METIS 900: Precision Through Visualization

How does Haag-Streit's "surgical control center" help surgeons see more clearly, operate more comfortably, and support better surgical confidence in complex cataract and MIGS procedures? Leading surgeons Dr. Charles Cohn and Dr. Kenichiro Yamazaki weigh in.

Dr. Kenichiro Yamazaki

Dr. Charles Cohn

For ophthalmic surgeons, visualization is everything. Every movement, every adjustment, and every decision in cataract or MIGS surgery depends on what the surgeon can – and cannot – see. Increasingly, surgeons are also seeking technologies that not only improve image quality but also reduce fatigue, enhance ergonomics, and support more efficient workflows for the entire OR team.

According to surgeons using Haag-Streit's METIS 900 ophthalmic microscope, the platform is redefining what is possible in surgical visualization – and doing so across multiple dimensions simultaneously.

Dr. Charles Cohn, an ophthalmologist at Fredericksburg Eye Associates in Texas, puts it simply: "The clarity and accuracy are unmatched. I've used virtually all competitor microscopes, and prior generations of Haag-Streit, and none is better than the METIS 900. It's just stunning. You have to see it to believe it."

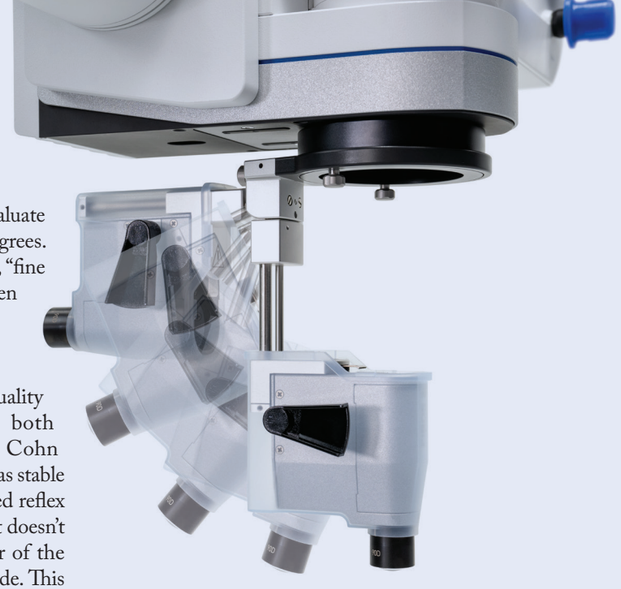
Dr. Kenichiro Yamazaki of Omiya Nanasato Eye Institute in Japan – the first physician in the country to evaluate and receive the METIS 900 – agrees. "With the METIS 900," he says, "fine structures remain clearly visible even at low illumination."

Seeing more, seeing better

For cataract surgeons, red reflex quality can fundamentally influence both confidence and precision. Dr. Cohn describes the METIS 900's reflex as stable regardless of eye position. "The red reflex on the METIS 900 is amazing. It doesn't matter if the eye is in the center of the view; the red reflex doesn't degrade. This reduces the number of cases that need staining with trypan blue and allows a great anterior capsulorhexis. With other microscopes, it can be hard to see fluid wave during hydrodissection, but I always see it with the METIS 900. This results in faster cases and fewer complications."

For Dr. Yamazaki, whose practice includes high volumes of multifocal IOL implantation and complex cataract cases, visualization directly affects postoperative outcomes. "With multifocal IOLs, centration of IOL fixation is known to have a greater influence on postoperative visual quality compared to monofocal IOLs. The excellent red reflex provided by the METIS 900 makes it significantly easier to assess IOL positioning, allowing for more precise centration during fixation."

The platform also extends what is surgically possible in challenging eyes. "The superior visualization of the METIS 900 allows us to confidently offer cataract surgery to patients who would otherwise present significant challenges," says Dr. Yamazaki – including those with corneal opacity or vitreous opacities such as asteroid hyalosis that would typically compromise visualization during the procedure.



The benefits of low-light surgery

A recurring theme among surgeons using the METIS 900 is its ability to maintain excellent visibility at lower illumination levels – a combination that benefits both surgeon and patient. "I find that I can operate at a lower light level than I could with any microscope before," says Dr. Cohn. "This means more comfort for the patient, especially in topical cases. With the METIS 900, that doesn't compromise the surgeon's view. The best of both worlds."

Dr. Yamazaki describes a longstanding surgical tension: brighter illumination improves visibility of fine structures, but creates problematic reflections during phacoemulsification. "With the METIS 900, fine structures remain clearly visible even at low illumination, effectively resolving this conflict."

The patient benefits are equally significant. "Lower illumination reduces the discomfort of prolonged exposure to intense light throughout the procedure," Dr. Yamazaki explains, adding that patients experience less postoperative photophobia – particularly important when the fellow eye has poor vision. There is also a direct surgical benefit: "Under high illumination, patients tend to involuntarily close their eye due to photophobia, causing eye movement or upward deviation." Reduced illumination improves fixation stability, which in turn supports smoother surgical flow and, in high-volume settings, more consistent case progression throughout the operating day.

Customization and control

Both surgeons highlight the METIS 900's ability to adapt visualization parameters in real time – without interrupting concentration or workflow. "Corneal clarity, anterior chamber depth, and the degree of lens opacity and hardness vary considerably from case to case," says Dr. Yamazaki. "With the METIS 900, being able to adjust the depth of field and red reflex via the foot pedal to find the optimal setting for each case and each moment of the procedure allows us to achieve a quality of visualization that would not be possible with other microscopes. The ability to control these parameters without taking your eyes off the surgical field is critically important."

Dr. Cohn highlights an additional benefit of depth-of-field control: surgical video quality. "I have found that adjusting the depth of field is crucial to getting great videos. With the METIS 900, the video quality is outstanding and more closely mimics what the surgeon sees through the microscope head." That enhanced visualization extends beyond the surgeon. "The staff actually understand better what is happening during surgery since they can see so much more detail," he adds – a practical benefit in any OR environment where team awareness and communication matter.

Dr. Yamazaki's clinic takes this further, using live surgical imagery as a communication tool for patients' families. "Staff provide real-time explanations to the patient's family while displaying the surgical view from the microscope on a monitor during the procedure. The ability to display high-resolution imagery with the METIS 900 helps family members gain a more accurate understanding of what is taking place during surgery" – a capability that supports both transparency and patient confidence.

Ergonomics designed for modern surgery

Visualization defines surgical precision; ergonomics define surgical longevity. With musculoskeletal strain a well-documented occupational hazard in ophthalmology, the physical design of a microscope system matters as much as its optical performance. "The ergonomics on the METIS 900 are the best I've ever seen," says Dr. Cohn. " "The electromagnetic brakes are flawless, the scope tilts to exactly where you need it, and once you know what setting you like, you can get there with the push of a button," he continues. For MIGS procedures, precise tilt control is especially valuable. "The view of the angle is what makes or breaks the surgery. I also love that there is a one-button press feature to go to exactly the tilt you want for the MIGS cases."

"The ergonomics on the METIS 900 are the best I've ever seen."
– Dr. Charles Cohn

Dr. Yamazaki highlights the system's compact footprint as a benefit in busy OR environments, improving both staff access and patient positioning. He also points to the shorter vertical body unit as a practical design detail: "When this section is long, the clearance between the surgeon's knees and the back section of the patient bed becomes restricted. The METIS 900 largely eliminates this concern."

Raising expectations

For both surgeons, the METIS 900 represents more than incremental improvement. Dr. Cohn offers a telling example – confirming IOL haptic position. "With other microscopes, I've had to manipulate the IOL to make sure it's in the bag. With the METIS 900, you can just see if the haptic is anterior or posterior to the capsular edge."

For surgeons accustomed to balancing illumination, ergonomics, visualization, and workflow demands, the METIS 900 appears to offer something increasingly rare: fewer compromises and greater control throughout the procedure.

Learn more about METIS 900

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