

Top Surgeons Highlight Key Blades

BY LOUIS D. "SKIP" NICHAMIN, MD; ROGER F. STEINERT, MD; ROBERT H. OSHER, MD; JAMES S. LEWIS, MD; CHARLES S. AHN, MD; AND ERIC D. DONNENFELD, MD

Dedicated MICS Instruments From Bausch + Lomb/Storz Ophthalmics

If diamond tools are cared for properly, their use saves money.



BY LOUIS D. "SKIP" NICHAMIN, MD

I have always believed that diamond blades are superior to those made of steel. Although their quality has greatly improved during the past several years, disposable steel knives cannot surpass diamond blades in sharpness or the exquisite quality of the incisions they create. The expense of diamond knives is well worth it, particularly in the long run. As the owner of an ambulatory surgery center, I can attest that, if diamond blades are cared for properly, their use saves money.

MICROINCISIONAL CATARACT SURGERY

I am an advocate of microincisional cataract surgery (MICS), and I continue to push for smaller and smaller incisions. Decreasing the size of the incision allows the surgeon to have greater control over the intraocular milieu. Optimizing this control and lessening the chance of leakage during surgery requires exact and reproducibly sized incisions. During the past 2 years, a "small" incision has decreased from 2.8 mm to microincisional, which I, and most others, define as less than 2 mm. A new order of instruments has been developed to make MICS a tenable and rewarding approach for all modern phaco surgeons. Creating a sub-2-mm incision with proper instrumentation promotes square, and hence stronger, wound architecture that resists postoperative leakage, and therefore should reduce the incidence of endophthalmitis.

As a user of the MICS platform on the Stellaris Vision Enhancement System (Bausch + Lomb, Rochester, NY), I have worked with Storz Ophthalmics (Rochester, NY) to create a new, specific, dedicated knife to create the opti-



Figure 1. The trapezoidal diamond keratome (E0130; Tru-Size Diamond Knife) creates a perfect watertight incision.



Figure 2. Two photographs of the diamond LRI blade (E0123), which has an adjustable depth.



mal microincision for this phaco platform. I found the ideal instrument to be a trape-

zoidal diamond knife that measures 1.7 mm at its leading edge and 1.9 mm at its trailing width (ie, creating incisions measuring 1.7 mm internally and 1.9 mm externally). For me, this knife is an ideal instrument with which to create a sub-2-mm microincision (Figure 1).

This dedicated diamond blade for corneal MICS allows me easy entrance into the eye, and the microincision remains watertight throughout the surgery. The phaco and I/A handpieces do not become "oarlocked" but can maneuver through the incision easily. Through this unenlarged incision, I am able to implant the Akreos MI-60 (Bausch + Lomb) microincisional acrylic implant utilizing a wound-assisted technique.

Cataract instrumentation for use in MICS has simplified my surgeries, made them more reproducible, and increased my control over the intraocular environment, especially in challenging cases such as patients with intraoperative floppy iris syndrome. These incisions self-seal better than any I have ever used. I find it unnecessary, in the majority of cases, to hydrate the incision to seal it (although I still tend to perform this step out of habit, as a leaking wound may lead to devastating complications).

LIMBAL RELAXING INCISIONS

I also helped to develop a diamond knife for creating limbal relaxing incisions (LRIs) (E0123; Bausch + Lomb/Storz Ophthalmics). Because of my long-held interest in astigmatic surgery, I continue to have an interest in the refinement of LRIs. I feel strongly that the result is not only dependent on technique but also on the instrument used. Some of the criticism leveled at LRIs has to do with the fact that many surgeons do not use an appropriate knife to create these relaxing incisions. The careful design of the footplate and specialized blade of the Nichamin LRI Diamond Knife allows the surgeon to create predictable, consistent, high-quality incisions that do not regress (Figure 2). During the past decade, many ophthalmologists have learned that it is important for such knives to have an adjustable depth, rather than one empiric setting (ie, 550 or 600 μ m) for cutting. After performing corneal pachymetry, I set the LRI diamond blade at 90% of the thinnest reading obtained. This technique significantly improves the results and predictability of LRIs.

CONCLUSION

I believe that the dedicated instruments for MICS described herein significantly facilitate surgery and improve outcomes and procedural safety. In today's age of refractive cataract lens-based surgery, not offering astigmatic correction is a huge handicap. LRIs are a must when using multifocal and accommodating IOLs and may even be needed in combination with or following the use of toric lenses to augment the treatment of high levels of astigmatism.

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Rhein Medical's Steinert/Seibel LRI Diamond Knife

This knife's design enables the surgeon to see the entire blade during its use.



BY ROGER F. STEINERT, MD

I designed the Steinert/Seibel LRI Diamond Knife (05-5040; Rhein Medical Inc.; St. Petersburg, FL) to take into account the reality of what the surgeon actually sees during surgery and how he or she performs limbal relaxing

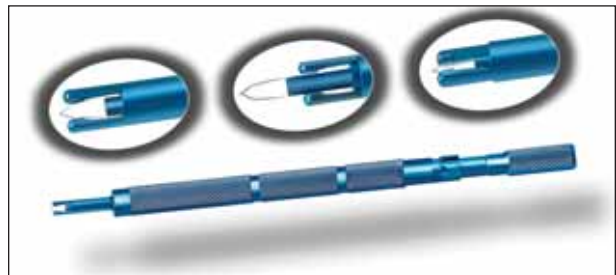


Figure 1. The Steinert/Seibel LRI Diamond Knife has its footplates at the two cutting sides of the diamond blade, allowing for complete visualization of the surface. The blade's handle, which has three preset depths that extend to 0.5, 0.55, and 0.6 mm, was designed by Barry Seibel, MD.



Figure 2. The Cleaning Cradle (Rhein Medical Inc.) uses a gentle detergent and specially designed sponge blocks that clean the blade with no potential for damage.

incisions (LRIs) and astigmatic keratotomies (Figure 1).

Typically, when the surgeon constructs astigmatic incisions and uses the operating microscope for visualization, he or she holds the knife perpendicular to the cornea. This means that, out in the periphery, the blade is tilted (because the cornea is curved) rather than oriented to be straight up and down. Because the footplates on a conventional knife run in the same direction as the cutting surface, it is not always possible to visualize the blade during the creation of incisions. Consequently, many surgeons tend to hold the knife incorrectly and not attain accurate depth, or they may make unwanted cuts, such as intersecting blood vessels.

DESIGN OF THE BLADE AND HANDLE

To solve the aforementioned problem, I collaborated with Rhein on a design that rotates the blade 90° relative to that of most diamond knives. Instead of running side by side, the footplates on the Steinert/Seibel LRI Diamond Knife are at

the two cutting sides of the diamond blade, allowing for complete visualization of the surface. Barry Seibel, MD, designed the blade's handle, which has three preset depths that extend to 0.5, 0.55, and 0.6 mm. At its full extension, the blade can be used to create a sideport incision.

Diamond blades must be well cared for. The surgeon should be the only person who extends the blade, and this step should be done just prior to its use. As soon as the incision is completed, the blade should be retracted back into its protective housing and handed back to the surgical assistant.

CLEANING CRADLE

Any obvious debris on the diamond knife should be rinsed off immediately with balanced salt solution. I strongly recommend the Cleaning Cradle (09-7017; Rhein Medical Inc.), which uses a gentle detergent and specially designed sponge blocks that effectively clean the blade with no potential for damage to its edges or tip (Figure 2).

The integrity of the Rhein blades is guaranteed for life, and surgeons should not cut corners when caring for these precious tools.

Roger F. Steinert, MD, is the Irving H. Leopold professor, the chair of ophthalmology, the director of the Gavin Herbert Eye Institute, and a professor of biomedical engineering at the University of California, Irvine. He has many instrument designs produced by Rhein Medical. Dr. Steinert may be reached at (949) 824-8089; steinert@uci.edu.

My Go-to Blade From BVI

The safety shield is a great feature.



BY ROBERT H. OSHER, MD

I favor a grooved, three-plane cataract incision using both a diamond and a steel blade. My incision is a near-clear corneal incision that begins with a groove. It is followed by a second plane, made with a diamond blade, and oriented uphill into the cornea. I enter the anterior chamber with the Beaver Xstar Safety 2.2-mm guarded blade (Beaver-Visitec International, Inc., Waltham, MA) that I designed for the company. Although I prefer a three-plane incision, a two-plane construction is also acceptable.

SAFETY KNIVES FOR MICROINCISIONAL CATARACT SURGERY

The 2.2- and 2.4-mm diamond knives are ideal for microincisional phacoemulsification, and the addition of the safety shield makes for an excellent combination (Figure 1). The scrub technician who passes this knife to



Figure 1. The Beaver Xstar Safety 2.2-mm guarded blade is exquisitely sharp.

me in the dark OR feels very safe and secure. I believe all surgeons should be using guarded blades. Beaver-Visitec International, Inc., showed great insight in introducing this technology and enhancing the safety of the incision's construction for all of us.

The blade is exquisitely sharp, and it is scored to help surgeons create the best type of incision, which I believe is square, as introduced by Paul Ernest, MD. In addition, I like to flare the internal edge of the incision so that it measures 2.2 mm on the outside and 2.4 mm on the inside. To create the flare, I back up the blade slightly and then angle the knife to one side. I will repeat this process, backing up the blade slightly and then angling it to the other side. Having the outside of the incision at 2.2 mm and the inside at 2.4 mm reduces the amount of friction. It also allows for better maneuverability of the phaco and I/A tips while facilitating the injection of the IOL.

CONCLUSION

Incisions are like the alphabet. If A is not right, then B is bad, C is catastrophic, and D is a disaster. It is essential to construct a reproducible and extraordinarily safe incision.

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Blades From Mastel Precision

These gems represent true craftsmanship.



BY JAMES S. LEWIS, MD

If you have the luxury of having a meticulous instrument technician or a nursing staff with a great deal of respect for ophthalmic surgical tools, then no other instrument is as rewarding to own as a diamond knife from Mastel Precision (Rapid City, SD). Doug Mastel's company has been catering to elite eye surgeons since the early days of RK. The Mastel name is

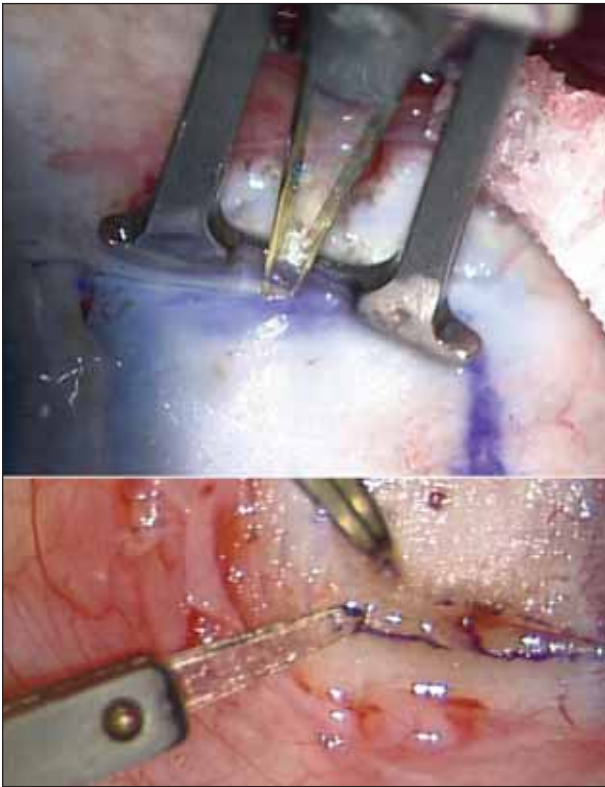


Figure 1. Mastel Precision's diamond blades are finely crafted ophthalmic scalpels.

the Aston Martin of ophthalmic diamond scalpels (Figure 1). For nearly 3 decades, the company has designed, refined, and advanced the science of diamond blades. Beginning with specialized handles and footplates and pushing the boundaries of the blade's size, shape, and sharpness, Mastel is continually innovating and enhancing the surgical experience. Once you have used these instruments and become accustomed to their aerodynamics, consistency, and quality, you will find it very difficult to accept anything less.

INPUT FROM EXPERTS

Mr. Mastel routinely visits surgeons like I. Howard Fine; Robert Stegmann; Paul S. Koch; Warren E. Hill; Francis W. Price Jr; Howard V. Gimbel; Spencer P. Thornton; Louis D. "Skip" Nichamin; and Iqbal Ike K. Ahmed for recommendations, criticism, and advice. These year-round pilgrimages have led to the development of the company's SuperStealth blades, Triamonds, and SuperPentiums. Ingenious multiuse titanium handles like the PHD II allow surgeons to employ a single, multistep, depth-based diamond knife for limbal relaxing incisions, astigmatic keratotomies, scleral pockets, and paracenteses. One of my nurses assumed that PHD was the name of the instrument

because it was so smart.

When a Mastel Precision diamond blade is treated well, it can perform perfectly for years through thousands of cases. These knives make incisions in soft eyes, lamellar cuts through perforated corneas, and layer-by-layer dissection of the sclera on the way to Schlemm canal simple. Perforations during limbal relaxing incisions just do not occur with Mastel Precision's products. One ding with a forceps, however, and the instrument must be sent off to the company's experienced and appropriately expensive diamond repair department. Turnaround is prompt, and after a few years, you learn the names of everyone who works there. They get to know you as a surgeon as well and all of your blades. I have never before experienced craftsmanship or service at this level.

CONCLUSION

Mastel Precision also manufactures phaco needles and a wonderful collection of markers. Like the diamond knives, these instruments are of ingenious design for optimal performance. Mr. Mastel has no interest in running a company that is average or that sells low-cost diamonds. He knows his clientele, and he is always available to entertain new ideas. Surgeons like myself who use this company's instruments are reminded why we specialized in ophthalmology every time we operate.

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ASICO Advancut Blade

The sharpest metal blade on the market.



BY CHARLES S. AHN, MD

As the trend toward smaller incision sizes continues, ASICO LLC (Westmont, IL) has introduced an extremely sharp metal blade, the Advancut, available in sizes as small as 2 mm (AS-8312).

This blade was designed with artisan-crafted bevels on the edge to enhance the surgeon's ability to create a perfect square, self-sealing incision, thereby eliminating the need for hydration. The side-cutting edges also allow for easy extension of the wound.

The Advancut Safety Blade has safety blades that extend and retract with an easy twist, providing a precise cut for the surgeon and a safe surgical experience for the OR staff. The Safety Blade is available in sizes of 2, 2.2, 2.5, 2.65, 2.8, and 3 mm.

The blade (Figure 1), which cuts like a diamond knife, takes into account the differences between patients, so that the products perform consistently from one case to the next. The blade is economical, but it does not compromise on quality or effectiveness.



Figure 1. The Advancut offers an artisan-crafted bevel.

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Accutome Premium Cataract Surgery Package

The surgeon's ability to perform high-quality, reproducible premium cataract surgery is enhanced by these blades.



BY ERIC D. DONNENFELD, MD

Accutome, Inc. (Malvern, PA), offers two customized diamond knife packages. The company's Premium Cataract Surgery Package features a Simplicity Clear Cornea Diamond Knife, a Hawkeye Premium Series Sideport Diamond Knife (Figure 1), and a Donnenfeld LRI Diamond Knife. The Astigmatism Management Package includes three Donnenfeld LRI Diamond Knives and either a free toric marker or an additional Donnenfeld LRI Diamond Knife. Surgeons can customize each blade's preset depths and handle styles.

I choose to use the Accutome Premium Cataract Surgery package diamond knives (Figure 2) because they provide a comprehensive group of these tools to meet all of my cataract surgery incisional requirements. Modern premium cataract surgery requires reproducible incisions to provide self-sealing and astigmatically predictable incisions. The Clear Cornea Diamond Knife allows me to create a three-plane self-sealing incision, and the Hawkeye Sideport



Figure 1. The Hawkeye Premium Series Sideport Diamond Knife.

Diamond Knife creates a perfect incision, which will not "oarlock," gape, or leak.

I have designed the Donnenfeld LRI Diamond Knife as the only astigmatic incisional blade with a 15° angulation to match the curvature of the eye. This allows me to create a truly perpendicular incision for optimal astigmatic control. I find the entire set of diamond knives to be of the highest quality and to provide reproducible incisions for the long term.

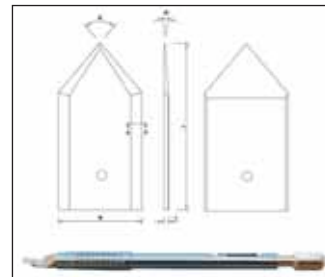


Figure 2. Simplicity Diamond Knives.

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ACCUTOME LAUNCHES NEW E-COMMERCE WEB SITE

- Accutome, Inc. (Malvern, PA), has launched a new e-commerce Web site (www.accutome.com). According to a news release from the company, the new Web site features over 2,500 ophthalmic products.
- The Web site has been tailored to meet the needs of specific ophthalmic facilities. Managers of surgical centers will be able to purchase all of their single-use items such as blades, cannulas, iris retractors, and surgical attire. Customers will also be able to purchase surgical instruments and diamond knives via the Web site.
- Purchasing staff from ophthalmic offices can now order all of their diagnostic and therapeutic drops, including generic antibiotics. The Web site also includes a variety of supplies such as bulbs, batteries, eye charts, and paper products.
- "Traditionally, our business has been conducted over the phone. Smartphones, tablets, and even electronic medical records have placed a greater demand for online shopping for ophthalmic supplies," stated James O'Connor, marketing manager for Accutome, in the news release. "Trade show attendees might not bring the catalogs you mailed, but they will always bring their smartphones or iPads with them."
- Customers will be able to manage their accounts via the Web and track their shipments. The Web site also acts as a resource video complete with product instructions and videos.

Duckworth & Kent and MANI Blades

Crestpoint Management (St. Louis, MO) is the exclusive distributor for both of these manufacturers.

TITANIUM INSTRUMENTATION

Duckworth & Kent is one of the world's leaders in titanium ophthalmic surgical instrumentation. The company manufactures a range of products at its headquarters in Hertfordshire, England. Its Barrett Four Position Diamond Knife (5-825) features a 1-mm wide lance diamond blade and four preset cutting depths of 0.2, 0.3, 0.5, and 5 mm.



Figure 1. Slit Angled Knives from MANI have a 45° angle and are available in 1, 1.8, 2.2, and 2.75 mm.

The overall length is 128 mm, and the knife has distinctive identification labeling. According to company literature, the four-position handle may be used to perform 0.2- or 0.3-mm depth external incisions for phacoemulsification. The diamond knife's fully extended position provides a lance-style blade for the paracentesis incision.

MANI DISPOSABLE KNIVES

MANI, from Tochigi, Japan, and founded in 1956, specializes in disposable knives for ophthalmology. The company's surgical tools have a crosslapped edge that provides better sharpness, the material is strong and resists breakage, and the blades include a silicone coating. The MANI Straight Knife (MST15) features a 15° sideport, and the Slit Angled Knife (MSL10; Figure 1) creates a 1-mm primary incision with a 45° angle. Also available are Slit Angled Knives for 1.8-, 2.2-, and 2.75-mm primary incisions, all at a 45° angle (MSL18, MSL22, MSL27, respectively). A surgeon who has been evaluating the MANI knives said in e-mail, "I was impressed with the sharpness and with the self-sealing nature of the incision that it produced."

The company's MVR Knife (MVR23A) has a 45° angle. It is 23 gauge and 0.9 mm. ■

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