

TXL series Isolation Transformer for a Dockside Application

The Blakley team have recently been involved with a project which required a 50kVA, three-phase, isolation transformer to provide a 230V, 50Hz, three-phase and neutral supply to a vessel. The transformer was to be positioned in an exposed location with no additional protection against the elements, which necessitated the adoption of an enclosure with a high IP rating and also a high level of corrosion resistance.

Our TXL range of double-wound isolation transformers has been developed over a number of years for projects requiring fixed LV isolation transformers in the range from 20kVA to 250kVA. The main market sectors that we serve are Rail, Docks and Harbours and the Military, with units typically located in permanent, outdoor locations. Due to the harsh installation conditions, TXL series enclosures are heavy duty, non-vented, and can be fabricated from different grades of stainless steel usually with a painted finish. When conditions are less harsh, enclosures can be fabricated from mild steel with a durable, painted finish and they can be vented if installed indoors.

As well as the enclosure being designed for a harsh environment, transformer windings used in the TXL range are Vacuum Pressure Impregnated (VPI), which provides excellent protection against dampness, humidity and high operating temperatures, all of which can be encountered when equipment is installed outside. Transformer windings are continuously rated and manufactured in accordance with BS EN 60076 utilising Class H insulation materials.

In order for close overcurrent protection to be provided for the assembly, the transformer core is of a low inrush design with a magnetising current of less than 6 times the full load current in the first cycle following energisation. In addition, the transformer also incorporates a tapped primary winding, allowing the 230V secondary voltage to be achieved if the supply voltage is in the range of 400V +/-10% (in 10V steps). Tap changing is off load via 2 no. rotary isolators (see image). The tap changing switches are located behind a padlockable, hinged cover.

TXL series transformers incorporate separate compartments for the winding, the incoming switchgear and the outgoing switchgear. This configuration ensures that the elevated temperatures that can be found in the winding compartment do not have a direct influence on the performance of the switchgear. Locating the incoming and outgoing equipment in separate compartments also enhances safety for operators and maintenance staff. The incoming compartment incorporated a 100A TP switch disconnecter and the outgoing compartment a 160A CBR (MCCB with integral variable RCD), set at 115A (overcurrent) and 300mA (RCD sensitivity).

If you have an application for an LV isolation transformer to be used in a harsh environment, please contact our Projects Team who will be pleased to be of assistance.



A7040331 TXL series Isolation Transformer, 50kVA, 400:230V, IP55



Separate Compartments for Incoming & Outgoing Switchgear and Equipment

TAPPING SWITCH POSITIONS			
TAPPING SWITCH POSITIONS	INPUT VOLTS (V)	TCS1 POSITION	TCS2 POSITION
1	360	3	1
2	370	2	1
3	380	1	1
4	390	3	2
5	400	2	2
6	410	1	2
7	420	3	3
8	430	2	3
9	440	1	3



Off Load Tap Changing, Accommodating a Supply Voltage Range of 360V to 440V