EMR system and the captured images are then automatically returned to it.





# Technical specifications

		BQ 900	BP 900	BI 900	BM 900	BX 900
Illumination	LED	■	■	■	■	■
	Background	○	○	○	—	■
	Tilt	■	■	■	■	■
	Decoupling	■	■	■	■	■
Filter	Grey	■	■	■	■	■
	Red-free	■	■	■	■	■
	Blue	■	■	■	■	■
Slit	Width (continuous) in mm	0–8	0–8	0–14	0–8	0–8
	Length (continuous) in mm	0.2–8	0.2–8	0.2–14	0.2–8	0.2–8
	Test mark fixation star	■	■	■	■	■
Microscope	Stereo angle 13°	■	■	■	■	■
	Stereo angle 4.5°	○	—	—	—	●
	Inclined eyepiece	○	—	—	—	○
Magnification (Std. Eyepieces)	6.3x	■	—	—	—	■
	10x	■	■	■	■	■
	16x	■	■	■	■	■
	25x	■	■	—	—	■
	40x	■	—	—	—	■
	Zoom	○	—	—	—	—
	Contrast enhancing filter	○	○	■	—	○
Imaging	IM 900	○	—	—	—	—
	IM 600	○	○	—	—	—
	Imaging Set BI 900	—	—	○	—	—
	SLR camera connector	—	—	—	—	■
	Integrated flash (slit and background)	—	—	—	—	■

■ Standard      ○ Option      — Not available      ● Not recommended

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