

Doubling Up at the Cutting Edge

Bi-Blade® cuts twice where a standard vitrector cuts once, resulting in predictable surgery – even for the smallest gauge devices and in the most difficult cases. What's special about this new vitrector?

Bausch & Lomb's Stellaris Elite™ system comprises a portfolio of advanced devices and technologies that together can accommodate both current needs and future developments in anterior and posterior segment surgery. Within this technology suite, advanced vitrectors are complemented by a comprehensive range of accessories. Moreover, the new Adaptive Fluidics™ system (for Anterior segment only) continuously tracks vacuum flow rate at every moment of surgery and automatically adjusts infusion pressure to minimize IOP fluctuations and maintain stability.

In retinal procedures, surgeons further benefit from the precision conferred by the Elite range of accessories. Ultra-bright (xenon) lighting options give excellent visualization even with small-gauge instruments, and the selection of illuminated devices includes chandelier designs (which allow variable illumination patterns and eliminating shadows) and directional laser probes (which deliver midfield light patterns, enabling unassisted scleral depressions). Specialized filters – yellow, green or amber – provide alternatives to intra-operative dyes, and can help prevent illumination-associated retinal phototoxicity.

Vitrectomy devices, however, are among the most impressive elements of the Elite portfolio. Single-port vitrectors are available down to 25 gauge; here, the impeded aspiration normally associated with smaller lumens is offset by the



Figure 1. The graphic user interface of Stellaris Elite™ system.

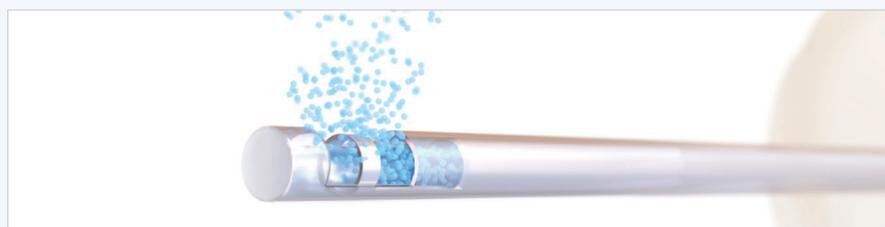


Figure 2. The Bi-Blade® dual-port cutter.

new 7500 cpm cut-rate, which optimizes efficiency of vitreous removal. The Bi-Blade vitrector is more efficient still, due to its novel dual-port design (a port in both inner and outer guillotine sleeves). This enables cutting in both forward and backward movements; cutting twice per cycle permits cut-rates of up to 15,000 cpm (double the rate of standard vitrectors). Such high speeds facilitate highly efficient vitreous removal – in 25- and 27-gauge models. Furthermore, Bi-Blade's dual-port design maintains consistent flow at all points in the cutting cycle – even at the highest cut-rate – and potentially minimizes the risk of retinal traction. The result?

Unprecedented control in a variety of procedures – including operations near mobile, detached retina (see boxes on the right).

Elite's advanced guillotine vitrectors are now complemented by the Vitesse™ patented hypersonic

vitrectomy system. Vitesse technology creates vitreous liquefaction by fragmenting collagen more finely than is possible with guillotine vitrectors; this blade-free approach has significant potential including the following:

- port is fully open, at all times, assuring consistent, uninterrupted aspiration for stability
- speed: "virtual cut-rate" of over 1.7 million cuts per minute
- efficiency: single-sleeve design permits bigger lumen cross-section (+28 percent compared to B+L 23Ga cutter) to allow faster removal of vitreous
- unlike guillotine vitrectors, Vitesse does not pull vitreous through the port prior to cutting, therefore gentler on the retina for less risk of retinal traction.

Importantly, liquefaction is confined to the port margin, to enable precise control of tissue ablation.

In conclusion, the Stellaris Elite portfolio permits safe and efficient surgery with narrow 25- and 27-gauge instruments. Higher cut-rates improve efficiency; greater efficiency means faster surgery; and speedier surgery with smaller gauge devices has the potential to reduce trauma and gives faster recovery rates. These advantages can be exploited within the precisely controlled environment provided by other components of Stellaris Elite: stabilization and precision enabled by Elite accessories, such as advanced lighting systems and illuminated probes.

Surgical footage can be viewed at www.bauschsurgical.eu/products/cataract/stellaris-vision-enhancement-system/stellaris-elite/

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Bi-Blade Benefits

In his private hospital (Fondation Ophthalmologique Adolphe de Rothschild, Paris, France) Yannick Le Mer focuses on complex cases with proliferative vitreoretinopathy. How does Bi-Blade perform?

Small gauge vitrectors remove less vitreous with each cut. Increased cut-rates help address this inefficiency – but at higher speeds, the port is open for less time, thereby limiting aspiration. Bi-Blade circumvents this issue by cutting both as the port opens and as it closes. Hence, a 27-gauge Bi-Blade is as efficient as 25-gauge standard vitrector, and a 25-gauge Bi-Blade is as fast as normal 23-gauge instruments. Moreover, the bilinear control matches both cut-speed and aspiration rate to procedural needs: for example, in the center of the vitreous one can keep

aspiration constant while decreasing cut-speed. This promotes efficiency by increasing the volume of vitreous aspirated into the port between each cut. Increased speed does not, however, result in increased traction on the retina, even in detachment surgery.

Bi-Blade can undertake a peripheral vitrectomy without becoming blocked, and will manage even dense vitreous hemorrhages without compromising efficiency. Furthermore, Bi-Blade's port location – at the device tip – allows surgeons to grasp proliferative tissue on the retina, thereby reducing the need for scissors. Overall, vitrectomy is simply easier.

In conclusion, Bi-Blade reduces surgery time – mainly because, despite the 25 or 27 gauge, it doubles the rate of vitreous removal. Furthermore, it allows close control of all aspects of the procedure, and minimizes traction even at very high speeds. In brief, in my opinion, Bi-Blade makes vitrectomy faster and safer.

Difficult Cases

Faisal Fayyad (Jordan Hospital, Amman, Jordan) sees many difficult patients in whom previous surgery has failed. Does Bi-Blade help in these cases?

Bi-Blade is very useful in complex procedures: it gives a more stable flow and makes it safe to work close to the retina – great for complicated PDR and tractional retinal detachment cases. It allows me to engage the tissue before starting to cut and often enables me to perform procedures single-handedly rather than bimanually – excellent in cases of diabetic retinopathy or trauma. With

Bi-Blade, I can even touch the retina safely during anterior vitrectomy. For me, Bi-Blade's speed, efficiency, and dual-linear control are now essential.

And its versatility is wonderful: I can use Bi-Blade to make a controlled small radial retinotomies at the edge of a large or giant retinal tear to relax the retina, or to make a very precise anterior retinotomy when anteriorly draining a retinal detachment. Post-surgery recovery time is fast even in very complicated cases, probably due to the faster surgery and smaller gauges of Bi-Blade. Even combined procedures result in only minimal inflammation.

To summarize, Bi-Blade is excellent for dealing with complicated cases; I find it versatile, efficient, and safe.