Test Laboratory
Excellence in low voltage switchgear and panel testing
A facility you can trust

Established in 1985 and based in Swindon, Wiltshire, Schneider Electric’s Test Laboratory is recognised by ASTA for LV testing and is assessed against the requirements of ISO 17025, offering full certification to cover all areas of design to be verified by test according to IEC 61439.

We specialise in temperature rise testing to IEC 61439, which is the standard for low voltage switchgear and controlgear assemblies. Upon successful completion, our customers can obtain ASTA Certificates of Verification Tests. We can also offer:

- Short circuit withstand testing in association with our Schneider Electric L2E (Volta) Laboratory in Grenoble, France or partner laboratories in UK
- Specific tests or research and development sessions, determined by your specifications

The global specialist in energy management™
Schneider Electric service and confidentiality

As a world leading manufacturer of electrical systems and devices, our Test Laboratory is focused on offering clients a welcoming, cost effective and professional service. We recommend that all our clients come to the laboratory to witness the tests and hold regular meetings at every stage of the agreed work programme. All testing is strictly in confidence, with procedures formed over many years. This ensures the safeguarding and the confidentiality of all test results, information and equipment submitted to us for testing.

Range of devices and assemblies tested

We test a wide range of electrical switchgear assemblies / fixed or withdrawable, wall or floor mounted power and motor control centres, housing devices such as air circuit breakers (ACB), moulded case circuit breakers (MCCB), fuse switches, disconnectors, automatic transfer switches (ATSE), motor starters and control devices and miniature circuit breakers (MCB) which are manufactured by all major electrical component manufacturers.

Market segments

Panelbuilders’ who use our Test Laboratory supply switchboards to all market segments, including data centres, banking, health care, retail, power generation, water treatment, oil & gas, marine, rail infrastructure, military and other public sector organisations. These critical markets often require ASTA Certification as proof of reliability and safe operation of equipment.
The complete testing service
IEC 61439

Test with confidence

With IEC 60439 due to be withdrawn in 2014, it is vital that assemblers and builders of low voltage switchboards offer a verified system tested to the new IEC 61439 parts 1 and 2 for low voltage switchgear and controlgear assemblies.

Schneider Electric, a world leader in low voltage assemblies and devices, is here to help you achieve the stage of testing you need. With a wealth of expertise and indepth knowledge of testing to the new IEC 61439 standards, our Test Laboratory provides a service you can use with confidence.

To learn more about the new IEC 61439 parts 1 and 2 standards, there is a free guide available via our website and official copies of the full documentation are available for purchase from the IEC website.

Our Test Laboratory offers full certification to cover all areas of design to be verified by test as called for by IEC 61439 parts 1 and 2, comprising:

1.2 Strength of materials and parts
1.3 Degree of protection of enclosures
1.4 Creepage and clearance distances
1.5 Protection against electric shock and integrity of protective circuits
1.6 Incorporation of switching devices and components
1.7 Internal electrical circuits and connections
1.8 Terminals for external conductors
1.9 Dielectric properties
1.10 Temperature Rise
1.12 Electromagnetic Compatibility (EMC)
1.13 Mechanical Operation
The verification of temperature rise on a low voltage assembly is a key element in confirming it is constructed for use within its designed operating capability, as defined in the IEC 61439 standard. At our test laboratory we are able to carry out tests on individual devices, up to 10,000 Amps, on complete switchboards. To show compliance with relevant standards we site thermocouples at strategic areas on the devices and components within the switchboard.

Measurements are recorded at set intervals (typically every 15 mins) until the temperature is at steady state. The maximum operating temperature of each piece of equipment, and the maximum ambient temperature it is required to work in, must be known prior to testing to determine an acceptable increase in temperature for the device, and where applicable, its external surfaces.

Our temperature rise test rigs are 3-phase with data loggers having up to 180 inputs for recording the changes in temperature from thermocouples fixed to the devices within the assembly. We also offer a facility to perform non-invasive, infra-red temperature measurement and thermal imaging reporting.
Verification of strength of materials and parts

The verification of strength of materials and parts is a further key element in confirming switchgear assemblies are constructed for use within their designed operating capability, as defined in the IEC 61439 standard; where it states that assemblies shall be constructed of materials capable of withstanding the mechanical, electrical, thermal and environmental stresses that are likely to be encountered during its service conditions. The strength of materials and parts verification is made from a number of tests, including:

**Impact (IK) Test**

Our test facilities offer verification of strength of materials and parts (IK tests). We carry out tests against the requirements of IEC 62262 to record the strength of the enclosure against the force of an impact. IK tests ascertain the method and force with which the enclosure or device may be hit. Our test laboratory has the capability to perform these tests from IK05 to IK10, with IK10 being the foremost of these with an impact force of 20 joules.

**Harsh Environment and Corrosion Test**

We are able to offer tests to severity test A and B for both indoor and outdoor enclosures. These are normally performed on scaled down enclosures which include the door, hinges, catches, nuts, fixing bolts, etc.

**Glow Wire Test**

Within IEC 61439 part 1 standard for low voltage switchgear and controlgear assemblies, clause 10.2.3.2, lays out the schedule for the testing of insulating materials to abnormal heat, against the prerequisites of IEC 60695-11.

IEC 60695-2-10 states the method of testing to be used to test the flammability of materials, when subject to specified high temperatures, using a heated probe (glow wire). The tests temperatures are determined by the make-up of the component being tested, or at the request of the customer.

Our apparatus used for these tests also satisfy the prerequisites for testing to IEC 60695-2-12 & 13 which is also included other standards.
Properties of insulating materials tests

Ingress Protection (IP) Test

We can also offer tests to determine the Ingress Protection classification code to verify the degrees of protection provided by enclosures against the penetration of solid objects, dust, water and accidental contact. The IP performance is an essential characteristic of any electrical enclosure to determine suitability for the environment it is to be housed in.

Lifting Test

For assemblies with provisions for lifting means.

This is usually carried out at the Panelbuilder's premises, testing consists: From a standstill position, the assembly shall be raised smoothly without jerking in a vertical or horizontally then lowered to a standstill position. During the test, with test weights in place, the assembly shall show no deflections and after the test show no cracks or permanent distortions.
Short Circuit
Withstand strength

IEC 61439 section 10.11 details the short circuit withstand strength schedule of testing prerequisites. At our Test Laboratory we can offer verification in line with most of the test requirements identified in this range of standards. However, where complete short circuit testing is a requirement we would either refer our customers to our extensive Schneider Electric L2E (formerly Volta) in Grenoble, France, or in agreement with the customer, liaise with a UK-based, independent ASTA Recognised alliance partner for these tests, where it is possible for us to co-ordinate with them to provide an overall ASTA Certificate. In either of these instances, or where agreed, we would arrange for them to quote separately for short circuit testing.

Our Schneider Electric L2E facility was built in 1936 and has had major investment throughout this time to become a world leader in this field. L2E is a member of LOVAG and STLA agreements and is accredited or approved by the main global organisations COFRAC, ASEFA, UL, CSA, VERITAS, LCIE/CEBEC. The certification can be issued for National (NF), European (EN), International (IEC), UL (USA), CSA (Canada), Navy (Veritas, IACS) etc.

Medium Voltage
Testing to IEC 62271

AC switchgear and controlgear which operate at voltages above 1000V and up to a frequency 60Hz are covered in the Standard IEC 62271 for both indoor and outdoor applications.

At our Test Laboratory we offer low voltage test facilities. However, where testing of medium and high voltage assemblies is a requirement to IEC 62271, we would liaise with the customer and our L2E Test Laboratories in France. We can also liaise with a UK-based, independent ASTA Recognised alliance partner to carry out these tests at another test laboratory and obtain a quotation for short circuit testing.
Research and Development Service

We have many examples of successful collaborations with Panelbuilder customers, and encourage a close working relationship with client companies and professional/educational organisations to develop new prototype products or materials to meet emerging market demands.

Our research and development service offers our customers the facility to take their designs and concepts through all stages to ultimate launch. Whether you need a day or two for initial testing to prove your assembly or if you wish to work in partnership on a longer-term project, we would be pleased to discuss your requirements and provide a roadmap for development.

As a market leader Schneider Electric is able to provide a support service for low voltage or medium voltage switchgear design, the development of new products for the market, and offer consultancy and support through an agreed development and testing process.
Incorrect protection settings can result in spurious tripping during normal load conditions, or failure to trip during a fault. Inadequate discrimination can result in unnecessary disconnection of supply to loads. Working with Schneider Electric’s Power Consultancy Service will identify optimum protection settings to ensure that site personnel and electrical networks are properly protected, and supply availability is maximised.

A protection co-ordination study:

→ Can either be based on electrical network data provided by the client or involve a site visit to collect data from existing devices
→ Involves calculation of optimum protection device settings
→ Is carried out using a proprietary power systems analysis software package (SKM Powertools for Windows)

On completion of the protection co-ordination study you will receive a report containing:

→ A single line drawing showing the electrical network model
→ A summary of the relevant data on which the study is based
→ Commentary on how settings were determined and any issues arising
→ Protection device setting tables
→ Protection device time-current characteristics
→ Recommended improvement actions

Network reliability studies
→ Assess electrical and environmental stress and calculate power availability to critical loads
→ Identify priorities for maintenance, equipment upgrade or network changes

Electrical contingency planning
→ Proactively reduces the risk to your installation and minimises lost revenue through system downtime by running a detailed recovery plan

Harmonics surveys
→ Identify the existing supply impedance and individual harmonics and reduce both electrical insulation degradation and nuisance tripping of overload

Fault level studies / load flow studies
→ Understand risks and stresses which may occur on your electrical network and takes steps to minimise risk to life from arc flashes under fault conditions

Power transformer assessment
→ On-site audit of your power transformers, with measurements taken both on- and off-line

Arc flash studies
→ Our experts can provide advice on current guidelines and recommendations of mitigating risks of an arc flash
Things to be considered prior to contacting Schneider Electric Test Laboratory.

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<tr>
<th>Question</th>
<th>Answer</th>
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<tr>
<td>What is it you want testing?</td>
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<td>How big is it?</td>
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<td>Can you supply drawings?</td>
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<td>What are your timescales?</td>
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<tr>
<td>Is this a development or design verification?</td>
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<tr>
<td>What tests do you want to carry out? (Temperature Rise, Strength of Materials, Short Circuit, Environmental etc)</td>
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<tr>
<td>What are the timescales?</td>
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<td>Can you supply the assembly with copper work for easy connection?</td>
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<td>Are the devices manufactured by Schneider Electric?</td>
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<td>Or if not what manufacturers devices are they?</td>
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Our contact details
We are here to help you achieve the most cost effective solution for your business, so we have tried to make contacting us as simple as possible. Once you have the answers to the questions on the previous page, either contact your local Schneider Electric Sales Engineer or call the Test Laboratory directly from 8.30am–4.45pm, Monday-Thursday, and 8.30am-1.30pm on Friday.

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