

### Design differences between TTA and PTTA

The following regulation applies to the manufacture of low-voltage switchgear and distributors with Rittal SV technology:

**DIN EN 60 439-1 (DIN VDE 0660 part 500)**

Low-voltage switchgear enclosures – requirements for type-tested and partially type-tested enclosures.

This standard makes a distinction between

- type-tested switchgear enclosures (TTA) and
- partially type-tested switchgear enclosures (PTTA).

This refers to the following:

**Type-tested switchgear enclosures (TTA)**

are switchgear enclosures or parts thereof (e.g. functional units, assemblies) which match the switchgear enclosure type-tested under the standard, without any major deviations from the original type or system.

**Partially type-tested switchgear enclosures (PTTA)**

are switchgear enclosures which are manufactured individually or in small quantities for specific application conditions and which contain both type-tested and non-type-tested assemblies, provided the latter are derived from type-tested assemblies (e.g. by means of calculation) which have passed the appropriate tests.

**There are no quality differences defined between the two design variants TTA and PTTA. In other words, they are deemed to be of equal value.**

However, both design variants require different proof and tests.

The following proof and tests must be provided for system configuration in line with regulations and evidence of CE conformity:

TTA/PTTA to DIN EN 60 439-1

- Compliance with the limit overtemperature
- Dielectric strength
- Short-circuit resistance
- Effectiveness of the PE conductor
- Creepage distances and clearances
- Mechanical function
- IP protection categories
- Wiring, electrical function
- Insulation
- Protective measures

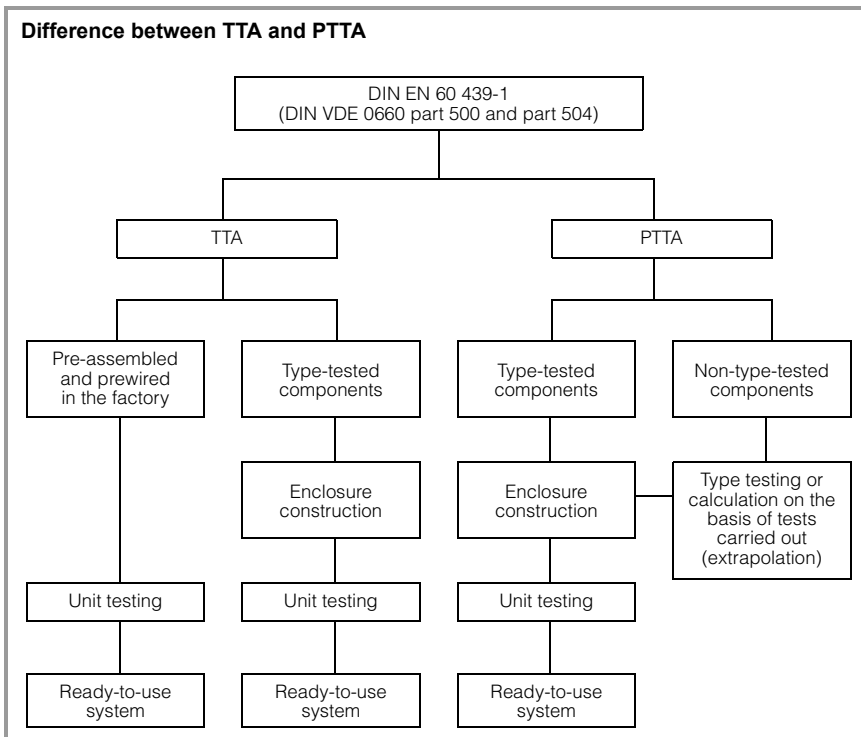
Amongst type-tested switchgear enclosures TTA, this evidence is provided by one-off type testing and unit testing following assembly.

In the case of partially type-tested switchgear enclosures PTTA, complete evidence must be provided for each system installed, either by means of testing or by means of calculation based on the tests performed.

For details of the scope of testing for both design variants, please refer to table 7 in DIN EN 60 439-1 which contains references to the standard section number.

This standard specifies that random variation e.g. of switchgear and protective devices of different makes or models within a switchgear installation is no longer possible without evidence of testing or calculation. This evidence can only be supplied by the manufacturer/workshop.

Special consideration must be made for this fact, both when planning and when purchasing switchgear and distributors.



### Unit testing (final inspection of installations)

According to DIN VDE 0100 part 610 (original inspection), low-voltage installations, including switchgear and distributors, should be subjected to an original inspection prior to commissioning and handover to the customer.

On-site inspection of the customer's system is not necessary for switchgear and distributors, provided an inspection record from the manufacturer/workshop is available.

This cost-saving variant should be the norm in all cases where no retrospective modifications have been implemented on site.