

HV/LV Switchgear & Transformer Testing

For businesses that operate equipment such as electrical switchgear and transformers in industrial/commercial organisations, electrical safety is always a priority. The following legislation outlines the compliance requirement.

Electricity At Work Regulations 1989 (EAWR)

The EAWR requires electrical equipment, which includes switchgear, for use at work to be constructed, maintained and operated in such a way as to prevent, so far as is reasonably practicable, danger. Electrical equipment, including switchgear, must not be used where its strength or capability may be exceeded, unless it is used in such a way that nobody could be exposed to danger. This includes protection against the effects of excess current and exposure to the physical environment in which the switchgear is located. People who work on or near to electrical equipment, and those responsible for managing such work activities, must be suitably competent for the activity to be undertaken (i.e. they must have the appropriate level of technical knowledge or experience).

HV/LV Switchgear testing

We provide HV/LV maintenance on circuit breakers including protection testing and LV (Low Voltage) incomer air circuit breakers including current injection testing.

We carry out a partial discharge survey using TEV (Transient Earth Voltage) and ultrasound methods on HV (High Voltage) switchgear and transformers. In addition, we carry out transformer inspections, substation inspections, tripping battery and earth electrode checks.

Transformer oil testing

We carry out and issue a report on laboratory analysis to ascertain acidity level, dielectric strength and moisture. These results give a measure of the quality and suitability of the oils. In addition to these tests we carry out transformer condition analysis of the oils, including a dissolved gas analysis. These results predict the remaining life of oil filled transformers before they fail.

Transformer replacement

We can replace or upgrade transformers to more energy efficient transformers with super low loss amorphous core. Having an energy efficient transformer in place avoids energy wastage through transformer losses and helps organisations reduce their emissions.



Advice



Compliance



Energy Efficiency



What are Amorphous Core Transformers (AMT'S)?

The cores of conventional transformers consist of stacks of laminations that are made from silicon steel with an almost uniform crystalline structure. In transformers with amorphous cores, a ribbon of steel is wound to form the core. A big benefit of amorphous transformers is that less energy is wasted as heat during magnetisation and de-magnetisation of the core.

Benefit of choosing energy efficient transformers:

- Guaranteed loss savings over lifetime
- Favourable Total Cost of Ownership (TCO)
- Cost effective 2 in 1 voltage management solution
- Meets and exceeds Tier 2 (2021) EU Eco Design specifications
- Up to £100K lifetime savings when replacing an existing transformer



Power Factor Correction

What is power factor?

Power factor is a way of describing how efficiently electrical power is consumed.

Power that equipment uses is called *useful* power. Power that is not directly used onsite is known as *reactive* power. The useful and reactive power together determine the *total* power drawn from the network. Power factor is the relationship between *useful* and *total* power.

What are the implications of poor power factor?

Poor power factor may mean that your business is paying for energy that cannot be used and could negatively affect it in the following ways:

- More power may be drawn from the network than is necessary
- Your supplier may charge a “poor power factor penalty”
- Your electrical supply may be less effective as it could carry more reactive power and less useful power
- Transformers and other devices could become inefficient and produce unwanted heat gains
- Can cause excessive voltage drops in the supply network
- In extreme cases, wear and tear on electrical equipment

It is possible to reduce the effects of reactive power by using power factor correction techniques. These often include adding electrical devices called capacitors into the circuit.

What do we offer...

Ayjay Group will visit site to survey your electrical installation and equipment to investigate potential issues and check site power factor. Our qualified engineers will then advise on the appropriate maintenance/upgrading/replacement of equipment, if required.

We can help you improve your power factor which in turn can save you money on your electricity bill, prolong the life of your electrical equipment, avoid voltage drops/reduce efficiency losses and improve the overall electrical capacity and efficiency of your electrical infrastructure.

For further information, contact one of our team to discuss.



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