Greatest wound retention performance compared with EdgePlus valved cannula

New ESA valved cannula retention performance comparative study and results:
- Bausch + Lomb ESA valved titanium cannula incorporate a novel shaft retention feature, with a series of raised textured ribs near the hub, specifically designed for better wound retention performance.
- Laboratory test results show an improvement in wound retention performance (retention force, g) compared with EdgePlus (Alcon) stainless steel cannula [3].
- Figures 3 and 4 illustrate comparative retention force results for Bausch + Lomb ESA valved cannula and EdgePlus (Alcon) valved cannula assemblies for two different gauges (23- and 25-gauge).

Figure 3
New 23G ESA can Retention Force (grams)
- New 23G can Retention Force (grams)
- Current 23G can Retention Force (grams)
- New 23G can Retention Force (grams)

Figure 4
New 25G ESA can Retention Force (grams)
- New 25G can Retention Force (grams)
- Current 25G can Retention Force (grams)
- New 25G can Retention Force (grams)

Mean 153.6 g vs. 140.3 g, respectively, P=0.050.
Mean 157.4 g vs. 140.8 g, respectively, statistically significant, P<0.001.

References
2. Poster presentation at ARVO annual meeting 2012; abstract #D972.
Easy insertion and optimized wound construction

- A long taper tip creates a slit wound design and better wound healing.
- Minimal insertion force is required to insert the new valved cannula – easier system into the eye.

“Minimal force is required to insert the valved cannula into the eye; the insertion force is similar to that required using othervalved one-step systems. I prefer insertion with an oblique angle, which provides for a better wound seal.”

Kevin J Blinder, MD, Retina Specialist, The Retina Institute, Washington University, United States.

Enhanced wound retention properties

- Titanium cannula incorporates a textured shaft for improved stability and intravitreal securement.
- Improved retention properties compared to the old ESA system.
- Optimized wound construction and cannula retention, reducing the need for sutures.

“The textured hub of the ESA valved cannula provides good fixation, with reliable wound retention. Inserting and removing soft tip instruments through the ESA silicone valves during surgery is straightforward. Valved cannulas eliminate the need for plugs, which simplifies the procedure.”

Ashweth Towar, MD, Retina Specialist, Keough Eye Institute, Detroit, MI, United States.

Self sealing, vented valves that are surgeon removable

- Self-sealing valves that are surgeon removable, allow vent-leakage at 50 mmHg infusion pressure (express as required under certain intraoperative situations).
- Designed for use with soft tip instruments.
- Translucent valves to assist instrument exchanges in dim light.

“The positioning of the valve on the outside of the cannula allows greater surgeon flexibility, while the translucent design enhanced illumination for instrument exchanges in dim light.”

Ashweth Towar, MD, Retina Specialist, Keough Eye Institute, Detroit, MI, United States.

Higher achievable infusion flow rates

- Infusion cannula with tapered design that mechanically confirms retention and provides for substantially higher (50%) achievable infusion flow rates compared with non-valved silicone valves, facilitating improved IOP control.
- A secure closed fluid system, minimizing both IOP fluctuations during instrument exchange and risk of infestation outcomes caused by heightened intraoperative IOP changes.

“The infusion flow rate using the ESA valved cannulas is definitely more responsive, providing better fluidics and allowing improved vitrectomy performance.”

Bruce Robert Saran, MD, Retina Specialist, Chester County Eye Care Associates, West Chester, PA, United States.

Infusion flow rates using 23G valved and non-valved cannulas

Figure 1

Flow Rate (ml/ min)

Pressure (mmHg)

B+L 23G valved
B+L 23G non-valved
Current 23G can Retention Force
NEW 23G can Retention Force

Retention Force (grams)

Mean Std Dev N

140.8 36.00 30
157.4 27.20 30

Flow Rate (ml/ min)

Pressure (mmHg)

B+L 25G valved
B+L 25G non-valved
Current 25G can Retention Force
NEW 25G can Retention Force

Retention Force (grams)

Mean Std Dev N

140.3 35.32 30
153.6 27.67 30

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Higher potential infusion flow rates, for greater fluidic stability

ESA valved cannula infusion flow rate comparative study and test results.

- Test results from a comparative infusion flow rate study show greater flow rates than ESA non-valved infusion cannula assembly [6].
- Higher potential injection flow rate performance using valved cannula during closed-system vitrectomy facilitates more stable IOP control irrespective of aspiration rates, improving fluidic stability with minimal fluid leakage during instrument exchange [8].
- The inner diameter of the locking infusion line has been enlarged to improve overall intraocular pressure (IOP) maintenance.
- Assessed across a range of bottle pressures (from 20 mmHg to 50 mmHg), the ESA valved infusion cannula assembly demonstrated a higher achievable infusion flow rate for the 23G cannula and the 25G assembly compared with ESA non-valved cannulas of the same gauge (Figure 2).

Figure 2

Flow Rate (ml/ min)

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