



Quality & Safety - without any compromises



UL certification |
in our in-house test laboratory

Even for specialists in the field, it can be a tough job interpreting all the international standards and certificates that are out there. Enclosure specialist **Spelsberg**, a company with its own testing laboratory, and therefore at home in this subject field, has finally **cast light into this darkness.**

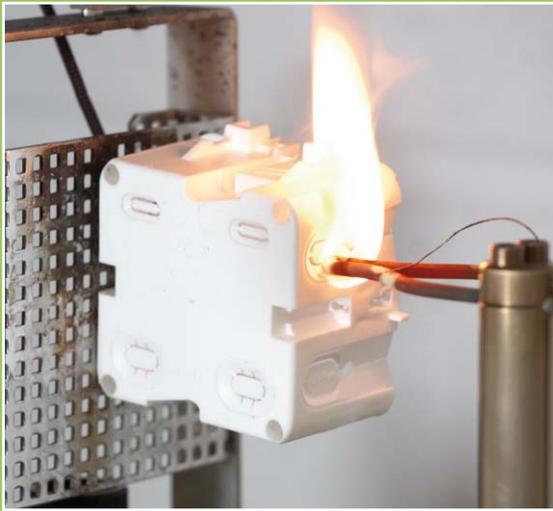
A clear view of the international market

Who hasn't heard the tales - stories of people who prosecute a café in the USA for compensation of one million dollars because they got scalded with hot coffee. Nor are horror stories of this kind distorted by exaggeration! The legislation governing product liability is much more stringent in the USA than we are used to having here in Europe. Anyone seeking to export to the USA would therefore be well advised to be able to display the compliance certificates specified over there.

IEC or UL?

There are many different standards in force around the globe. South America is a case in point. Here, each country has very individual specifications of its own. Nonetheless, two standards stand out from the crowd, and appear to be becoming established on a long-term basis. IEC and UL. Predominantly, the IEC defines minimum requirements, leaving the details to the manufacturers. UL on the other hand, a much more powerful force in the USA, is a great deal more stringent: Depending on the standard involved, UL takes the entire

process under the magnifying glass. This scrutiny extends from product design to manufacture to handling at the installation location, and involves a careful check of every last detail. Due to the fact that the regulatory authorities and all other market players value these stringent prerequisites, UL certification can greatly facilitate access to the US American market, and assures great acceptance for the products covered by UL certification. Many machine and plant builders who wish to export their products therefore place their faith in the Made in USA certificate.

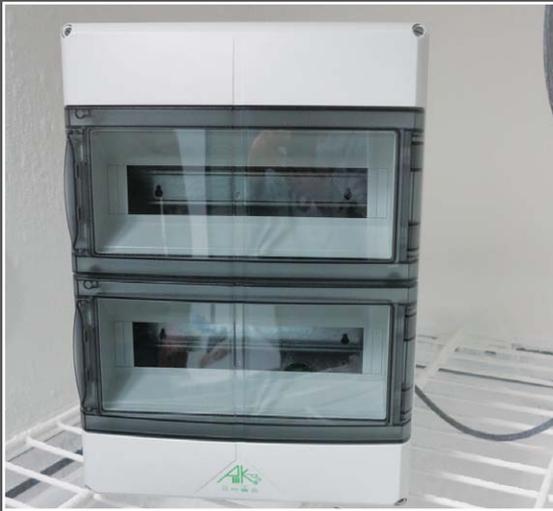


Leveraging German UL expertise

For more than 112 years, Spelsberg has been renowned in the electrical products sector for its enclosures, and its superlative brand quality. Its developers always have an eye to the current status of standards in the different regions of the world - at the end of the day, no compromises can be made in regard to the safety aspects of electricity, fire protection or sustained functionality. For years now, Spelsberg has therefore been running its own in-house test laboratory, and it is always equipped to state-of-the-art standards.

There is scope here for checking all relevant standards for enclosures and for electrical engineering products made by Spelsberg. The laboratory is certified by UL as fully compliant with the Client Test Data Program (CTDP), entitling it to conduct tests for the UL certification of products on behalf of UL. These are equivalent to the TDAP tests conducted for VDE certifications. For over a decade of collaboration based on mutual confidence, Spelsberg has been conducting tests with regular audits by UL, and has obtained the corresponding UL kitemarks (compliance symbols) for Spelsberg products.

This cooperative from of collaboration between UL and Spelsberg, especially in the field of TK and TG empty enclosures laid the groundwork for rapid implementation of UL50/CSA22.2 certification for the new AK range of small distributors with AIR ventilation elements. At the same time, the small distributor series was also certified in accordance with international standards IEC/EN 62208 and IEC/EN 61439. As a consequence, with immediate effect, this series of small distributors with integrated ventilation elements is entitled to display the coveted UL-EU symbol.



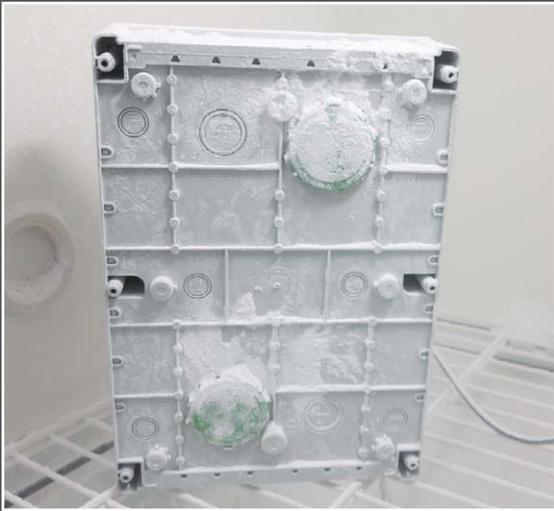
The right to carry out qualification inspections and tests as part of the Client Test Data Program in our in-house test laboratories offers our Product Development staff a decisive advantage in terms of time because inspection planning can be adapted at very short notice by Design, Tool-Building and Test Laboratory staff, without being reliant on the availability of external laboratories.

Anyone employing solutions from Spelsberg is backing a winning horse. Throughout all steps of the development process, the enclosure experts have a set of the UL specifications before them. Consequently, there are no unwelcome surprises

when the time comes for the finished product to be tested. Time is frequently a decisive factor, in particular with individual solutions developed on a joint basis with customers. Not infrequently, before development work commences, delivery lead times have already been scheduled in for the product. The aim here is to help our customers get their products to market readiness as rapidly as possible. The fact that Spelsberg concentrates all of its development and production facilities at a single location means that a solution can be found, produced and also tested quickly. Always bear this in mind: It is not sufficient, when

manufacturing a UL-compliant device, for its constituent elements to themselves be satisfy UL specifications. Instead, the complete system must also be tested in accordance with prevailing standards in the context of its field of application. Here is another area where Spelsberg can deliver valuable services, since its portfolio of products not only includes empty enclosures: it also includes complete turnkey systems. This explains how we are also able to produce UL-compliant devices to customer order easily and quickly.

UL certificates from Schalksmühle save time



**AK Air distribution boards
with Air-Technology**

During development of the new series of distribution boards with their standard AIR ventilation element to prevent condensation, the IEC as well as the UL standards were taken into account. For that reason, materials were selected that are resistant to UV and to adverse weather conditions. Sealing systems optimised for the 'Raintest' UL inspection and retaining points provided outside the sealing area on the enclosure.

With their sizes AK14 (1-row) up to AK 56 (4-row), Spelsberg can offer an appropriate size for almost every application. The side extension of the housing via the combi connector provides scope for creating larger systems.

The screwless PE/N terminal strip, pre-installed wiring guides and a comprehensive range of accessories all come as standard at Spelsberg in its range of high-quality small distributors. These also make life easier for the installer as does the T-rail spacing of 150 mm and the ability to remove the T-rails without tools to insert wiring into the enclosure. The AK-F variants of the distribution boards are ideal for customer-specific variants with their open face ends and flanges.

Compared to standard housings, the AK-Plus and AK-F-Plus housings offer additional space for connecting up terminal strips or controllers.

In total, 15 housing variants are available. All enclosure variants can also now be fitted with the UL-EU logo that indicates certifications in accordance with IEC EN 61439-2 and -3 as well as IEC TS 61439-7. The AK is therefore equipped for all manner of applications - either as a VDE-certified 'enclosure for installation devices for household and similar fixed-location electrical installations' in acc. with EN 60670-24 or as UL-EU-certified 'low voltage switchgear combinations for interior and open-air applications' as defined in IEC EN 61439. For the US-American and Canadian market, cULus-certified variants of these distribution boards are available.

AK distribution boards with air ventilation element holding IEC and UL certification equipped for use in global markets

An overview of the institutions involved

Previously, all the German electrical specialist needed to be familiar with was DIN VDE. However, as markets have become more global, the more international standards have come into play. Today, many institutions around the world are striving to achieve harmonisation. In this next section, we shall introduce you to the most important institutions in this sector.

UL

UL is an independent global operator in the field of safety science. It has more than 120 years of experience. More than 10,000 specialists are committed to the UL Mission, which is to promote safe working and living environments for all people. UL delivers market access solutions for Europe, the Middle East, North America and South America and offers the highest level of legal acceptance and recognition in the safety technology industry for buildings and human life. UL collaborates with manufacturers, designers, architects, trade associations and international authorities to offer solutions for a complex global delivery chain. UL harnesses research and standards in the quest for continuous improvement in compliance with the continuously developing safety requirements. UL continues to create new certification schemes and helps to develop decisive standards to tackle new risks and innovations in the 'life safety' and

general safety sectors. Our engineers offer technical support, estimates of production options, quality assurance, compliance tests and certifications for sustainability and the environment. For further information about certification, testing, inspection, advisory and educational services, please visit www.UL.com.

NFPA

NFPA was founded back in 1896 as a Non-Profit Organisation. Its aim is to reduce fatalities, injuries and damage to property caused by fire, electricity and other hazards. NFPA issues 300 standards and directives. UL also participates in many of the NFPA standards bodies, including the NFPA 70, the NEC (National Electric Code).

CENELEC

The European Committee for Electrical Engineering Standards (CENELEC) is responsible for European standardisation in the electrical engineering field.

IEC

The International Electrical Engineering Committee. IEC is the international standards organisation for electrical engineering and electronics. It is headquartered in Geneva. Originally it aimed to standardise dimensional units, and today about 70 countries around the world are full members.

VDE

VDE (Verband der Elektrotechnik Elektronik Informationstechnik e.V.) is on the big European associations for sectors and professions involved in electrical and information technology. Very broadly speaking, the DIN-VDE standards formulated by itself and by the DKE regulate everything to do with power and data, and they are relevant to many sectors, ranging from power providers to mechanical engineering manufacturers. Particular emphasis is placed here upon harmonisation with international specifications.

Services provided by the Spelsberg test laboratory

The test laboratory at Spelsberg's head office location in the Westfalian town of Schalksmühle is equipped to state-of-the-art standards and is the subject of ongoing further development. UL conducts and annual audit as part of the Client Test Data Program to assure that work continues to be carried out at a consistently high standard.

Overview of the UL test symbol:

During the designation of UL-approved products for the US American market, a distinction is always made between approved devices, the Listed Devices, and approved components, known as the Recognized Components. In addition, there are variants for the Canadian market as well as a test symbol for the European market. ▶▶▶

Testing laboratory Spelsberg - products with UL certification:



An overview of standards

For many specialists in this sector, standards are often perceived as a book with seven seals. Amendments occur all the time and who has the time nowadays, on top of daily business, to study the mountains of paperwork involved? Spelsberg does tackle this topic on a daily basis, to ensure that it complies with the specifications of worldwide markets, and to avoid taking any safety risks. The contents determine the entire process for us.

UL 94	Standard for Safety Tests for Flammability of Plastic Materials for Parts in Devices and Appliances
UL 746C	Standard for Safety Polymeric Materials-Use in Electrical Equipment Evaluations
UL 50 / 50E	Standard for Safety Enclosures for Electrical Equipment, Non-Environmental Considerations / Enclosures for Electrical Equipment, Environmental Considerations
UL 508	Standard for Safety Industrial Control Equipment Comparable with IEC 60947-2, IEC 60947-4-1
UL 508 A	Standard for Safety Industrial Control Panels comparable with IEC 60204-1 and IEC 61439-2
CSA 22.2	Canadian Standard for Safety Industrial Control Equipment
NFPA 70 NEC	NFPA 70 is a binding safety standard in the United States of America for electrical installations and has legal status. This is comparable to IEC 60364-1 or DIN VDE 0100
IEC 61439	Technical safety requirements for low-voltage switchgear combinations: 61439-1 General definitions for low-voltage switchgear combinations 61439-2 Power switchgear combinations 61439-3 Installation distributors 61439-7 Distributors for marinas, market places, camping and charging points for electric vehicles
IEC 62208	Empty enclosures for low-voltage switchgear combinations



The **UL Listing test symbol** is the most frequently used symbol. Devices displaying this symbol (e.g. washing machines, computers, electrical switchgear, fire extinguishers, life belts/buoys etc.) comply with all UL safety stipulations and can be installed universally and without further instructions anywhere, without any restriction on their operational capabilities.



C-UL US Listing test symbol: This symbol, introduced in 1998, is for appliances that satisfy specifications for the Canadian market and for the USA. This Canada/US UL test symbol is optional. UL encourages manufacturers to use the combined test symbol for products with both forms of approval. However, either of the two independent test symbols for Canada and the USA can continue to be used.



UL-EU Mark: Manufacturers whose intended target market for their products is Europe can use the UL-EU Mark to indicate that they comply with the corresponding EN standards. For this, representative samples were tested, and production is subject to UL production monitoring.



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