

## Why doesn't the B-HEX Pupil Expander have an Injector?

It is heartening to note that all surgeons who have used the B-HEX Pupil Expander are convinced that an Injector is unnecessary and that other devices use an Injector only to circumvent inherent flaws in their design. Injectors neither improve the functionality nor enhance sterility of the pupil expansion device.

An Inventor always poses questions in an attempt to find better solutions.

### Q1. Why existing pupil expanders could not be inserted through small incisions?

Existing devices had large biplanar scrolls/ pockets which snagged the slit corneal incision on their way in and out. **It appeared fundamentally wrong to try and push this biplanar structure through a slit corneal incision** – it would obviously snag the incision.

This was resolved by inventing a planar/ uniplanar 'B-HEX Pupil Expander' which could effortlessly glide in and out of the eye through very small incisions.

### Q2. Why did existing pupil expanders use an Injector despite the fact that the Injector tube occupied precious incision space?

It was realized **that the Injector had been provided only to circumvent the problem of snagging at the incision**. Hence, **a device that did not snag the incision would not require an injector**.

### Q3. Does the Injector improve the functionality of the pupil expansion device?

**No, it does not.**

When an Injector is used to deliver an IOL, it helps fold the large stiff IOL to negotiate it through a small incision. This is necessary because otherwise, significant force and additional maneuvers are required to accomplish this. But, **Pupil expanders do not require such force or maneuvers to be folded/ deformed to negotiate through corneal incisions**. They are **resiliently flexible** and can easily deform and regain shape as they pass through small incisions.

Since the flanges of the 'B-HEX Pupil Expander' are held and tucked with the 'B-HEX 23 G forceps', **the control is at the site of action**. This is in contrast to a device delivered with an injector where the control is more remote and away from the site of action.

Another advantage of not using an Injector system with an opaque metal tube is that the **B-HEX is never obscured and is visible through its entire travel** from the housing into the eye.

### Q4. Does the Injector provide enhanced sterility?

The **Injector does not provide enhanced sterility** because the tube/ cartridge nozzle contacts the conjunctiva as it negotiates the incision. While the IOL or the pupil expander may not contact the incision or conjunctiva, the injector tube or cartridge nozzle does so when it enters the eye. So does the phaco sleeve and every other instrument that we use in ocular surgery.