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Type Tested Solutions in Sub Distribution

Type tested solutions in a low voltage network provides user a very reliable and safe power distribution and motor control solution. However question always arise why we should use TTA solutions in our applications. There is also a misconception that Type tested solution is applicable only for main distribution boards and subsequent panels whether it is sub distribution or final distribution does not have to be TTA.

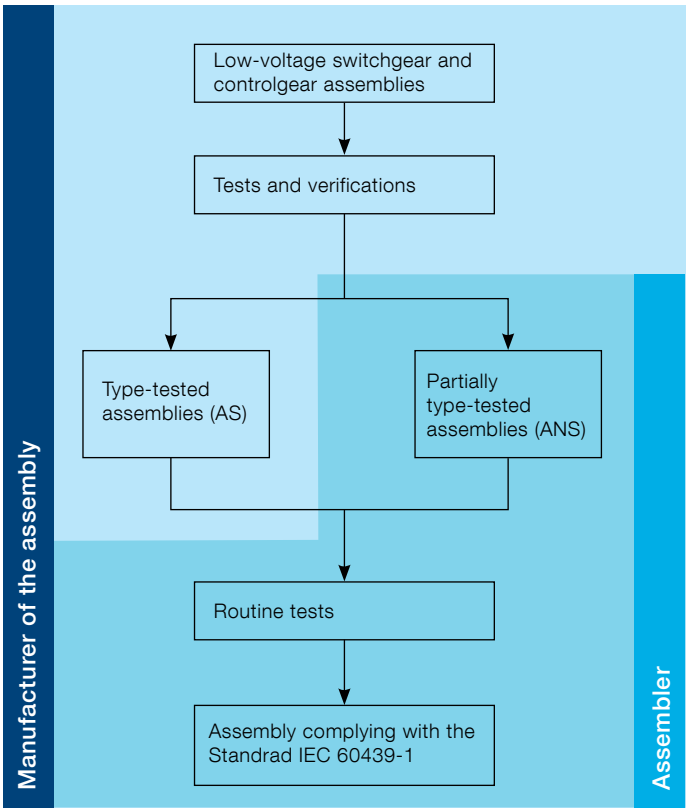
Safety in electricity is an important aspect irrespective of applications it is used for. Rated voltage levels in all type switchboards remains 415V 3-phase system be it MDB or SDB or even FDB's. This means the person operating these panels will be carrying almost same amount of risk across all types of panels. The following are the list of tests which have to be carried out.

IEC 60439	IEC 61439
Verification of Temperature Rise	Strength of material and parts
Verification of Dielectric Properties	Degree of protection
Verification of Short Circuit Withstand Strength	Clearances and creepage distances
Verification of the Effectiveness of the Protective Circuit	Effective continuity between parts and PE
Verification of Clearances and Creepage Distances	Effectiveness of the assembly for external parts
Verification of Mechanical Operation	Incorporating of apparatus
Verification of the Degree of Protection	Internal electrical circuits and connections
	Terminals for external conductors
	Power frequency withstand voltage
	Impulse withstand voltage
	Temperature rise
	Short - circuit withstand strength
	EMC
	Mechanical operation

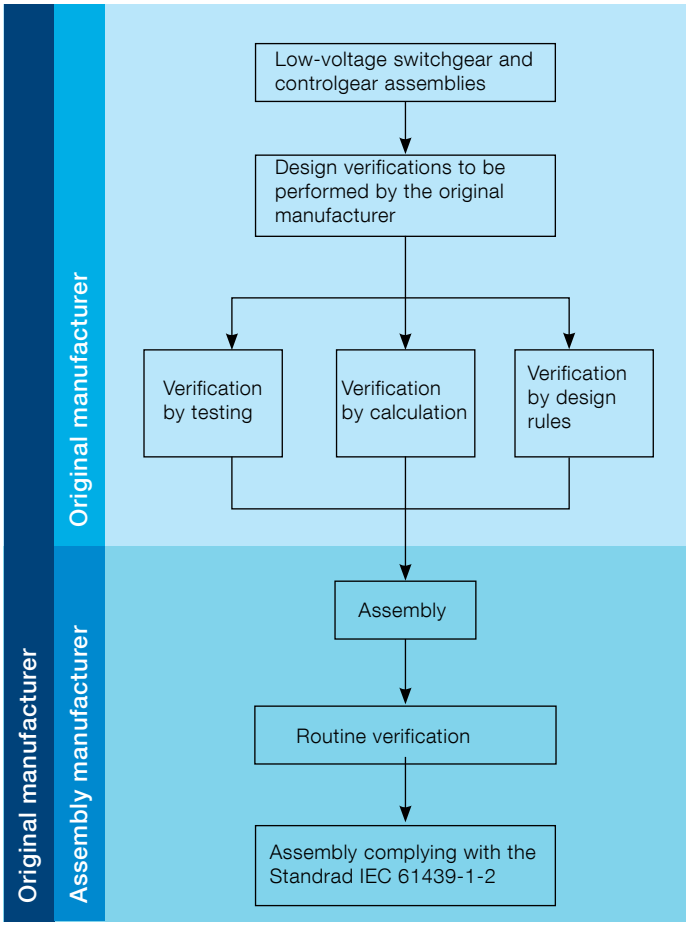
The very purpose of type tested solution is intended to verify compliance with the requirements laid down in this IEC60439/61439 for a given type of ASSEMBLY. Type tests are carried out on a sample of such an ASSEMBLY or on such parts of ASSEMBLIES manufactured to the same or similar design.

Presently there are two standards which are in effect internationally IEC 60439 and IEC61439 standards. The latest standards IEC 61439 will be the standard which has to be followed all manufacturers since IEC60439 is expected to be withdrawn. In new standards, even Type tested assembly (TTA) is also not existing and it referred to as "Low voltage switchgear and Control gear Assembly".
The below flow diagram provides insight into significant changes that has be introduced in new standards. When you observe IEC60439 standards, partially type tested assembly was a possibility. However in new standards, it is completely eliminated.

Standard IEC 60439-1



Standard IEC 61439-1-2



One can also observe that the standards is very stringent when it comes to design verification is IEC 61439. Design verifications are required to be carried out only by OEM manufacturer. Assembly manufacturer is not authorized to implement any design changes.

Irrespective of application or current rating or even size of the switchboards, it is advisable to consider design which is tested in accordance IEC60439/61439. This ensures safety of the operating personnel and reliability of power supply is enhanced.

Typical area of application for these sub distribution panels include industrial shop floor power distribution, Floor level panels in High rise residential buildings, Hospitality sector floor power distribution and power distribution panels in pole mounted Transformers.

ABB offers complete range of sub main power distribution with bus bar current rating starting from 250A up to 800A complying with IEC 60439/IEC61349. The solution can be offered with metering cubicle.

The solution offers flexibility to customers in choosing Tmax T or FORMULA series of MCCB's.

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Toll-free number: 1800 420 0707
Email: lp.contactcenter@in.abb.com