TÜV NORD CERT – you can rely on our expertise

"Throughout the world the name TÜV® stands for safety and quality – and has done for more than 150 years.

In German-speaking countries the brand has a familiarity rating of 99 per cent and is synonymous with reliability. Consumers trust a company, a product or service much more if it bears a TÜV® test mark."

Leading competence in all fields of technology

TÜV NORD CERT is the certification body of the TÜV NORD GROUP and stands for the highest competence worldwide with its team of more than 1,300 experienced experts. We employ designated specialists from a wide range of sectors; as an attractive employer we offer our employees ideal career development opportunities and ensure that our team is up to date at all times. We are continuously expanding our service portfolio – for example by extending and developing our laboratories or by co-operating with renowned research institutes. Know-how, experience and consistent service orientation: these form the basis of our excellent services, from which our customers profit in many different ways.

TÜV NORD CERT GmbH
Division Technology
Langemarckstraße 20
45141 Essen
Germany
Tel.: +49 (0) 511 9986-1222
Fax: +49 (0) 511 9986 69 1900
technology@tuev-nord.de
www.tuev-nord.com/technology

You will find all further information on our service portfolio and an overview of all our locations on the internet at
www.tuev-nord-cert.com

TÜV NORD Certification

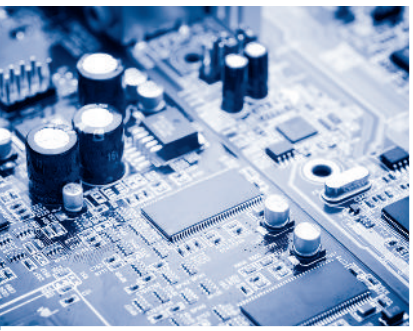
24-0296-06/15

DAkkS Deutsche Akkreditierungsstelle
D-ZE-12007-01-03
D-ZE-12007-01-04
D-ZE-12007-01-05
D-ZE-12007-01-06
D-ZE-12007-01-07

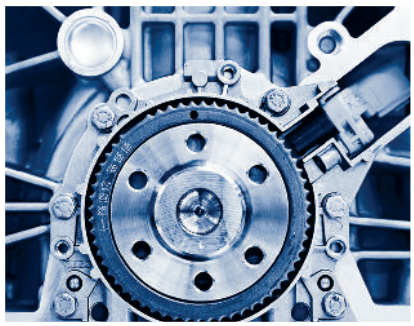
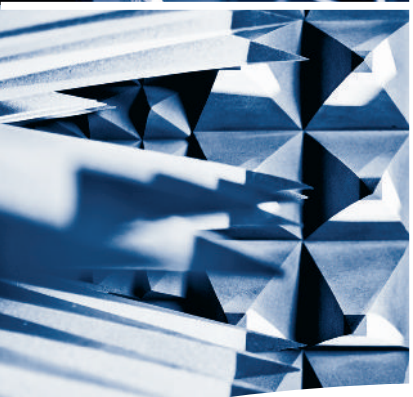
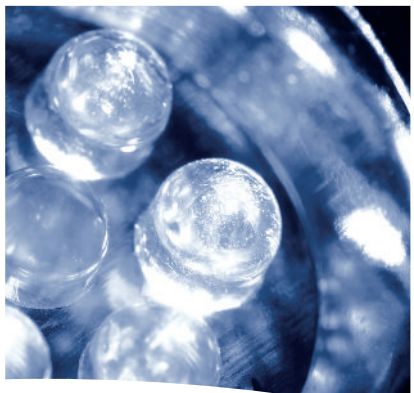
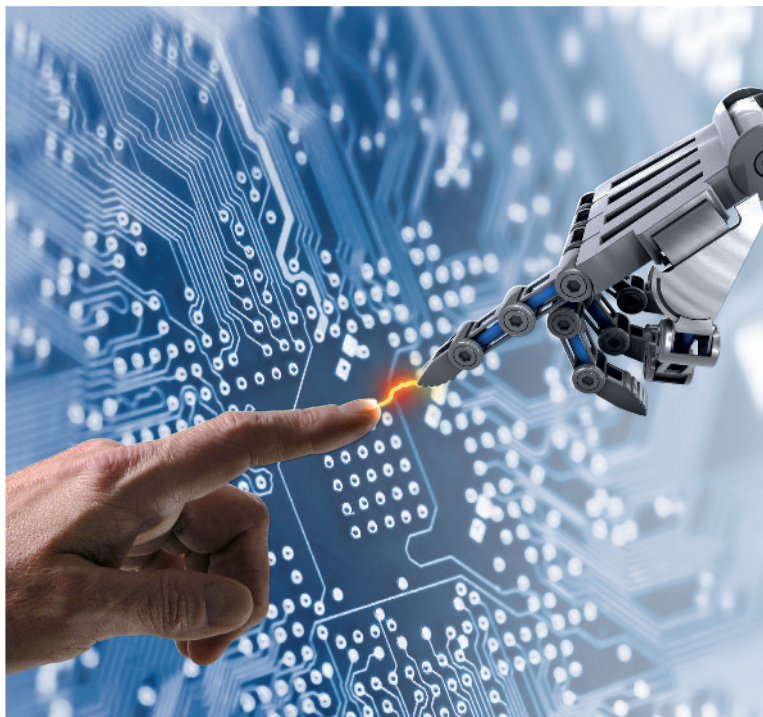
The exact scope of accreditation can be seen from the annexes of our accreditation documents which can be seen on the websites of DAkks under:
www.dakks.de/en/content/directory-accredited-bodies-0

TÜV NORD CERT – Technology Division

Responsibility for People, Technology and the Environment




EMC
Energy and Networks
Explosion Protection
Functional Safety
Consumer Goods
Machinery

TÜV®

TÜV NORD Certification

TÜV NORD GROUP

Competence that ensures safety

Know-how based on tradition

For more than 150 years, the name TÜV® has stood for the highest level of technical safety. We have always adapted our services to keep up with technological progress and the needs of our customers. From the very beginning, our leading expertise and our independence, combined with market and customer orientation, have been the guarantee for excellent services. With our know-how and experience, we enhance the success of companies and organisations throughout the world.

Today, the Technology Division of TÜV NORD CERT offers tests and certifications for the regulatory domains of electromagnetic compatibility, low voltage, energy and networks, explosion protection, functional safety and microbiological safety, play equipment and safety of machinery.

Thanks to our active involvement in standardisation committees, we are always up to date. Our accreditations guarantee that the inspections and certifications are performed according to identical, recognised quality criteria.

Regardless of the task you set us, you will always have highly qualified and experienced personnel to assist you, and you will always profit from flexible, interdisciplinary and prompt handling of your projects and from our consistent customer orientation.

Rely on TÜV NORD CERT – use our strengths to secure your competitive edge!

Minimising risk, optimising development processes

Functional safety is of the utmost importance when it comes to safety-related components and systems, as well as being a sales factor: every developer, erector and operator of safety-critical technical installations is obliged by law to reduce risks as far as possible and to be oriented towards the state of the art. The individual specifications to be observed are defined by national and international standards, such as the generic safety standard IEC 61508 and the sector-specific standards EN 62061 and ISO 13849 harmonised under directive 2006/42/EC, and also ISO 26262 in the automotive field. With a broad spectrum of test services, TÜV NORD CERT provides support in fulfilling the required duties of care on the basis of conformity assessments.

Your advantages	**High safety level**	**Early verification of development results**
Basis for decisions with respect to safety structures, design procedures and tools	**Reduced development times and costs**	**Minimisation of risks**

Solutions for numerous sectors

Our range of services in the area of functional safety covers a large number of sectors. Amongst others, we service companies from the automotive, aviation, power plant, mechanical, medical and process industries – with competence, experience and reliability. We are accredited by the German authority Deutsche Akkreditierungsstelle DAkkS according to all national and international safety-relevant standards (IEC, DIN EN).

The basis for the right decision

In these standards quantitative evidence is required for the residual risk, based on a calculation of the likelihood of failure. In addition to the technical requirements, organisational measures for avoiding systematic defects are specified in order to minimise the risk. With the appropriate tests it is not only the statutory specifications that are satisfied: correct decisions in terms of safety structures, design procedures and tools in the development of safety-oriented systems as well as the early verification of development results help to avoid defective developments and expensive corrective actions – consequently reducing development time and costs.

To enable you to implement the required measures correctly and minimise the risks in the best possible fashion, we offer you

- moderation of hazard and risk assessments
- testing and assessment of safety-oriented hardware and software parallel to development
- design checking (pre-check)
- functional safety management (FSM)
- safety, reliability and availability analyses
- conformity assessments according to relevant safety standards
- workshops on functional safety
- functional safety in connection with automotive security and IT security, other safety aspects

TÜV NORD
TÜV NORD CERT GmbH
Approved Safety Function
acc. to applied safety standards

ISO 13849-1
IEC 61508

PL ‘d’
SIL 2

“We support companies in implementing measures to minimise risks. Confirmation of safety integrity by an independent body not only fulfils statutory requirements, it also initiates efficient measures to improve products and processes.”

For a secure energy supply

A stable, reliable and efficient energy supply is indispensable for people and industry – but this does not mean that it can be taken for granted. The satisfying of conditions to ensure a reliable electricity supply is not just a result of the instigation of the energy turnaround. This can also be seen from a whole series of statutory specifications, and TÜV NORD CERT provides extensive assistance to help you comply with them.

Your advantages

- Certification as prerequisite for connection to the mains
- Electrical safety verified by a neutral body, especially important for imports from abroad
- Work in committees and working groups at VDE/FNN, FGW and DKE
- Tests according to the BDEW medium-voltage guideline, VDE-AR-N-4105 and FGW guideline
- Reliable evaluation of measuring results

Mains supply certification for the low- and medium-voltage network

It is the job of the transmission grid operator to ensure that there are no power failures in the electricity network. To enable him to meet this system responsibility he needs precise information as to how decentralised feeders (such as photovoltaic installations) respond when there are changes to the network parameters (voltage or frequency). It also has to be clear what the maximum in-feed power is and whether an installation interferes with network operation. This means that the relevant values have to be measured and control behaviour verified. This requires both unit certifications (type certifications) and system certifications (project certifications).

To unit manufacturers, for example manufacturers of photovoltaic inverters or unit-type cogeneration plants, TÜV NORD CERT offers the following for units and components:

- evaluation of measurements taken, provided by an accredited measuring laboratory
- comparison between measuring results and simulation results; the simulation model (Matlab or DIgSILENT) reflects the electrical behaviour in the network and is drawn up by the unit manufacturer
- in-factory inspection
- unit certification
- CEI 0-21/-16, G59, ENTSO-E, GSE and other international grid codes

For planners and constructors TÜV NORD CERT recommends:

- examination of the structure of generation facilities on the basis of documents submitted- simulation of the relevant functions of a generation facility
- evaluation of the behaviour of the generation facility in the network
- on-site inspection of the facility
- power generation system certification

Electrical safety of network components

When placing electrical products on the market within the European Union the EC directives governing electrical safety must be complied with. This requires a conformity declaration which the manufacturer must draw up independently. To ensure that the details are correct, it is advisable to obtain a prior evaluation by the experts from TÜV NORD CERT – especially for imports from countries outside the EU.

TÜV NORD CERT assists manufacturers of network components at home and abroad with

- an evaluation of measuring results provided by an accredited measuring laboratory
- factory inspection
- certification

TÜV NORD
TÜV NORD CERT GmbH
Grid Code Compliant
Tested Unit acc. to BDEW Medium Voltage Guideline

"Our certificates mean that, on the one hand, the grid operators' requirements have been met and, on the other, that non-European products enjoy significantly enhanced value when being sold within the EU."

Placing explosion-safe devices on the market

The prevention of explosions in process engineering systems has been governed by strict statutory regulations in Germany for more than 100 years. Today the European Directive 94/9/EC imposes requirements for equipment and devices, their manufacture and their placement on the market. In addition, an international procedure, the IECEx scheme, has become established worldwide. TÜV NORD CERT is an expert partner for testing and certification, both as a Notified Body and as a recognised IECEx testing laboratory and an IECEx certification body.

The correct steps in technology and organisation

The list of process engineering systems in which explosions can occur is long, as is that of the devices used in them. For example, the sensor systems to measure pressure, temperature and flow, automation technology for control purposes with bus systems and actuators together with conveyors, pumps, motors and valves are covered by the Directive and are subject to technical requirements under the DIN EN IEC 60079 family of standards. These standards must be taken into account and implemented by manufacturers of the devices as early as the development phase. For the production phase, a quality assurance system which complies with Standard DIN EN IEC 80079-34 must be introduced and approved by an appropriate body.

Assessments, certifications and workshops

Within the framework of Directive 94/9/EC, implemented in the form of the Product Safety Act, we act as a Notified Body in the assessment and verification of devices, components and safety equipment. On the basis of IEC standards of the 60079 series, as an IECEx testing laboratory and an IECEx certification body, we assess and certify equipment and devices in accordance with the IECEx scheme. We audit the relevant quality assurance systems and approve them. Furthermore, it is possible on the basis of our accreditations to combine a quality assurance system under ATEX and the IECEx scheme with a quality management system to ISO 9001 if required.

Your advantages

- Tests parallel to development with specified milestones
- Fulfilment of the basic safety and health requirements
- Certification of devices according to 94/9/EC and IECEx
- ATEX QAN, IECEx QAR and ISO 9001 – a one-stop service
- Workshops with the most recent information on directives and standards

We support our customers in their projects by conducting tests and workshops parallel to development in the field of explosion protection. We provide these services at our nationwide locations and locally as part of in-house training courses.

We also support you in obtaining national approvals through our collaborations in the following countries:

- NEPIS (China)
- QPS (Canada)
- KOSHA (Korea)
- United States Coast Guard (USA)

Always up to speed for you

Since we are actively involved in many national and international committees, our experts are always extremely well informed about new developments in the field of product directives and about the current state of the art. You can profit directly from this – thanks to the highest professional competence, predictive assessment, neutrality and continuity in the servicing of your projects.

“Competence, motivation and long-standing customer relations make us the number 1 partner in matters of explosion protection.

We know that in the marketplace, time is a major competitive factor for our customers – which is why we invariably offer speedy support.”

Legal compliance and unhindered market access

The European Machinery Directive regulates the placing on the market of machinery and safety components within the European Union. The prime consideration here is compliance with the basic health and safety requirements. As a Notified Body with accreditation by the German authority Deutsche Akkreditierungsstelle (DAkkS), TÜV NORD CERT offers tests and certifications for machines and safety components according to the Machinery Directive, as well as support and coaching for the directive-compliant placing on the market of machines. In addition, we help in overcoming bureaucratic hurdles when it comes to exports.

Your advantages	**Fulfilment of the conditions for placing machines on the market**	**Legal certainty in the CE conformity assessment**
Functional safety of non-electrical components and systems	**Greater confidence in products**	**Ticket for entry into the East-European market by means of GOST-R, TR and other certificates**

Boosting confidence in products

Whether it is an EC type examination, a GS mark test or a TÜV type examination, a test and certification by TÜV NORD CERT documents willingness to ensure greater safety, boosts confidence in the products and provides far-reaching benefits in marketing as compared to non-certified products. The test and certifications we provide encompass, among others,

- vehicle hoists
- machines for lifting persons and goods with a falling height of more than three metres
- lifting work platforms
- facade lifts and mast climbing work platforms
- events technology (transverse beams and girders, control barriers, stage elements)
- gates and gate drives
- powered doors and drives
- all other machines and safety components which fall within the scope of the Machinery Directive

Accompanying support for CE marking

We are also an expert and experienced partner for risk assessments and we offer compliance checks which confirm conformity with the Directive for the purpose of CE marking. This means that our customers – the manufacturers of machines and safety components as well as the operators of installations from all sectors – get the legal certainty they need for the successful marketing of their products.

Determination of the failure probability of mechanical components

On the basis of the Safety Integrity Level (SIL) requirements, we calculate the statistical failure rates of mechanical components such as valves according to NSWC standard.

Exports without hindrance

When exporting to Russia or other successor states to the Soviet Union it is necessary to adhere to special bureaucratic stipulations. The laws in these countries specify, for example, that various certificates, confirmations and approvals must be presented if certain products are to be imported. Once again, TÜV NORD CERT can help: we tell you which documents you need in order to export your products and we help you obtain GOST-R, TR and other East European certificates.

TÜV NORD
TÜV NORD CERT GmbH
Type Tested

"An assessment by our experienced engineers helps to identify and overcome all the hurdles to the placing of machines on the market at an early stage.

We help to ensure that our customers' products are successful in national and international markets."

Interference-free operation of technical systems

Whether it is mobile phones or medical devices, in motor vehicles or production shops: more and more electrical devices are in use all over the world. Ensuring that electrical systems can co-exist in their electromagnetic environment without mutual interference therefore presents an ever greater challenge. With its extensive services in the field of electromagnetic compatibility (EMC), TÜV NORD CERT helps to prevent communications disturbances and operational problems which might have major consequences.

Your advantages

- Prevention of interference, unsafe status or damage in devices and installations
- High product quality
- Performance of tests in a 10-metre absorber hall
- Fulfilment of statutory specifications
- CE declaration on the basis of our test reports as the prerequisite for market entry

Conformity tests and interference analyses

We provide electromagnetic compatibility testing services both in our modern laboratory with a 10-metre absorber hall and also directly on site, working with the relevant systems or installations. When we perform conformity tests we provide detailed test reports which confirm compliance with the relevant standards. On the basis of these reports, the manufacturer of the individual product can submit a CE conformity declaration and affix the CE mark to his product. Furthermore, we offer examinations and interference analyses parallel to development which supply valuable indications for solutions to electromagnetic problems. In the laboratory and on site, we examine interference potentials (interference voltages, interference currents, interfering field intensities) and provide analyses concerning the possible influencing of sensitive systems and assemblies. We provide the result in the form of a test report or survey.

On the basis of generic standards, basic standards and product standards we offer tests for the following sectors, among others

- medical technology
- railway
- ship equipment
- entertainment electronics
- automotive
- aviation
- automation technology
- information processing
- household appliances and technical equipment
- telecommunications
- safety technology

Electromagnetic fields (EMF) measurements to protect people

Furthermore, when performing measurements of EMF (immissions) we inspect technical installations such as high- and low-voltage systems, industrial high-frequency devices or radio transmission installations to check their compliance with the statutory limits in the area of EMF (e.g. on the basis of the 26th Federal Immissions Control Ordinance – BImSchV or DGUV 15 (previously BGV B11). In order to protect people, we measure and evaluate magnetic, electrical and electromagnetic fields in buildings and in the open on the basis of statutory requirements. We prepare expert reports and analyse questions relating to the health protection of individuals – both in the working environment and at home.

We are accredited by the German authority Deutsche Akkreditierungsstelle (DAkkS) and listed as an inspection body by the German motor transport authority Kraftfahrt-Bundesamt (KBA).

“Our modern laboratory is constantly adapting its services in line with technical progress and all new developments in EMC standardisation.

Our testing engineers have first-class qualifications and many years of experience, making us your partner for successful market entry.”

Convincing careful consumers

Quality and safety are – apart from price – the most important criteria when consumers decide on a purchase. But which products really are reliable? With assessments by TÜV NORD CERT, manufacturers can document their adherence to high safety standards and stringent quality requirements – an important signpost for consumers and a vital factor in sustainable market success.

Your advantages	Legal certainty and unhindered market access	Customer loyalty and acquisition
Orientation for the consumer	Competitive advantages	Verified quality statements

Obligatory marking for barrier-free market access

With regard to consumer goods, firstly there are obligatory marks that are needed in order to offer goods on certain markets without encountering access barriers. An example of this is the CE mark: in order to protect consumers and simplify free movement of goods within Europe, the EU has established safety and health related requirements, e.g. for electrical household appliances, toys, IT, measuring, laboratory and telecommunications equipment and lighting. Products bearing the CE mark can be sold within the entire EC without the need for further national approvals.

Operators of playgrounds and play areas must always ensure that their play apparatus is safe; this means that regular maintenance is essential. Our experts perform assessments for initial commissioning of playgrounds and playground equipment in schools, nurseries and public places and also perform regular main and quarterly inspections in accordance with DIN EN 1176. Electrical equipment, on the other hand, must be protected against dust and moisture. With an inspection according to EN 60529, manufacturers of electrical equipment, motors, drives, control equipment and housings receive the assurance that the information supplied about the product is correct and the relevant requirements of the Low Voltage Directive 2006/95/EC are fulfilled.

Voluntary inspections for greater trust

There are also voluntary assessments which can be performed by TÜV NORD CERT and which document a high level of commitment to quality and responsibility. These are very useful tools when it comes to convincing discriminating consumers. A particularly well-known example of this is the GS mark, which stands for tested quality and confirms adherence to the requirements of product safety legislation. It immediately shows consumers that neutral experts have subjected a product and its operating instructions to close scrutiny and that no doubts exist with regard to product safety. Assessments leading to award of the GS mark are also possible and useful for sports and playground equipment and for do-it-yourself products.

The “Universal Design” mark testifies to a successful combination of design and ease of use.

TÜV NORD CERT also offers special electrotechnical test procedures as “CB” procedures. This means that the certification can be accepted within the framework of an international recognition procedure for national certification programmes. Manufacturers can therefore save time and costs, as they achieve access to the global market with only one certification.

TÜV NORD GS geprüfte Sicherheit

“More and more goods of dubious origin and quality are creeping onto the market. But we have a tool to counteract this: with assessments by our independent experts and the recognised test mark, manufacturers can demonstrate that their products are trustworthy.”

All from one source

Electromagnetic compatibility
- Electrical safety
- Electrostatic discharge (ESD)
- EMF – Immission protection (26. BImSch, BGV B11)
- EMC – Measurements in the laboratory
- EMC – Measurements on site
- IECEE Scheme/CB-Scheme
- Interference and disturbance analysis

Energy and networks
- Grid connection certification
- “efficiency tested”
- Charging systems for electric vehicles
- Traction batteries /Li-Ion batteries for electric vehicles
- Photovoltaic modules

Explosion protection
- Directive 94/9/EC
- IECEx Scheme

Functional safety
- Safety related services
- Testing and assessment of safety-relevant components
- Reliability analyses
- Concept and design analyses
- In-house workshops

Consumer goods
- Domestic appliances
- Toys, play equipment and playground inspections
- Safety cabinets
- Laboratory, regulation and control equipment
- IT and office equipment
- Outdoor equipment and do-it-yourself products
- LEDs and lamps

EC type approval certificates for machinery and investment goods
- According to Annex IV of the Machinery Directive
- For safety-relevant components according to the Lift Directive
- Power-operated doors and gates and their associated drives

Export-related services
- Project support and purchase of all necessary documents and certificates to enable export to the Customs Union

Determination of failure rates
- Mechanical components (valves)

Other testing services
- IP testing according to EN 60529

Coaching and support
- for the Machinery Directive

technology@tuev-nord.de
Tel.: +49 (0) 511 9986-1222

EMC
Energy and networks
Explosion protection
Functional safety
Consumer goods
Machinery