
Some Misconceptions about Standards

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Over the years, numerous questions have been asked about the regulatory Standards that govern Powell's electrical power products. The most common misconceptions surround questions like these: Are the Standards mandatory? Are the rating values absolute? Does a revision to a Standard require all equipment be retested to the new requirements? This Tech Brief addresses these misconceptions and the most common questions about Standards and their use.

Contrary to some popular beliefs, use of the IEEE Standards is wholly voluntary. They only become mandatory when accepted either whole or in part by the seller as a condition of a purchasing agreement. It's not uncommon to take exception to a particular part of a standard during the bidding process for a myriad of reasons, such as when the requirements of one standard conflict with another standard. If the client accepts any stated exceptions to a cited standard, the portion(s) of the standard that an exception has been taken to are not required to be met.

IEEE standards are considered "minimum performance requirements"; in other words, they contain only the minimum basic performance requirements that pertain to all products in any given class. Regardless of the ratings applied, the specifications, tests, and test procedures to prove those requirements are uniform across that product class. While the use of these standards; test procedures and preferred ratings is voluntary, in order to claim compliance to a standard, all the tests must be successfully performed.

The ratings provided in the standards are not restrictive. Rather, they are considered preferred ratings. For example, while the continuous current ratings found in the IEEE Standards for a 15.0kV 50kA circuit breaker are 1200, 2000, and 3000A, it is acceptable to produce a 2500A circuit breaker and test it per the methods given in the standards at that level. The tested ratings must be stated on the equipment nameplate.

This practice may lead to the question "Does your equipment have any margin in the ratings?" In other words "Can I operate your equipment above the stated ratings?" The answer is normally "No". There is no requirement to exceed a performance level by any amount more than it takes to prove the capability. It is the responsibility of the manufacturer to test at or above any given rating or requirement and the responsibility of the user to apply that equipment at or below those ratings and requirements.

There are exceptions to the ratings rule with regard to application. For example, the continuous current rating is a limit based on the specified ambient temperature maximum. If the ambient temperature is below the maximum limit of 40° C, there is an overload capability and the equipment may be used at higher current levels. The method for calculating a permissible overload capability for Metal-Clad switchgear is described in C37.20.2.

All IEEE Standards must be periodically reviewed in order to maintain active status as an approved IEEE and ANSI Standard. The maximum time an IEEE Standard can be active without review and maintenance is ten years. If the Standard is not maintained within the ten year limit it will be withdrawn. Maintenance of an IEEE Standard vary for simply updating references contained within the document or as complicated as a complete revision of technical content. The Standard is balloted, reviewed, and open to public comment before it is published. The Standard is dated the year it was approved and published.

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It is very common for equipment specifications to require that all products be in accordance with the latest revision of the Standard(s). It is also not uncommon in this industry for a product to have a design life that far exceeds the 10 year life of a published Standard. When a Standard is revised and published, it does not automatically require that products designed and tested to a previous version of the standard be requalified and tested. Notwithstanding the rarity of a sweeping change to requirements found in a revised Standard such as the change made to circuit breaker ratings in 1997, in many cases the technical content may be simply updated or rewritten to align with other published documents. That does not mean that previously qualified products are suddenly rendered obsolete as the technical intent of the revised Standard may be identical or parallel to the previously published version.

Product test reports and certification routinely include the number of the Standard and year it was published. Performing a complete series of design tests on a product such as Metal-Clad switchgear to obtain a test report that contains a reference to the latest published version of the Standard is a significant burden on a manufacturer and a task that, because the various standards are revised at different times, would be very difficult to maintain. The costs of such a program could significantly impact the cost of the product and would provide no benefit to the product or the user. A technical comparison and engineering evaluation of the existing product documents may indicate that the required parameters of the revised Standard are still being fully met. This is a much less costly alternative and should be strongly considered when specifying equipment.

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