Earnest

Fastener Concepts

Why Certify?

Understanding Fastener Certifications

Part II

Standardization and Certifications

Before fastener certifications, purchasing the right parts was much more uncertain, and at times, dangerous. Manufacturers made their own standards for each of their products. This meant two manufacturers' top-of-the-line products could have different tensile strengths, and thus would react differently in the same application.

Since the Fastener Quality Act of 1990, buying fasteners has been safer and more predictable. As an industry, we can now look to a wide variety of standards to ensure a safe joint, depending on the intended end-use. For more information on the Fastener Quality Act and fastener standardization, see the article *Why Certify: Understanding Fastener Certification.* Because there are so many different sets of standards, not every standard applies to every fastener.

At Earnest Machine, we use 5 types of certifications. Each certificate has its own standards and regulatory tests, but all tell us specific information about the fastener. In compliance with the Fastener Quality Act, we keep each necessary certificate on file for 5 years. This means each certificate available for your order is accessible by request.

Types of Certifications

1. **Certificate of Conformance, or CofC:**
   These certificates affirm the product meets the standards the buyer specified. They hold the manufacturer accountable for the safety of the product in its end-use.

2. **Material Test Report, Manufacturer's Testing Report, or MTR:**
   An MTR is a more detailed document than a Certificate of Conformance because it accounts for the fastener's base material. They confirm the material's physical and chemical properties are up to industry standard. Most MTRs include the material's ultimate tensile strength, yield, elongation, reduction of area and hardness, heat treatment, and raw material specs. They also have a breakdown of the chemical elements by percentage.

3. **Plating Certification:**
   This certification confirms the type of finish, product description, and the lot number from the manufacturer. They will only include specifics that the customer requests, usually the type and thickness of the finish. A customer may also request the results of salt spray testing.

4. **Initial Sample Inspection Report, or ISIR:**
   This report requires additional testing, so if a customer requires an ISIR document, they must request it at the time of their order. These usually involve taking six random pieces as samples and comparing their dimensional characteristics to those on the drawing. The six pieces should be numbered and submitted with the form.

(ISIR Continued:)

They also contain results from material and performance tests, like hardness, tensile strength, and proof load strength. A customer may also specify plating and coating information in their ISIR. In this case, the report will include a description of the plating material, the internation standards to which the plating adheres, and the amount of material deposited on the product (either by thickness or weight). A customer may request the results of a salt spray test in addition.

5. Production Part Approval Process, or PPAP:

The PPAP is the most comprehensive of the reports we use at Earnest Machine. Like the other certifications, its purpose is to establish trust between a manufacturer and customer. But because this standard applies to the automotive industry specifically, there is a lot at stake when it comes to safety. A PPAP establishes trust in the supplier's production process by releasing information to their customer before the part ships. There are 18 requirements the supplier must either retain on file or send to the customer for sign off, depending on the level of PPAP the product requires or the customer requests. The requirements range from design records, and initial process studies, to product samples. You can find a complete list of the requirements in the AIAG PPAP Manual.