

### Case Study – Hypodermic Needle Flaw Test

A leading hypodermic needle manufacturer wanted to test 100% of their hypodermic needle tubing for flaws. The needle tubing is formed and welded stainless steel that is drawn through forming dies and then annealed. The manufacturer wanted to detect through-wall cracks down to 0.100 inches (2.5 mm) long x 0.004 inches (0.1 mm) wide in needles down to 0.011 inches (0.28 mm) in diameter. 100% visual inspection or leak testing was impractical for the production rates.

#### The Solution

Eddy current testing is very well suited to finding flaws and defects in metallic tubing. For this application, the manufacturer installed the eddy testing solution just prior to the needle cutting process where defective materials could be easily cut out in-line, in real-time.

The needle manufacturer uses a single channel eddy current instrument and custom eddy coil for their solution. When a flaw is detected, the industrial I/O sends a signal to an in-line cutter which sorts out the flawed section of material. The eddy current coil uses ceramic inserts to protect the electrical coil windings from continuous wear and damage caused by burrs and snags in the tubing.

Now, multiple manufacturers have upgraded their systems in multiple facility locations to use Criterion NDT's [CR-11](#) eddy current test instrument for their tubing inspection.

For more information visit our website at [www.criterionndt.com](http://www.criterionndt.com) or call Criterion NDT at 253-929-8800.

**Equipment:** [CR-11](#),  
Custom Encircling Coil

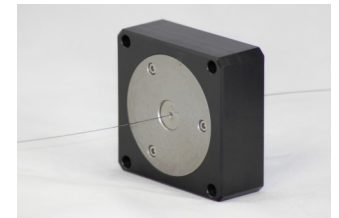


Figure 1 - Eddy Current coil with needle tubing



Figure 2 – CR-11 Eddy Current Test Instrument

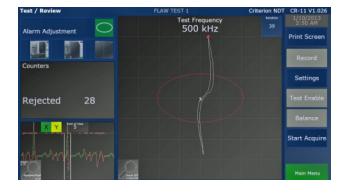


Figure 3 – CR-11 Display

