WILSON
POWER SOLUTIONS

POWER TRANSFORMERS

Up to 300MVA at 400kV for two & three winding transformers and 500MVA at 400kV for Autotransformers

50MVA Wilson Power Transformer at Melbourne Grid

We design, manufacture and supply a wide range of custom two and three winding power transformers with ratings from 5MVA to 300MVA with voltages from 3.3kV up to 400kV and Autotransformers up to 500MVA (non-standard voltages available upon request). Our Power Transformers are built to comply with EU Ecodesign regulations and usually follow the vector group options Dyn11, Dyn1 (Up to 132kV) YNd11, YNd1, with customisable two or three windings.

Our bespoke designs are built according to site requirements. Available liquid-filled (mineral oil up to 400kV) conforming to IEC, BS and other International Standards, Wilson power transformers come with an industry-leading 24-month warranty from despatch.

- **Up to 300MVA at 400kV for two and three winding transformers**
- **Autotransformers up to 500MVA at 400kV**
- **Two or three winding bespoke specifications built to order**
- **Highly competitive lead times**
- **Tank-mounted cooling radiator panels or separate cooling banks**
- **Manufactured to internationally recognised standards**
- **Dedicated project manager & site engineers**
- **Bespoke delivery options and site acceptance tests are available**

AUXILIARY TRANSFORMERS

Up to 4500kVA

Auxiliary transformers typically step down the voltage to a safer level suitable to power auxiliary equipment on site. They also help in isolating the control circuits from higher voltages present in the main power system, ensuring the safety and proper functioning of site facilities.

Our auxiliary transformers are designed bespoke to your needs and installed where necessary as part of your power transformer assembly.

1MVA Auxiliary Transformer at Erskine

EARTHING TRANSFORMERS

Up to 500kVA

We supply earthing transformers up to 500kVA to maintain the safety and stability of your power system.

Also known as zig-zag transformers due to their vector grouping, earthing transformers create a neutral point for the power system by providing a path to the ground or earth for fault currents. In the event of a fault in normal operating conditions, such as a short circuit, the earthing transformer allows the fault current to flow to the ground. This protects the equipment, mitigating potential hazards such as electrical shocks or fires and limiting the magnitude of transient overvoltages by providing a low-impedance path to the ground.

> “Fantastic service from Wilsons Power Solutions, they are **extremely professional** throughout and have been instrumental in getting our equipment complete and to site through their **quick turnaround times,** flexibility and can-do attitude.

Applegreen Electric

OUR PROJECTS

60MVA 132/33KV POWER TRANSFORMER
Osbaldwick BESS

Owned by Gresham House and developed by Metka EG, Osbaldwick BESS in York showcases twenty-five 1.5-hour CATL batteries capable of providing power supply to as many as 100,000 homes for up to an hour at certain times of the day. We supplied a 60MVA 132kV/33kV power transformer to the 50MW project connecting it to the local Distribution Network Operator, Northern Power Grid.

This project has had several challenges to overcome, and required an ecological assessment to be undertaken, resulting in mitigation measures put in place to protect wildlife to comply with local and national planning policies to ensure a successful project delivery. Our team attended the site to help with the offloading and assembly of the transformer. Enclosed by two blast walls, a jacking and skidding method was used to position the transformer onto the plinth.

Continuous Maximum Rating (CMR)

Continuous ratings indicate the maximum load or capacity that a transformer can safely handle for an indefinite period without exceeding its temperature limits. Continuous ratings are typically specified for normal operating conditions and are the primary ratings used for designing and sizing electrical systems.

Continuous Emergency Rating (CER)

Emergency ratings refer to the maximum load or capacity that a transformer can handle for a limited duration. These situations could include temporary increases in demand, grid disturbances, or system contingencies. Naturally, emergency ratings are higher than continuous ratings but are only intended for temporary use and cannot be sustained for extended periods without the risk of damaging the transformer.

25MVA Wilson Power Transformer

Typical Applications

- High Voltage Power Transmission
- Battery Energy Storage Systems
- CCGT Power Generation
- Data Centres
- Wind & Solar PV farms
- Isolation transformers
- UKPN Approved Primary Transformers

ANCILLARIES RANGE

Optimise your transformers' safety, reliability, and functionality with our comprehensive range of ancillary equipment. Our high-quality products are built to last and ensures transformer's peak performance in the field.

- Ashridge (WTI/OTI)
- Magnetic Oil Level Gauge (MOG)
- Forced Fan Cooling
- Marshalling Box
- Pressure Relief Device (PRD)
- AVR Relay & Control Panel
- On-Load Tap Changer
- Radiator Valves
- Dehydrating Breather
- Conservator
- Anti-Vibration Pads
- Buchholz Relay
- Gas Collecting Device
- Oil Surge Relay
- CT (current transformer)
- Online moisture management
- DGA monitoring

140MVA 132/33KV POWER TRANSFORMER

Lark's Green Solar Farm

The UK's first solar farm to be transmission network connected instead of connected to a distribution network utilises a Wilson 140/110MVA 132/33kV power transformer weighing nearly 150 tonnes! In addition to the mammoth power transformer install, the Wilson Power Solutions team also installed a 300kVA 33kV/415V auxiliary transformer on site. The site team, consisting of electrical engineers & fitters installed both the power transformer and auxiliary transformer, fitted the cooling bank, fans, conservator and bushings, filled the transformer with the coolant and undertook marshalling, cabling and testing over a few weeks.

The site, which has been developed by Enso Energy & Cero Generation features a 49.9MWp Solar Photovoltaics (152,400 solar modules) farm co-located with a 45.5MW/99MWh Battery Energy Storage System which can generate over 73GWh p/a, enough to power 17,000 family homes annually with electricity.

TESTING

Routine Test

All power transformers are routine tested to IEC 60076 (relevant parts) at our manufacturing facility. Type testing is available upon request via your RSM. Please note costs are incurred for additional testing.

Factory Acceptance Test (FAT) - Client Witnessed

Conducted with the customer and/or client in witness, factory witness testing (FAT tests) can be arranged in person, virtual live or virtual recorded for your convenience, speak to your RSM if you wish to arrange an FAT. This test demonstrates a transformers' performance, reliability, and safety ahead of delivery. Please note, these tests require an additional fee, details of which will be agreed upon quotation.

Site Acceptance Test (SAT)

Conducted on location where a transformer has been installed, in accordance with IEC 60076 (relevant parts), site acceptance testing (SAT) verifies that the transformer functions correctly, meets its performance specifications, and operates safely within the actual electrical system at the installation site.

SITE SERVICES

As part of our service, our extensively trained team of installation and service engineers can provide:

- A range of offloading techniques & equipment
  - Jack and skid or crane installation
  - Scaffolding
  - Cherry Picker hydraulic lifting
- Transformer assembly
- Radiator installation
- Conservator installation
- Marshalling and Cabling
- On-site testing (pre-commissioning)
- Warranty repairs & after-sales

TECHNICAL CHARACTERISTICS

Oil/liquid filled transformers	Conventional free-breathing or with a conservator
Manufacturing standards	BS, IEC or custom specification
Rated Power	5MVA up to 300MVA for two and three winding transformers and up to 500MVA for Autotransformers
Primary Voltages typically	11, 22, 33, 66, 90, 132, 220, 275, 400kV or custom specification
Secondary Voltages typically	3.3, 6.6, 11, 33, 66, 132kV or custom specification
Phases	Single and three-phase transformers
Tappings	On-load or de-energised tap changers
Voltage regulation	Via on-load tap changer (with AVR relay as an option)
Rated frequency	50 or 60 Hz
Vector groups	Dyn11, Dyn1, (Up to 132kV) YNd11, YNd1, YNa0d11 or other vector groups as per IEC
Temperature rise	60/65C or custom specification
Cooling type	ONAN, ONAN/ONAF, ONAN/ONAF/OFAF, KNAN, KNAN/KANF on request
Radiators	Tank mounted cooling radiator panels, separate cooling banks or heat exchangers
HV & LV terminals	Open Bushings/ Air Cable Box/ Special Terminations Upon Request
Installations	Indoor or Outdoor
Sound level	As per ENATS 35 or NEMA TR 1

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