

certification, which specifies that a manufacturer is well-organized and has low failure costs, is used broadly in Europe. Although this quality system is mainly on a voluntary basis as a condition of acceptance of a manufacturer's product or as a way of recognizing the manufacturer's credibility, some directives (e.g. machine directive) require use of a quality management system as part of the conformity assessment (i.e. CE marking).

There are many finishes or coating applied to fasteners to ensure corrosion resistant fasteners. This may lead fastener producers to enhance their chances by being able to do coating treatments in-house, following process certification (i.e. ISO 14001). This is for environmental management and being compliant with the EU directive on the restriction of the use of certain hazardous substances.

There are some other recognized certificates which add significant value to the products in the EU market. Many of those certificates are originated from Germany and recognized by consumers throughout the EU countries. This is very important for fastener manufacturers, since Germany is the largest fastener market in Europe. Accordingly, many German originated inspection bodies currently have several laboratories all around the world to issue certificates for technical equipment. The **GS mark** (Geprüfte Sicherheit or Tested Safety) is one of those recognized certifications which is known all over Germany and EU countries. This mark delivers the message to consumers that there is a lesser risk and more assurance on products' safety, legality, and quality. Power tools is one of the examples of products which is mainly required GS marking by European distributors.



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Although a certification is typically a voluntary process, fastener suppliers who invest their money, time and effort into achieving and maintaining well recognized certificates deliver this message to the market that they do their best to supply the high quality products with the most efficient services. Moreover, fastener producers may create a competitive advantage over other rivals in the European market by taking the right insurances and producing more eco-friendly products, by focusing on the environmental trustworthiness of the products in its branding and positioning. Consumers are more and more seeking those products indicating conformity with environmental requirements. ■

Sources:

Exporting Fasteners to Europe, CBI, Ministry of Foreign Affairs
EFTA Study on Certification and Marks in Europe, Consumer Research Associates Ltd

ASME B18 Committee Releases Updated Standard to Help Improve Quality

by Christopher Williamson

Product quality isn't just the fastener producer's problem. Fastener distributors and users also have a responsibility to ensure product quality. Clearly specifying product requirements, including quality expectations, plays a very important role in the supply chain as does effectively working with producers when corrective action is needed. ASME Committee B18 published a revision of ASME B18.18, Quality Assurance for Fasteners, in June that will help address this issue. The revision makes the document much easier to understand and as a result will be put to good use in our organizations to elevate our value proposition. If used properly, the new revision of ASME B18.18 will generally improve product quality in the fastener industry.

ASME B18.18 categorizes four different plans. Category 1 is a plan for receiving inspection that may be used optionally by distributors and users alike. The Category 1 plan relies on an 8-piece dimensional inspection that covers all of the basics and a 2-piece mechanical inspection. If your organization is considering starting a receiving inspection program, the framework of this plan is a great place to start. It is also a good plan to reference in the event of a dispute.

The most widely used quality plan, by far, is Category 2. Category 2 is the producers' default when the buyer does not specify a quality plan. Using this plan, producers inspect fasteners at appropriate production intervals including machine setup, shift changes, tool changes, and at the completion of the job. The plan outlines basic production requirements regarding heat treatment, lot control, measuring equipment and more. This plan is perfect for low cost and low risk fasteners such as machine screws, tapping screws, nuts, and washers.

Category 3 is probably the most underutilized tool in a distributor's or user's arsenal. Different than Category 2, this plan must be specified by the buyer. It requires the same good practices as Category 2 with, primarily, two additional requirements. Category 3 producers must have a quality management system registered to an internationally recognized standard such as ISO 9001 or ISO/TS 16949. Additionally, the final inspection of the fasteners must

be completed in a laboratory that is accredited to ISO 17025 (commonly known as A2LA).

Category 3 is an excellent option for safety critical applications that rely heavily on the integrity of the fastener. Thrill ride manufacturers and amusement parks would be well advised to specify Category 3 for their production and maintenance fasteners. It is not always practical for these companies to evaluate every manufacturer of their fasteners, therefore, Category 3 can provide a level of assurance that their components are being produced in a competent facility. It also insulates such users from the risks associated with less established fastener producers. Small distributors can have the same benefits as the users by specifying Category 3 on certain fastener types. Specifying this category on items such as grade 8 fasteners and socket products is a great start. When a distributor is not large enough to employ a quality team in Asia, they can use this requirement to prevent bulk importers from selling parts to them that were sourced from producers with a higher risk of defects or failure.

There is a great option within the Category 3 requirements called “Upgrade Option for Resellers.” This option allows a distributor to upgrade existing Category 2 inventory to Category 3 by having the parts inspected by an accredited testing facility. This option does not require seeking permission from the buyer first; it can be used to fill orders for a customer that requests Category 3 on an item with only Category 2 stock. It can also be used to upgrade inventory from a lower cost source ensuring both cost savings and quality with minimal expense or exposure.

The final category, Category 4, is not the least utilized but it is often incorrectly specified. Category 4 is a plan that is reserved for fasteners used in automated assembly with the objective to minimize lot contamination. Operations that employ automated assembly equipment must never incur downtime because of an occasional ‘dud,’ mixed part or foreign debris. A random nut in a box of screws or a screw that missed the threading operation can be expensive when they cause the assembly process to halt. For

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these reasons, Category 4 fasteners go through 100% inspection/sorting operations. When requesting Category 4, the purchaser must specify the desired ppm rate and also list the features that are to be evaluated.

The quality plan that can benefit the fastener industry most is Category 3. Distributors should specify Category 3 on higher strength fasteners whenever they are not absolutely certain who is the producer or they are not totally confident of the producer’s quality. More companies employing this tool in their purchasing process will push much of the defective product from the marketplace; it will also reduce risk to all of us in the industry. ■

ASME B18.18 EXPLAINED				
	OVERVIEW	WHEN?	BASIC REQUIREMENTS	MAJOR CHANGES FROM PREVIOUS REVISION
CATEGORY 1	Receiving inspection plan	Used optionally by the purchaser (user or reseller)	8 piece sampling for basic dimensions and 2 piece sampling for basic mechanical properties	No major changes
CATEGORY 2	Quality plan for general purpose fasteners	Mandatory for producers unless otherwise agreed upon with purchaser	Basic quality and inspection requirements for production	No major changes
CATEGORY 3	Quality plan for fasteners for specialized applications	Only required when requested by purchaser	All of the requirements of Category 2 plus the producer must be ISO 9001 registered and have the final inspection performed by an ISO 17025 accredited testing lab.	- Accredited lab may use in-process inspection results instead of retesting. - Verifying mill cert is acceptable instead of testing chemistry of raw material
CATEGORY 4	Inspection plan for fasteners used in automated assembly	Only required when requested by purchaser	All of the requirements of Category 2 plus 100% sorting for features designated by the purchaser	No major changes

* Table was created with the assistance of Mr. Shan Kao of Kaohsiung, Taiwan