

ISO Standards

What is a standard?

A standard is a document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose. Over 19 500 International Standards are published and can be purchased from the ISO store or from the ISO members.

When shall you use a standard?

A standard should be used if you wish to take advantage of the accumulated experience and avoid pitfalls. A standard is also great when you want to create orderliness or to determine the requirements that products and services can be measured against. Standards are important for the ability to interact with others and to ensure that things (and amounts of information) fit together. In the international market it's often a prerequisite for the companies to follow standards.

Troax uses the EN and ISO standards for designing and constructing safe products and the following standards are those used for machine guards;

EN 953, will be replaced within short and be a part of the revised standard **ISO 14120, Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards**. This International Standard specifies general requirements for the design and construction of guards provided primarily to protect persons from mechanical hazards. The requirements are applicable if fixed and movable guards are used. This International Standard does not cover those parts of guards which actuate interlocking devices. These are covered in ISO 14119.

This International Standard does not provide requirements for special systems relating specifically to mobility or to the ability to lift loads such as rollover protective structures (ROPS) and falling-object protective structures (FOPS).

SS-EN ISO 14119:2013 Safety of machinery - Interlocking devices associated with guards - Principles for design and selection (ISO 14119:2013). This international standard specifies principles for the design and selection - independent of the nature of the energy source - of interlocking devices associated with guards. It covers the parts of guards which actuate interlocking devices. It does not necessarily provide all the specific requirements for trapped key systems.

ISO 13857 (that has replaced EN 294 and EN 811) **Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs** (ISO 13857:2008). This international standard establishes values for safety distances in both industrial and non-industrial environments to prevent machinery hazard zones being reached. The safety distances are appropriate for protective structures. It also gives information about distances to impede free access by the lower limbs. It covers people of 14 years and older (the 5th percentile stature of 14 year olds is approximately 1 400 mm). In addition, for upper limbs only, it provides information for children older than 3 years (5th percentile stature of 3 year olds is approximately 900 mm) where reaching through openings needs to be addressed.

ISO 13855 Safety of machinery - Positioning of safeguards with respect to the approach speeds of parts of the human body (ISO 13855:2010) This International Standard establishes the positioning of safeguards with respect to the approach speeds of parts of the human body. It specifies parameters based on values for approach speeds of parts of the human body and provides a methodology to determine the minimum distances to a hazard zone from the detection zone or from actuating devices of safeguards. The values for approach speeds (walking speed and upper limb movement) in this International Standard are time tested and proven in practical experience. This International Standard gives guidance for typical approaches. Other types of approach, for example running, jumping or falling, are not considered in this International Standard.

ISO 10218-1 Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots: (ISO 10218-1:2011). This part of ISO 10218 specifies requirements and guidelines for the inherent safe design, protective measures and information for use of industrial robots. It describes basic hazards associated with robots and provides requirements to eliminate, or adequately reduce, the risks associated with these hazards. This part of ISO 10218 does not address the robot as a complete machine.

ISO 10218-2 Robots and robotic devices - Safety requirements for industrial robots - Part 2: Robot systems and integration: (ISO 10218-2:2011). This part of ISO 10218 specifies safety requirements for the integration of industrial robots and industrial robot systems as defines in ISO 12018-1, and industrial robot cell(s).

ISO 13849 Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design (ISO 13849-1:2006/Cor 1:2009). This part of ISO 13849 provides safety requirements and guidance on the principles for the design and integration of safety-related parts of control systems (SRP/CS), including the design of software.

For these parts of SRP/CS, it specifies characteristics that include the performance level required for carrying out safety functions. It applies to SRP/CS, regardless of the type of technology and energy used (electrical, hydraulic, pneumatic, mechanical, etc.), for all kinds of machinery. It does not specify the safety functions or performance levels that are to be used in a particular case.

ISO 12100, Safety of machinery -- General principles for design -- Risk assessment and risk reduction (ISO 12100:2010) This standard now also includes ISO/TR 14121. It specifies basic terminology, principles and a methodology for achieving safety in the design of machinery. It specifies principles of risk assessment and risk reduction to help designers in achieving this objective. These principles are based on knowledge and experience of the design, use, incidents, accidents and risks associated with machinery. Procedures are described for identifying hazards and estimating and evaluating risks during relevant phases of the machine life cycle, and for the elimination of hazards or sufficient risk reduction. Guidance is given on the documentation and verification of the risk assessment and risk reduction process.

TR	Technical Report
ROPS	Roll Over Protection Structure
FOPS	Falling object <i>protection</i> structure
TOPS	Tip Over Protection Structure