Personal Care Robots

ENSURING SAFETY WITH ISO 13482

The world is changing at a rapid pace and robots are moving from the factory floor into our everyday lives and homes. Far from being novelties, robots offer many potential applications that can substantially improve the quality of life of their intended users. As the robot revolution takes place, we need to ensure they are safe to interact with the general public in sometimes unpredictable environments.

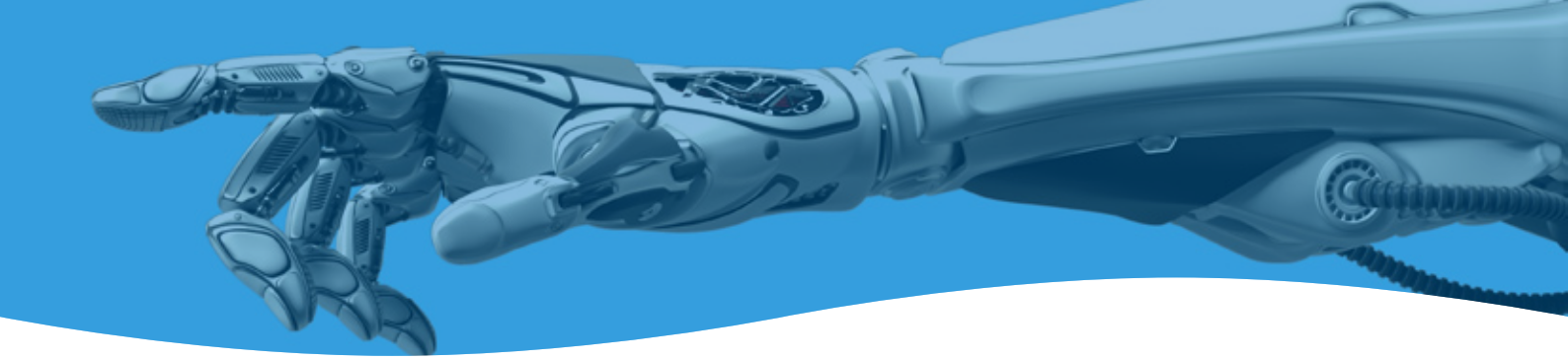
The International Standards Organization developed ISO 13482:2014 - Robots and robotic devices - Safety requirements for personal care robots, to address safe design and protective measures for personal care robots. This standard is harmonized under the Machinery Directive (2006/42/EC) and is adopted in Japan as JIS B 8445. ISO 13482 identifies potential hazards through performance or risk-based assessments, and defines protective measures that can be developed and applied to reduce these hazards. These requirements are also expected to be followed in many other regions around the world.

WHAT IS A PERSONAL CARE ROBOT?

ISO 13482 defines personal care robots as robots that performs actions contributing directly towards improvement in the quality of life of humans, excluding medical applications. The standard defines three different types of personal care robots:

- Mobile servant robots – A robot that is capable of travelling to perform serving tasks in interaction with humans, such as handling objects or exchanging information
- Physical assistant robots – A robot that physically assists a user to perform required tasks by providing supplementation or augmentation of personal capabilities
- Person carrier robots – A robot with the purpose of transporting humans to an intended destination

In addition to base robotic requirements, the ISO 13482 standard also references electrical requirements found in IEC 60204-1 and IEC 60335-1, EMC requirements, a risk assessment as described in ANSI/ISO 12100, and functional safety requirements found in ISO 13849-1 and IEC 62061.



TÜV Rheinland's services for personal care robots

With TÜV Rheinland's extensive experience in the robotics industry, we can partner with you to navigate the requirements, helping to ensure a safe and compliant product.

FUNCTIONAL SAFETY

The reduction of potential safety risks in products, components and systems within machines, systems, and safety-related applications has to be considered by product manufacturers, end users, and plant operators. A high degree of safety, reliability, and quality is demanded as the application of these products and systems is responsible for safe functionality and trouble-free operation during the complete safety life-cycle, from concept phase to decommissioning. TÜV Rheinland offers functional safety services for the robotics and machinery industries according to worldwide relevant standards IEC 61508, IEC 62061, ISO 13489-1, and others.

EMC TESTING

For many electrical devices and products bound for the global marketplace, electromagnetic compatibility (EMC) testing has become more daunting than ever. Any manufacturer wanting to bring such products onto the market has to comply with the EMC directive 2014/30/EU. As an authorized body and international service provider, we offer a flexible, competent service to help you meet the requirements of this directive. Our conveniently located, state-of-the-art EMC testing facilities can meet any of your EMC testing needs.

NRTL COMPLIANCE

To ensure product quality, the US and Canadian governments have clearly defined regulations which electronics and other products and equipment must satisfy before they can be approved for sale or for use in the workplace. With constrained budgets and tight development timelines, your Nationally Recognized Testing Laboratory (NRTL) choice is critical. TÜV Rheinland is accredited as an NRTL by OSHA (The Occupational Safety and Health Administration), and as a Product Certification Body by the SCC (Standards Council of Canada). NRTL marks like the cTUVus Mark issued by TÜV Rheinland tell both consumers and business partners that your products have been thoroughly tested and specifically certified to comply with electrical and fire safety regulations. TÜV Rheinland is becoming the leading North American certification organization because of our superior cost savings, recognized worldwide acceptance, and responsive customer service.

EU MACHINERY DIRECTIVE

As technologies continue to evolve, machinery and robots are being subjected to increasing regulatory scrutiny. EU member states require that any product falling under Annex IV of the Machinery Directive 2006/42/EC that is placed on the market or put into operation must be CE-marked. This proves compliance to essential safety requirements and industry standards to regulatory bodies. TÜV Rheinland provides market access through testing and evaluation of your equipment to harmonized standards, identifying areas of nonconformance, and assisting you in understanding how to resolve those areas through issuance of reports and final certificates.

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