

Application Information

Catheter Torque Strength Testing

A catheter is a flexible tube inserted into the body to treat diseases or perform surgical procedures. Most commonly known, a catheter is utilized to remove fluid from the bladder. But they are often used in other diagnoses and treatments outside of urinary issues. Cardiac Catherization involves the catheter being inserted into a large blood vessel leading to the heart to provide information on how well the heart is working. In neurovascular procedures, microcatheters deliver the necessary equipment and liquids to the brain for treating ailments including but not limited to aneurysms and strokes.

Due to the precarious nature of these procedures, catheter manufacturing must adhere to stringent standards in conjunction with rigorous quality control testing to ensure products are in proper working order. Amongst performance tests like flexibility, coating integrity, bond strength, balloon inflation/deflation time, it is vital that the torque strength of the catheter be tested. Torsional failure at any point in the catheter could lead to device failure or vessel damage and further medical issues for the patient.

The Food and Drug Administration (FDA) provides recommended catheter torque strength testing procedures to obtain the torsional failure threshold. This recommended test involves fixing one end of the catheter (distal tip) and rotating the opposing (proximal end) until failure. At each turn during this process the corresponding torque value is to be recorded. Nidec-Shimpo's FG-7000T-1 series Handheld Digital Torque Gauge with low full-scale range of 1 N-m (8.9 lbf-in) and 0.001 (0.005) resolution is perfectly suited for this delicate test. Its adjustable chuck grip enables grasping of a variety of catheter diameters. Plus, with a simple turn of the wrist, the torque values immediately display on the large LCD screen. With the ability to log and store acquired test data on the device with a simple button key-stroke, the torque value of each rotation can be efficiently saved expediting testing time. Further evaluation of the stored data is achieved by exporting to a PC with the free downloadable software.

These features make the FG-7000T Digital Torque Gauge the perfect device for catheter manufacturers' requirements of verifying catheter torque strength. This critical test procedure enables these manufacturers to eliminate unacceptable product passing through to patients, preventing potential failures and resulting liability claims.

Equipment Used

- *FG-7000T-1 Digital Torque Gauge with 1 N-m Range (8.8 in-lb)*

