The customized machine for fabrication of the Twisted-and-Coiled Actuators.

The machine’s high is 1.8 m and we can install a precursor fiber around 3.2 m by folding the fiber around a roller at the bottom of the machine. That will allow the machine to fabricate a TCA with maximum length of 1 m within 8 min for a proficient user. The machine can be used to fabricate either extension TCA or contraction TCAs.

A control panel is installed and there are functioning buttons that can control fabrication speed, reset the machine, control individual motors and motor directions. The machine has 5 step motor that control the twisting and coiling process. Motor A and B insert twisting into a precursor fiber from the two ends of the fiber. Motor C and D rotate the mandrel and motor E control the traveling to coil the twisted fiber on a mandrel.



