

SPECIAL PROJECT

High Power Rating Transformers, up to 250kVA

We manufacture transformer assemblies rated up to 250kVA for a wide variety of applications. The vast majority are for outdoor installation with windings housed in non-vented, IP55 enclosures, fabricated from stainless steel with a painted finish. Vented enclosures can also be supplied, which are fabricated from mild steel with a durable painted finish.

Transformers can be supplied in any voltages up to 3300V, although a high percentage of the transformers are 1:1 ratio isolating transformers (single phase 230:230 or three-phase 400:400), which are used to create a separate earthing system within an installation: such as where overhead line traction supplies and LV networks are in close proximity within a Network Rail installation. This can prevent both HV and LV faults being exported on to the primary earthing system. DNO Hot Site installations are another common area, where there is a similar risk that a high earth potential rise could be exported on to a low voltage installation earth adjacent to the HV installation.

Our enclosure designs include the option of incorporating a range of protection and other equipment, including switch disconnectors, MCCBs, switch fuses, RCDs and heavy duty termination arrangements. Equipment is usually mounted within external boxes, which reduces the thermal effect that the winding has on the other equipment (see below). External boxes incorporate IP rated breathers, etc., which help to reduce the effects of condensation. The external boxes also provide excellent segregation between primary and secondary connections.

When specifying protection arrangements for an installation, consideration needs to be given to the inrush current level of the transformer, as the most economical transformer designs can result in inrush current levels of 15 to 20 times the full load current. We can offer windings with an inrush current as low as 5 to 10 times the full load current but this will result in a physically larger and heavier assembly due to the lower flux density of the core.

It should be noted that the inrush current of a transformer is also affected by over voltage i.e. installing a 400V designed winding onto a 415V system will increase the inrush current. The incorporation of tappings on the primary winding is a cost effective way of minimising the effects of over voltage on inrush current levels. Tappings also help to ensure that the desired output voltage is achieved, as an over voltage on the supply will result in an over voltage on the secondary.

Temperature rise is a further area where the most economical designs can adversely affect the overall assembly. Windings can be designed to operate at very high temperatures (Class H insulation has a maximum temperature rating of 180°C). However, the consequences of a transformer designed to operate at these temperatures would clearly need to be taken into account when assessing the design of the overall transformer assembly and the rest of the installation.

The Blakley Projects Team would be pleased to discuss overall requirements for transformers rated up to 250kVA.



A7034480 - TXL/A series, 20kVA rating



A7043001 - TXL/E series, 200kVA rating



A7042960 - TXL/C series, 55kVA rating

THE POWER PROFESSIONALS

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