



## HS 3-1000

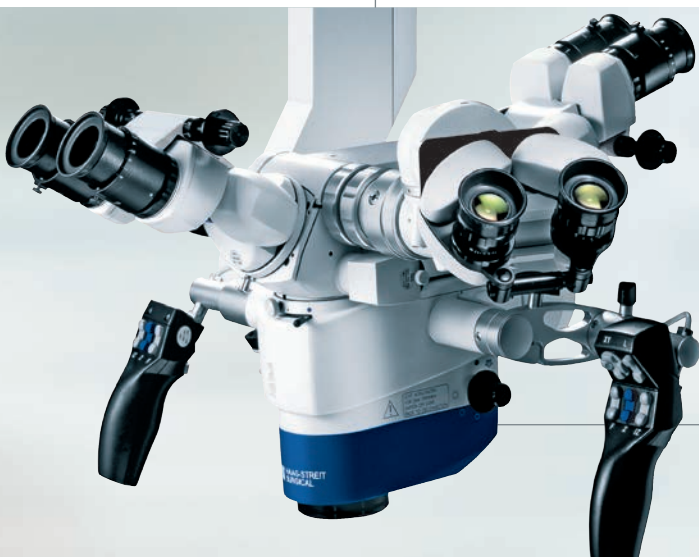
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 **HAAG-STREIT  
SURGICAL**

# The New Paradigm in Microsurgery



## OUR HIGHLIGHTS:

The advanced microsurgical operating system HS 3-1000 is based on the combination of the brand new floor stand FS 3-43 with the operating microscope HS Hi-R 1000 and provides you with optimal working conditions as well as impressive modularity. The apochromatic optics ensures perfect color fidelity, strong contrast, and highest resolution. The unique stereo base of 25 mm provides excellent depth perception. Working distances from 224 to 510 mm, optional 200 to 450 mm, can be achieved.

Due to the 'fly-by-wire' technology and the SensoServo system, feather-light but precise movements of the microscope are obtained in all directions via the programmable SensoGrips. This allows for operations with only minimal force. Newly designed electromagnetic brakes in the floor stand FS 3-43 support the smooth movements, and the hydraulic damping system minimizes vibrations. Due to the floor stand's long arm reach highest flexibility in the OR is achieved. The motorized balancing easily and fast adjusts the system when accessories are changed.



Touch panel for user settings and motorized balancing

300 W xenon light source

M.DIS

Eyepiece head with 200° inclination angle

C.MOR HD

Adjustable ergonomic Sensogrips for microscope control

Right Sensogrip with additional programmable functions

HS MIOS

- » Impressive optical quality
- » Precise movement with minimal force due to SensoServo Drive
- » Flexible positioning in the OR
- » Ready for ICG fluorescence

HS 3-1000 : HS Hi-R 1000 on floor stand FS 3-43



# SensoServo Drive

## Fly-by-wire technology

The SensoServo system of the operating microscope system HS 3-1000 uses 'fly-by-wire' technology to move the microscope in all directions with utmost precision and requiring minimal force. This is achieved via the SensoGrips that are activated as soon as the brake release buttons are pressed. They detect the pressure and control the motor movement in the microscope's joints accordingly. Individual movement characteristics ranging from enhanced friction to feather-light can be chosen. Via a multifunction pad on the right SensoGrip, the microscope can be positioned without opening the brakes.

During operation the balancing remains stable even when changing the positioning of the microscope or e.g. shifting the stereoscopic observer scope from left to right. When accessories are added or taken away the floor stand can easily be balanced by the push of a button.

The system is computer-controlled with a graphic display for motorized balancing as well as programming the individual start settings of the operating surgeons and the surgical procedures.



SensoGrip



Graphic display

## CLOSER TO REALITY

The spatial recognition of objects is a decisive criterion in microsurgery. For this reason the operating microscope HS 3-1000 has a large 25 mm stereo base, providing realistic images and an astonishing depth perception. The optical properties comply with the highest standards.

For individual adjustment of the depth of field a double iris diaphragm is integrated into the microscope body.



Double iris diaphragm



# Light and Imaging

For bright illumination with best color fidelity the floor stand is equipped with a 300 W xenon light source. A spare module is conveniently accessible in the floor stand's upper column. To protect the surgeon's eyes and the patient's tissue, the light is filtered against ultraviolet and infrared radiation. The light intensity can be controlled via hand grip or foot switch. Due to a special light guidance the visual field retains its brightness at any magnification.

The small illumination angle of 3° gives uniform light even in narrow cavities. Diaphragms in the microscope head may be selected during the operation to avoid glare. For the optional ICG fluorescence the light sources contain filters which are activated via a button on the hand grip.

## HS MIOS

MIOS stands for **M**icroscope **I**maging and **O**peration **S**ystem. Its prime functions are recording of operation scenes, capturing and recording of snapshots together with proper identification of patients' and hospital data. Images and/or streams can be stored on DVD-R/-RW, HDD, USB sticks, external USB hard disks, or transmitted to the hospital PACS via DICOM.

## M.DIS

M.DIS (**M**icroscope **D**isplay) turns the operating microscope into a microsurgical image control center. The high-resolution screen, mounted close to the oculars, provides images (e.g. for ICG angiography) or data for the surgeon which he/she may see by momentarily looking up from the oculars. The touch screen enables controlling of video recordings and snapshots in a sterile manner through the drape.

For best visualization we recommend our HAAG-STREIT SURGICAL camera C.MOR HD as well as the monitor C.MON HD. Various camera attachment systems like Light routers and especially the Beam splitter T are available.



Spare light module



HS MIOS



HS Hi-R 1000 with M.DIS



# Accessories

To meet individual requirements, we offer a wide range of accessories and equipment options to choose from.

- Various eyepiece heads
- Beam splitter
- Light router LR 1000
- Stereoscopic observer scope
- Video camera systems
- HS MIOS
- C.MOR HD
- C.MON HD
- M.DIS
- ICG
- Foot switch
- Adapters for laser

## LIGHT ROUTER LR 1000

The light router LR 1000 offers face-to-face observation for two surgeons, lateral ports, and separate camera connection for C-mount cameras. Tilted microscope positioning can be compensated for improved ergonomics through the rotation of the eyepiece heads.



## LATERAL STEREOSCOPIC OBSERVER SCOPE

For lateral observation stereoscopic observer scopes are available. They are equipped with an inclinable or fixed eyepiece head and allow perfect positioning via a 3-axis movement. Image rotation is integrated for optimal viewing by the assistant.



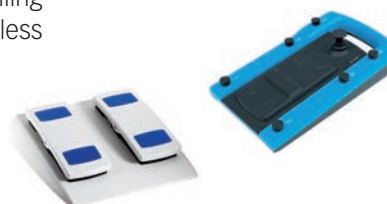
## CAMERA ADAPTATION SYSTEM

Various camera adaptors are available to attach still as well as video cameras like the C.MOR HD.



## FOOT SWITCH

For hands-free operation of focus and zoom the foot switch EF 2000 is available. Enhance options of controlling 14 functions are possible with EF 5000 and the wireless EF 5001.





# ICG Fluorescence

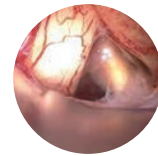
## Intraoperative fluorescence angiography

Indocyanine green, abbreviated ICG, is a medical dye that emits infrared fluorescence when illuminated with light of the appropriate wavelengths.

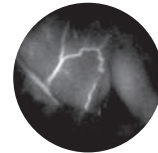
The dye is used for intraoperative angiographies, particularly in neurosurgery for detecting stenoses, leakages, and aneurysms.

Optionally the operating system HS 3-1000 is equipped for ICG applications. This includes a special infrared camera (in addition to the white light camera) for detecting the ICG fluorescence.

Following the injection of the ICG solution in the patient's bloodstream, the vessels become visible to the camera when the ICG flows by. Now, all irregularities of the vessels can be seen on M.DIS and HS MIOS displays.



Visible image



IR image



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