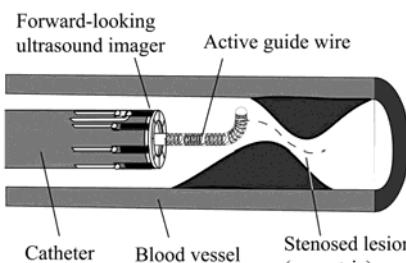
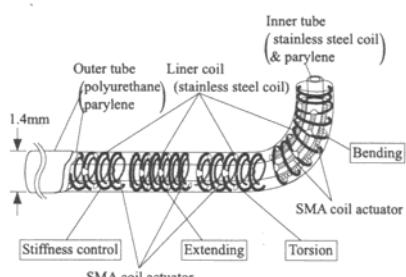


Active Catheter

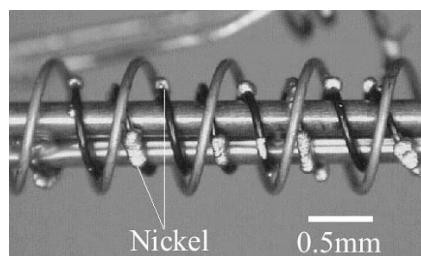
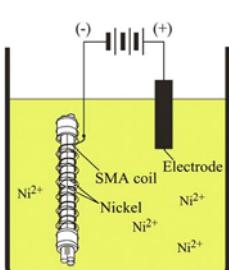
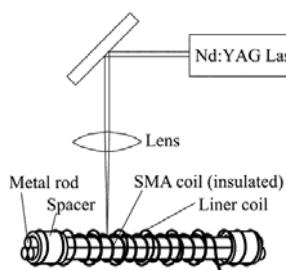


Concept of multifunction active catheter



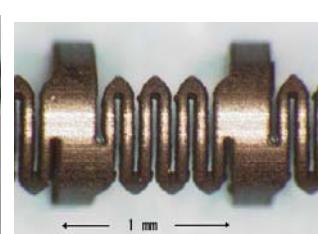
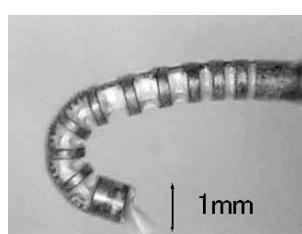
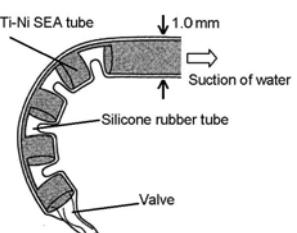
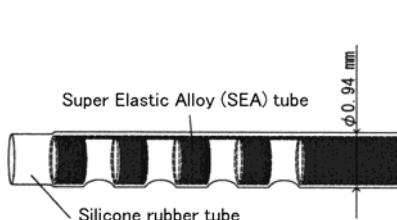
Active ileus tube

Reference : Y.Haga and M.Esashi, Biomedical Microsystems for Minimally Invasive Diagnosis and Treatment, Proc. of the IEEE, 92 (2004) pp.98–114



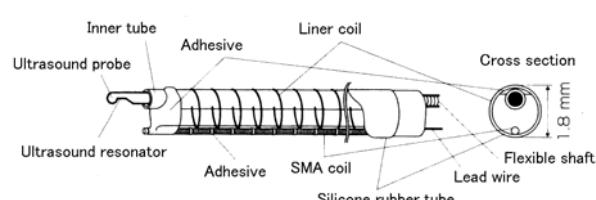
Assembly of multi-function active catheter using Shape Memory Alloy (SMA)

Reference : Y.Haga, M.Esashi, Assembly of Bending, Torsional and Extending Active Catheter Using Electroplating, Trans. IEE of Japan, 120-E (2000) pp.515–520



Suction type active catheter

Reference : Y.Muyari, Y.Mineta, T.Mineta and M.Esashi, Development of Hydraulic Suction Type Active Catheter Using Super Elastic Alloy Tube, Proc. of the 20th Sensor Symposium (2003) pp.57–60



Small diameter ultrasound image sensor with active bending mechanism using SMA



Reference : Y.Haga, Y.Tanahashi and M.Esashi, Small Diameter Active Catheter Using Shape Memory Alloy, Proc. of IEEE MEMS'98 (1998) pp.419–424