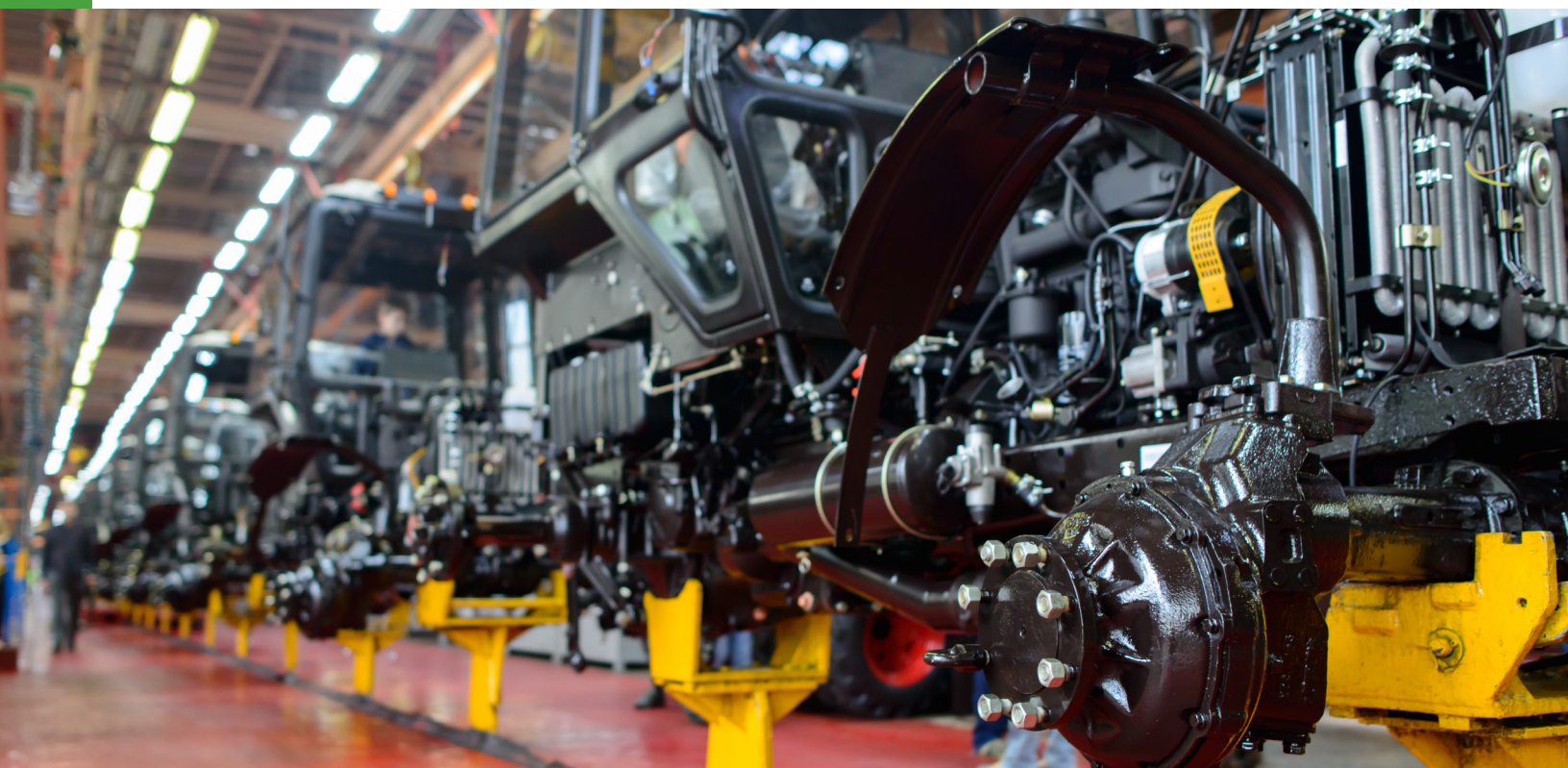




# How Improved Fastener Testing Could Prevent Costly Production Line Mistakes

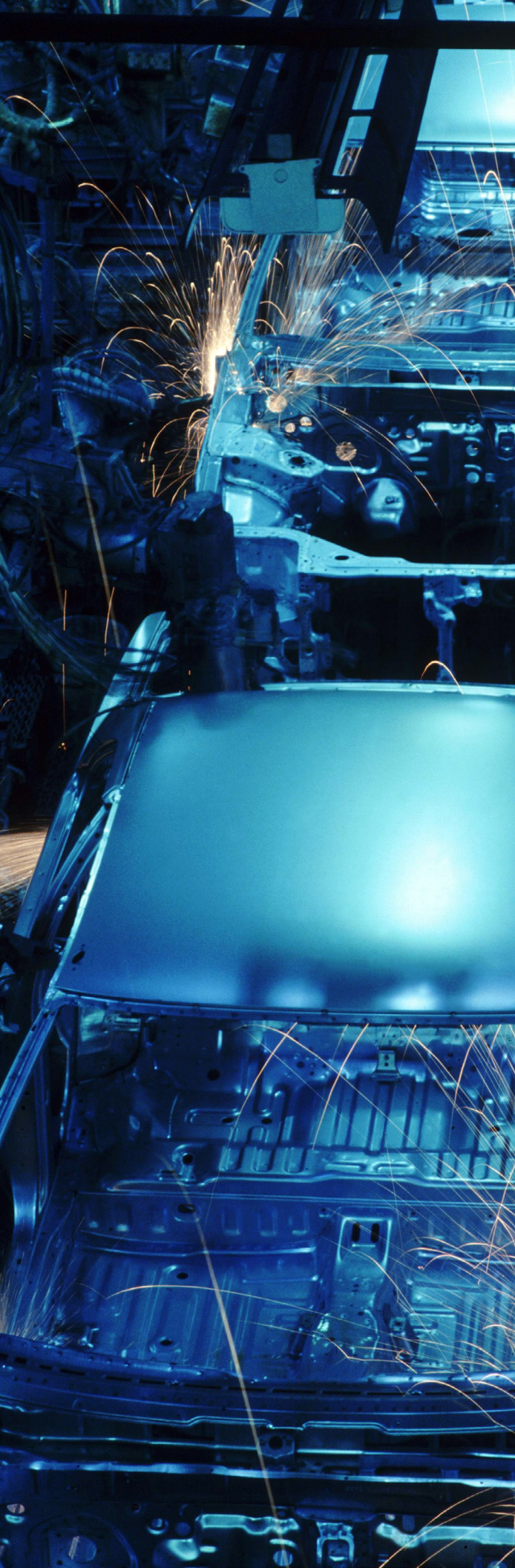




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**We know that a product is only as good as the sum of its parts, but it's easy to forget about the process that goes into developing those parts.** It's easy to focus on the product and take shortcuts on testing the quality of connecting parts and fasteners. Moreover, even when we realize how critical testing is to any manufacturing process, myths and misunderstandings can colour our perception of how testing actually works.

The most common testing misconceptions are that:

- ✘ **It's quick.** Many people incorrectly assume that testing occurs *after* a product's creation. The item is checked for faults, and only then are corrections made. Ideally, a high-level testing process should be iterative and happen at every touchpoint during the manufacturing cycle.
- ✘ **It's easy for anyone to conduct.** Testing can be as complex and artful as any other process in your manufacturing. It includes many skills, from data analysis to configuration management and release control, and it requires adequately trained staff to take care of it.
- ✘ **It's simple to understand the results.** Quality assurance pulls in troves of data from several different sources. Analyzing and understanding these data points takes time and experience. To solve problems, you'll need enough people with enough understanding to communicate what exactly has gone wrong.

Testing is a crucial part of your business's productivity despite these misconceptions. Understanding its importance is critical to determine how testing can impact the quality of the fasteners and components that compose your final product.

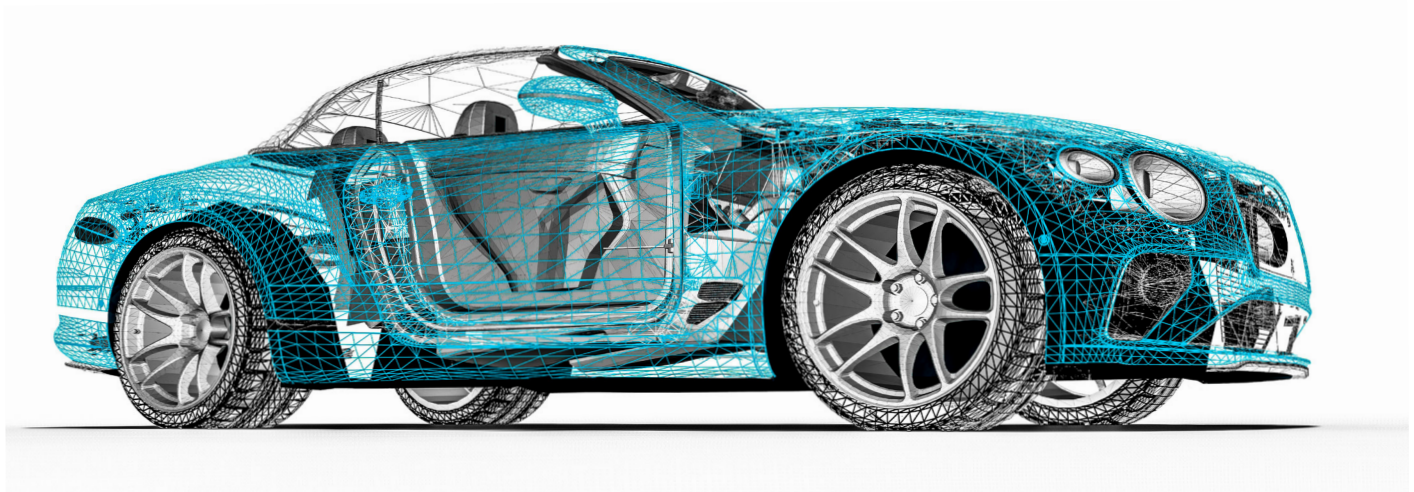
# Why Testing Lends Credibility to Your Parts

For starters, *not* testing can significantly impact your productivity. When a product lacks sufficient verification, substandard parts, mistakes, and defects can lead to catastrophic failure for the final product.

Such a breakdown occurred when General Motors released the Chevrolet Bolt, its ambitious, albeit insufficiently tested, electric vehicle. Defective battery cells caused [13 cars](#) to catch fire, forcing GM to institute a recall and cease production until the issue was resolved.

If testing isn't defined early on, fasteners can become the most critical component of an industrial product's success or failure. By choosing the wrong fastener, or one that doesn't quite meet your specific use case, the end product becomes immediately susceptible to malfunctioning, which can be disastrous for both the consumer and the company.

Some tests will be urgent for any product, but others are "nice to have." Sussing out which is which for your production will be crucial work.





### Essential tests include:



**Tensile, torque, and hardness:** A tensile load test measures [tensile strength](#) (i.e., how much load a part can withstand without breaking). Similarly, a [torque](#) test measures tension (i.e., how far a bolt or nut can be twisted to produce the optimal tightness of the fastener). A hardness test measures a part's resiliency by determining whether its material is strong, durable, and water-resistant enough.



**Product finish:** This tests how a part's surface or finish will respond to natural elements such as weather or wear. One aspect of this assessment involves neutral [salt spray testing](#), which mimics corrosion and accelerates the effect of exposed metallic materials. This test can help predict a part's failure over time and potentially prevent potential recalls and knocks to your reputation.



**Purpose and failure:** This must-have form of testing exposes the product to conditions that it will be under when used by the consumer. Here, manufacturers can explore the potential failures that will happen under natural use.

### Tests that are nice to have but not necessary include:



**Metallurgy:** This test will confirm whether a [metal's properties](#) will work for your product's particular uses. For example, this allows you to examine your chosen metal and see whether it will bend and resist in the ways your product requires.



**Chemical analysis:** Manufacturers looking to put their materials and parts to the test can use a [chemical analysis lab](#) to get third-party data on the composition and qualities of the fasteners they're creating. This process can verify their tests and increase their confidence in their production line.

Once you've committed to testing as a vital part of your part manufacture process, you need to focus on the essential and beneficial forms of testing to have in your toolbox. This kind of thorough and targeted testing can protect your business from many things: reputational risk from a faulty or dangerous product, overblown costs, and health and safety risks to both consumers and workers on your manufacturing line.

# What Testing Brings to the Table

The exciting part of fastener testing is its impact on business goals, and innovations in testing will be instrumental to how your business uses testing in the future. Here's how:

## ? It spotlights your specific needs.

While most competitors will have access to the same testing techniques and most testing methods are pretty universal, very few distributors manufacture parts. They will need to go off-site to get the same lab capabilities and skilled resources to perform their tests.

That's when a lab with an array of cutting-edge resources and skill sets can be an invaluable partner in the manufacturing process. Optimas is one such partner. We operate under [UKAS guidelines](#) (U.K. Accreditation Service) and hold ISO 9001 and [IATF 16949 2016 Quality Management System](#) certifications, so partners can trust that everything we do will live up to quality standards and compliance regulations.

We also host an exhaustive capacity list, including technologies such as metallurgical mounting presses, advanced microscopy imaging systems, specialist grinders, polishers and abrasive cutters for material prep and analysis, and a multitude of other machines that measure torque, tension, and friction coefficient.

The lab uses [advanced product quality planning \(APQP\)](#), [root cause analysis](#), and [failure mode and effects analysis \(FMEA\)](#), a trio of methods that enable us to test with maximum confidence. We can diagnose, correct, and mitigate process or product risk all the way from development to product launch.

The future of testing will depend on businesses finding partners that can work and collaborate with them on the whole range of available testing types.

## ? It shows how your bottom line can improve.

Thorough, end-to-end production line testing could positively impact your business goals right away. For example, the increase in the quality and credibility of your parts and fasteners will show almost immediately, leading to more repeat and long-term business through product and consumer confidence. Your reputation will begin to grow and solidify, creating a kind of snowball effect on the number and quality of your customers.

Another bottom-line benefit of testing is the absence of production line stops, making your manufacturing noticeably quicker and more efficient. When a team tries to [fast-track a product](#) (like the Tesla Model 3), production line testing shortcuts can lead to manufacturing problems. Avoiding these will be transformative for your bottom line.

A testing process can prevent those costly reworks and recalls that could mar an otherwise perfect product and can even speed up your journey to market by establishing quality early.



# How Decision Makers Can Ensure They're Testing Effectively

As you develop your testing methods and adjust your production line accordingly, you want to make sure the tests you're using are impacting your bottom line. In short, you need ways to test your testing. Here are a few ways to achieve that:

**1. Partner with a trusted testing provider.** You won't have all the expertise and equipment you need to do significant in-house testing. You need to find a partner you can trust to take the bulk of the grunt work off your hands and offer you insight into which tests are necessary and which ones are nice to have for your particular product. Finding a third-party lab partner will help you [avoid costs such as hiring lab space](#), purchasing expensive equipment, and obtaining training and certifications.

**2. Get advice tailored to your desired applications.** The quality and testing standards you need will be specific to your use cases and applications. Optimas laboratories are managed by highly qualified specialists who bring extensive industry experience and product knowledge to the job. Each individual works toward international and customer-specific standards (e.g., BS, ISO, and ASTM), which, in turn, enables you to get the most tailored advice possible.

**3. Save your testing from inconsistent contractors.** Get reliable results by entrusting testing to one all-purpose partner, and you could save a lot of trouble. Build a dedicated team at the cutting edge of technology, processes, and methodologies without the high cost of building out similar capabilities in-house. You'll know we're giving your product our full attention and that we're handling every aspect of your testing process — no inconsistencies.

To give your product the best chance of success from prototype to final launch and beyond, a tough and flexible testing program is needed. Trust your testing to Optimas, and you can relax knowing your fasteners and other ancillary parts are passing the highest standards for quality and durability.

Check out [Optimas](#) for more information on how to conduct thorough and cost-effective fastener testing.

