

## Market Application Case Study:

### AIR LEAK TESTING TO IP67 SPECIFICATION

#### How Leak Tight Are Your Electrical Components?

When a customer asks, are your components waterproof, how would you answer them? If your products are tested to an IP67 specification the quick answer is 'yes'. The industry buzz word IP67 refers to a coding system that differentiates amounts of 'ingress protection' or IP. A product with an IP67 rating is dust tight and leak free to withstand being immersed in up to 40 inches of water. When you test parts for an IP67 specification, your customers can trust that components will perform properly to expectations.

Here is a real-life example of a customer with a need to deliver IP67 conforming parts while also improving throughput:

**Problem:** A customer needed a solution to test automotive Electric Drive Assemblies that conform to the IP67 specification while also increasing throughput. The part was completely sealed and did not have a path for applying internal pressure or vacuum to test for a leak using traditional pressure decay methods.

**Solution:** For sealed part leak testing, CTS offers methods of pressure decay testing technology while chambering the part to measure air leakage rates into or out of the part.

Pressure decay technology is the perfect solution for sealed device leak testing:

- Dry, non-destructive leak test
- Short test times and easy to perform
- Provides high-accuracy testing
- Deliver highest quality while testing 100% of your product

This sealed part, pressure decay test is performed in two stages. First, a Volumetric Fill test is performed to determine if the part has a gross leak. A reference air tank is filled to 2-times the test pressure, a pressure switch validates the chamber pressure. An Isolation Valve closes to cut off supply air for the test. The Chamber Isolation valve is opened to the test chamber allowing the pressure to equalize and stabilize to test pressure. Passing the gross leak test initiates the Fine Pressure Decay leak test. With the Chamber Isolation Valve closed, a pressure decay test is performed measuring for the reject leak rate pressure. The 'volumetric test' determines if air is being forced inside the part at test pressure. Any change in pressure in the test chamber identifies a leak with high and low setpoint limits in the CTS Sentinel instrument identifies a 'pass and fail' decision for the test.

**Result:** CTS provided the customer with a 2-station manual load system that ensured parts conform to IP67 (no water ingress) specification and dramatically increases the customers throughput. The application stages two parts running simultaneously. Since this application allows two parts to be tested independently and the part load/unload time is quick, adding only a few seconds to the overall cycle time which nearly doubles the throughput of a single-station tester.

CTS can help you solve production problems all while ensuring your parts conform to IP67 specifications.

