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Design verification

Documentation of verifications

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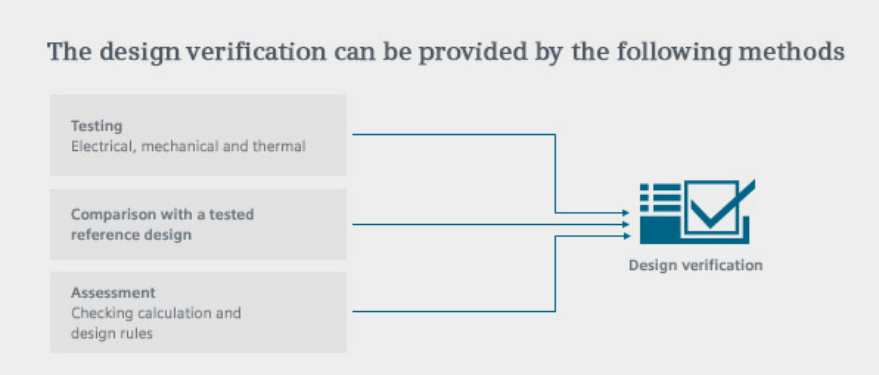
"Verification on specimens of a switchgear and controlgear assembly or on parts thereof to show that the design fulfills the requirements of the applicable standard for switchgear and controlgear assemblies." [DIN EN (IEC) 61439-1 (3.9.1)]

- Responsibility for complete and detailed documentation: original manufacturer
- Content of the documentation: all test reports, logs, calculations and records
- Archiving of documentation: throughout the product lifecycle
- Forwarding of documentation to the switchgear and controlgear assembly manufacturer: not necessary
- To be provided once only for an identical design; if the original system is modified, the design verifications must be provided for the modifications (manufacturer becomes the original manufacturer



Annex D of IEC 61439-1 defines which verification can be provided by which method. If there are alternative methods, the choice is the original manufacturer's responsibility.

Design verifications to be provided

1. Strength of material and parts
2. Degrees of protection provided by enclosures
3. Clearances
4. Creepage distances
5. Protection against electric shock and continuity of PE circuits
6. Incorporating of equipment
7. Internal electrical circuits and connections
8. Terminals for external conductors
9. Dielectric properties
10. Temperature rise limits
11. Short-circuit strength
12. Electromagnetic compatibility (EMC)
13. Mechanical function

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Routine verification

Documentation of verifications

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"Verification to which every switchgear and controlgear assembly is subjected during and/or after manufacture to ensure that it complies with the requirements of the applicable standard on switchgear and controlgear assemblies."

- Responsibility for complete and detailed documentation: manufacturer of the switchgear and controlgear assembly
- Content of the documentation: test report containing the data used, calculations and comparisons performed
- Archiving of documentation: throughout the product lifecycle
- To be provided for every switchgear and controlgear assembly to detect faults in materials and workmanship and to ascertain proper functioning of the manufactured assembly

Routine verifications to be carried out

1. Degree of protection provided by enclosures
2. Air gaps and creepage distances
3. Protection against electric shock and continuity of PE circuits
4. Incorporating of equipment
5. Internal electrical circuits and connections
6. Terminals for external conductors
7. Mechanical function
8. Dielectric properties
9. Wiring, operating response and functioning