

### Case Study – Flaw Detection in Flat Tubing

#### Customer Problem

A manufacturer of extruded, thin-wall multi-void aluminum tubing, which is used to manufacture automotive heat exchangers, found that their product had an unacceptably high failure rate.

As part of their visual inspection method, a line operator would monitor the flow of newly extruded material as it passed through a tank of cooling water. An operator used an overhead mirror to look for a telltale stream of bubbles. When bubbles were spotted, the operator would use spray paint to mark the area after exiting the tank. Since the tubing was moving at a pace close to 3-ft/second, many defects were not caught due to operator inattention.

#### The Solution

The manufacturer wanted to find through-wall pin holes that were 0.010" or smaller that would allow refrigerant to leak. They decided to purchase an eddy current system in order to inspect 100% of their product. Tubing shown in Figure 1 would pass through a custom eddy current probe seen in Figure 2. Ceramic rollers and spring loaded guides helped ensure that the product was held close to the array of eddy current coils in the probe. Each probe assembly had a dedicated multi-channel eddy current test instrument.

In addition to finding through-wall pin holes, the eddy current system was able to identify restricted or plugged channels within the tube, and find Zinc coating splatter, surface cracks, laps and inclusions.

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

**Equipment:** [InSite CT](#),  
Custom Eddy Current Probe

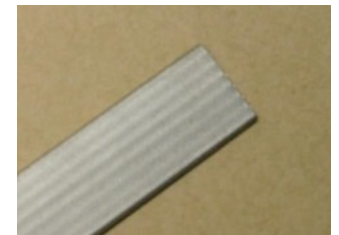


Figure 1 - Thin Wall, Multi-Void Heat Exchanger Tubing



Figure 2 – Eddy Current Probe with Ceramic Guide Rollers

