

The MÖLLER Hi-R Microscope Series

a report by

Möller-Wedel GmbH

Ophthalmic Surgery

Within the range of surgical specialities, ophthalmology has witnessed some profound changes over a short period of time. The intra-capsular cataract extraction evolved rapidly during the mid-1970s, resuming in the now prevalent extra-capsular procedure. With the advent of phaco emulsification came a number of improvements of this procedure that continue to be refined.

Möller-Wedel recognises that the finest-quality optics and most advanced technology are necessary to perform the procedures of today.

Their operating microscopes offer the surgeons unsurpassed stereopsis, depth of field, brilliant optics, homogeneous illumination and red reflex. To ensure patients' safety, Möller's operating microscopes have integrated UV filters and oblique illumination. The optional slit lamp enables the surgeon to perform a rigorous examination of the anterior segment during surgery.

The advent of non-contact fundus observation systems during the mid-1980s added a new dimension to vitreoretinal surgery. The binocular indirect ophthalmoscope/stereoscopic diagonal inverter (BIOM/SDI) stimulated the development of this modality and prompted alternative solutions. Möller's EIBOS represents such a solution with improved features.

There is a growing need for faster procedures and less assisting personnel. In the new generation of operating microscopes, Möller has addressed this need by optimal asepsis and ergonomic design.

Ophthalmic Operating Microscope MÖLLER Hi-R 900

For high-class ophthalmic surgery, Möller-Wedel offers the operating microscope MÖLLER Hi-R 900.

'Hi-R' indicates the main features: high resolution of apochromatic optics and residual aberration correction and high red reflex for surgeon and assistant.

'Hi-R' also stands for 'reaction'. The quiet motors for zoom and focus react quickly within a wide range from fast to slow.

The large stereo base provides maximal depth perception. The zoom illumination with filters is easy to select by the surgeon and gives bright but safe light.

The microscope is short in size and features handles with control buttons and clean cable guidance.

Starting with a basic model, the modular design allows the addition of a large variety of accessories and components for use in other surgical fields. For future electrical attachments, power connectors are available in the microscope.

Equipped with an assistant scope, the MÖLLER Hi-R 900 offers the assistant and the surgeon the same zero-degree viewing, stereo vision and red reflex. The assistant scope easily swivels laterally and includes a rotatable and inclinable eyepiece, magnification changer (three or five step) and focus.

The preferred floor stand for the MÖLLER Hi-R 900 is the FS 3-21. It features electrical brakes, vibration dampers, memory for user settings, automatic speed control and 150W halogen light. Weight balancing is done by just touching a button. The ceiling mount CU 3-21 is available with the same technology.

For fewer demands or restricted space, the floor stand FS 2011 with manual controls and small footprint is recommended. Ceiling and wall units are also available.

Many accessories are offered for the MÖLLER Hi-R 900. With microelectronics in the microscope and the stand (RS 232 interface is standard), future communication systems are easy to adapt.

EIBOS – Ophthalmoscope for MÖLLER Hi-R 900

For wide-angle fundus observation, the EIBOS is the ideal accessory for the MÖLLER Hi-R 900 and



most of the other Möller microscopes for ophthalmology. It is used in non-contact vitreoretinal surgery and provides a visual field of approximately 100° for simultaneous observation of fundus and incision area. Integrated in the EIBOS is the reversing optics for left–right correction and a focusing device ranging from the retina to the upper vitreous body.

It is ideal for quick inspection of the posterior segment. If the EIBOS is not used, it may be swung away without interfering with cataract operations.

Slit Lamp for MÖLLER Hi-R 900

The motorised slit lamp is designed to be used in connection with the operating microscope MÖLLER Hi-R 900 and floor stand FS 3-21 containing the required electronics and connections.

The motorised slit lamp allows examination and quality control of anterior and posterior segment surgery. For example, defects of the cornea can be detected during cataract extraction or retinal detachment discovered and localised during vitrectomy.

The slit lamp moves along a circular arch rail via foot switch, providing a sharp slit image on the cornea within the full angular range.

Mounting of the slit lamp is easy. An adapter, connected to the arch rail of the slit lamp, is attached to the operating microscope with thumb screws – there is no need to use tools.

The knobs and levers for control of width, length or orientation of the slit are covered with sterilisable caps that can be autoclaved.

Slit Lamp Microscope

The MÖLLER Hi-R 900SL is similar to the operating microscope MÖLLER Hi-R 900, but contains an operating slit lamp instead of the illumination module. The slit lamp is attached permanently and allows conventional illumination as well as slit illumination. The microscope MÖLLER Hi-R 900SL is available with and without 0° assistant scope.

Typical applications include the inspection of the cornea during anterior segment surgery and the examination of the posterior segment through the lens during posterior segment surgery. Also, retinal detachment during vitrectomy can be detected easier with slit illumination.

The slit lamp located in the back of the microscope is illuminated via fibre optic cable and allows continuous widening of the slit up to full field illumination, stepwise length adjustment and rotation of the slit. A yellow and orange protection filter against UV and blue light hazard and a blue filter for the use of fluorescein are integrated.

By switching a lever on the microscope, the slit can either be applied coaxially through the objective lens or obliquely at an angle of 35°. All knobs and levers can be covered with autoclavable caps.

Möller-Wedel GmbH

Möller-Wedel, a German manufacturer of precision optics since 1864, has grown substantially by concentrating its efforts on operating microscopes. Möller-Wedel belongs to Haag-Streit Switzerland, a worldwide renowned manufacturer of medical products. ■