

Flow Diverter Stent

for treating complex intra-cranial Aneurysms

TRC P 8155

Flow diverters stents are used for diverting blood flow away from the aneurysms in the brain that help reduce the blood flow into the aneurysm as well as its chances of rupture and promote the healing of the aneurysm. Flow diverter stent is designed to have optimum radial force to adhere to the walls of the parent artery of complex shapes to reduce the chances of migration and kink resistance for tortuous and complex blood vessels.

The Chitra FDS technology has been transferred to M/s Biorad Medisys Pvt. Ltd, Pune.



figure 1: Chitra Flow Diverter Stent

The Chitra-FDS is a tube braided from fine nitinol wires in a unique checker-board pattern. The pattern consists of thicker wires interlaced with the braid of thinner wires in a novel way which imparts greater radial strength and flexibility to the device. It also has a high kink resistance. Drawn filled tubes are used in the thicker set (DFT wires) to increase the radio-opacity of the device and allow accurate deployment.

The pusher cable used for delivery has a fully resheathable feature which allows accurate repositioning if required. It has a NiTi wire with graded steps and a hypotube for engaging the device in a device retainer at its distal end.

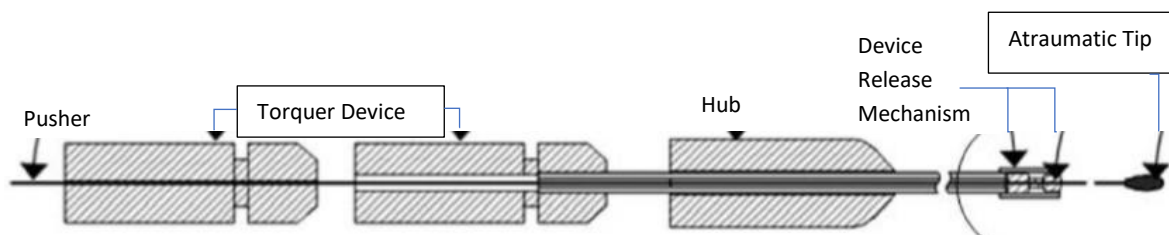


Figure 2.1: Delivery System Design

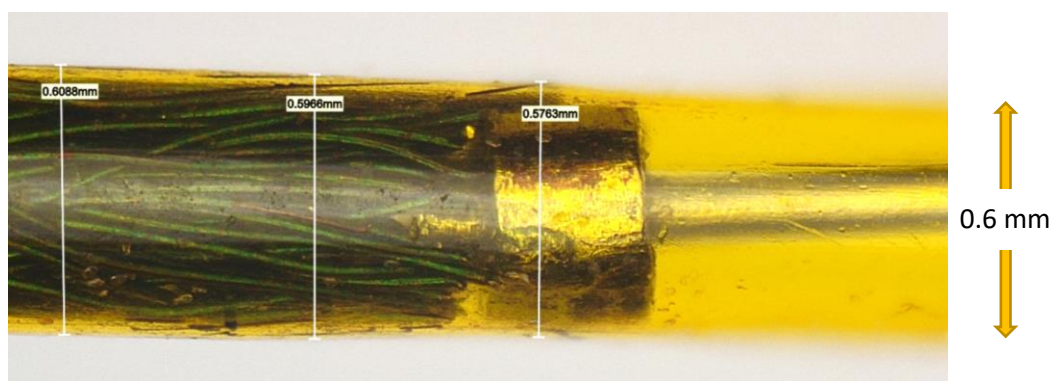


Figure 2.2: Device integration with delivery system

The delivery device has been prototyped and has the following components: pusher wire, hypotube and device retainer, which have been designed and vendored. The processes for integrating the delivery system is also complete. The integration of the device with the delivery system is ongoing.

The novel checker-board design and the novel features of the delivery system have been protected through two patent and one design applications.

Technical PI – Dr. Sujesh Sreedharan, Engineer – F, Department of Medical Device Engineering, BMT Wing, SCTIMST

Clinical PI - Dr. Santhosh Kannath. Addl. Professor. Department of Imaging Sciences and Interventional Radiology, SCTIMST, Trivandrum

Dr. SK Bhaumik, Chief Scientist, Materials Science Division, CSIR-NAL, Bengaluru – Collaboration Partner for NiTi wire processing

M/s Biorad Medisys, Pune – Industrial Partner