



Add value.
Inspire trust.

Robotic safety

Ensure product safety and market access for your robot.

Your challenges

In our increasingly automated world, robots are used in an ever-growing number of applications and industries. Innovations continue to drive market growth through improvements in the user experience, commercial agility and financial affordability.

As the rise of human-robot collaboration expands the possibilities of automation, industry will integrate increasing numbers of robots factory-wide. The importance of meeting strict standards is therefore becoming even more critical for suppliers, who must be sure that their equipment satisfies market entry requirements first time, as well as system integrators and end-users who must be assured of its safety.

Which safety requirements apply to robotic products?

As is the case for any industrial machinery, robots are subjected to mandatory requirements such as the EU directives relating to machinery, electromagnetic

compatibility (EMC) and radio equipment. These, and other national and regional regulations, form the basic requirements for robotic technologies that are traded internationally. Furthermore, fundamental aspects such as functional safety and risk assessment apply to all robotic solutions.

Depending on solution-specific properties such as application, interfaces and capabilities, different factors must be considered in order to ensure the safety of both equipment and personnel. Separate standards have therefore been developed for stationary, collaborative and mobile robots, as well as for robot systems (production). There are also separate standards addressing the safety requirements of both service and personal assistance robots. In some cases, the specific application of the robotic solution triggers additional safety requirements; one example is the use of robots in semiconductor manufacturing.

Ensuring the safety of a robotic solution is an extensive

exercise as robot technology draws on several technical disciplines. Adding to this complexity, key markets such as Europe and North America have established their own individual sets of robotic safety standards.

Why are robotics safety standards important to your business?

Safety is a prerequisite for the use of robotics - a system failure can have severe consequences for people, equipment and operations. Although the landscape of robotic safety requirements is fragmented, a combined application of established standards and industry best-practices will ensure the safety of your robotic solutions. Furthermore, a third-party certification demonstrates compliance to industry and regulatory requirements, thereby enabling access to your target markets.

How can we help you?

As an accredited certification body, TÜV SÜD offers a comprehensive portfolio of robotic safety testing, inspection and certification services throughout the product lifecycle. Our services cover stationary, mobile and collaborative robots across industries and applications.

In addition to robot-specific safety assessments, TÜV SÜD provides testing and certification services for mechanical, electrical and functional safety. Special applications such as semiconductor industries and operations in hazardous environments complete the industrial certification portfolio. TÜV SÜD is a one-stop solution provider to industry, conducting field inspections and a range of testing services, including EMC and battery testing.

Your business benefits

Enhance product safety – apply industry standards and best practice processes to ensure safety of people, operations and equipment.

Minimise risk – integrate safety aspects throughout the lifecycle to reduce rework and avoid liabilities.

Ensure market access – comply with regulatory and industry requirements to successfully approach international markets.

Gain customer trust – confirm the high safety level of your products through a third-party certification.

Why choose TÜV SÜD?



TÜV SÜD is a partner to industry organisations worldwide, and has extensive experience with the safety assessment of industrial equipment and machinery. Our experts combine expertise in fundamental machinery

safety with cutting-edge insights on innovative technologies including robotics, Industry 4.0 and additive manufacturing.

Our active participation in international standardisation committees, and close working relationships with our customers, positions TÜV SÜD at the forefront of industrial safety developments. Due to the relentless work of our experts to encourage safe operations across industries, the TÜV SÜD certification mark has become a globally renowned symbol for safety, security and trust.

Add value. Inspire trust.

TÜV SÜD is a trusted partner of choice for safety, security and sustainability solutions. It specialises in testing, certification, auditing and advisory services. Through more than 24,000 employees across over 1,000 locations, the company adds value to customers and partners by enabling market access and managing risks. By anticipating technological developments and facilitating change, TÜV SÜD inspires trust in a physical and digital world to create a safer and more sustainable future.

Related services

TÜV SÜD provides services in the following areas:

- Machinery conformity (including CE marking)
- NRTL approvals (US and Canada)
- Field labelling
- Functional safety
- Explosion protection
- Electromagnetic compatibility (EMC)
- Environmental testing
- Industrial security
- Battery solutions
- Industry 4.0
- In-house training on directives and standards