The Xen implant and iStent are both considered as "MIGS" - Minimally invasive glaucoma surgery.

The difference between the Xen implant and the iStent is that the Xen implant is a full thickness device. The iStent is designed to open up part of the trabecular meshwork, whereas the Xen implant is a thin micro-tubule that crosses the trabecular meshwork completely. For more information about the Xen implant, please see the links to the left for another article.

Mr. Bergheim - a founder of the company that now makes the iStent implant - had a close family member who was diagnosed with glaucoma at a young age. In search of a treatment, he contacted Richard Hill, MD, an ophthalmologist at the University of California to discuss treatment options. Trabeculectomy was the recommended therapy and the only viable option at the time. During their discussions, Dr. Hill presented the concept of a trabecular micro-bypass stent. He had spent several years analyzing the clinical potential of implanting a micro-bypass stent into Schlemm's canal to restore physiologic outflow while avoiding the major drawbacks of invasive glaucoma surgeries. The pair then collaborated with Mory Gharib, PhD, who is the Hans W. Liepmann Professor of Aeronautics and the Professor of Bio-Inspired Engineering at the California Institute of Technology. Mr. Bergheim, Dr. Hill and Dr. Gharib later formed Glaukos and began development of the micro-bypass stent. Dr. Gharib provided the fluid mechanics of the design, as well as technical leadership. Dr. Gharib developed the first prototype and within one year the first human implant of the micro-bypass stent was performed.
Glaukos iStent

Extra sharp tip of stent

Lumen

1 mm

iStent on 22mm diameter coin

Purple arrow: iStent snorkel opening which drains aqueous fluid out of eye

Red arrow: length of iStent