

MACHINERY SAFETY STANDARDS

EUROPEAN STANDARDS

The European safety requirements for man and machine are established in the European Machinery Directive (EMD). According to the EMD, machinery must be designed and built to meet the Directive's requirements as defined by existing and emerging European standards. These "European Norms", prepared by representatives of the European Economic Community (EEC) member states and produced by the European standards committees CEN and CENELEC, provide a harmonized baseline for the design and construction of safe machinery.

As of January 1, 1997, machinery sold into or within the EEC must comply with the requirements of the European Machinery Directive. Equipment which complies may be affixed with the CE mark (for "Conformité Européenne"). The CE mark on a machine signifies that it conforms to the essential health and safety requirements defined by the relevant European Norms.

These "Norms" form a hierarchical structure which include:

Type A Standards: Fundamental Safety Standards which contain basic concepts, principles of design, and general aspects applicable to all machinery.

Type B Standards: Group Safety Standards, each of which focuses on a specific subject applicable to a range of machinery types. "B1 Standards" cover a specific safety aspect defined in the Fundamental Standards. "B2 Standards" cover the requirements of specific safety related devices such as two-hand controls, interlocking devices, movable guards, etc.

Type C Standards: Specific Machine Safety Standards, each of which define protective measures required for hazardous areas of a specific machine or group of machines.

Type A and Type B Standards are intended to assist in the machinery design process, and eliminate the need to repeat these general requirements in the machine-specific (Type C) Standards.

Many product standards are still in the planning stage and the number of Type C Standards is continuously increasing. Some are still in draft form (designated as "prEN" standards). Others exist as finished ("EN") standards.

Where no machine-specific standard exists, the requirements of the Machinery Directive can be satisfied by observing existing European Standards and relevant national standards/specifications. Draft standards (prEN) published by the European Union are also accepted and used as a basis for evaluating products for compliance to the Directives. It is important to note that such draft standards may change before being finalized and adopted as EN standards.

Selected European Standards

Type "A" Standards:

EN ISO 12100,
Safety Machinery – Principles of Risk Assessment and Risk Reductions

Type "B1" Standards:

EN ISO 13849-1
Safety of Machinery – Safety-Related Parts of Control Systems – Part 1: General Principles for Design

EN ISO 13857
Safety of Machinery – Safety Distances to Prevent Danger Zones from Being Reached by Upper and Lower Limbs.

EN ISO 13854
Safety of Machinery. Minimum gaps to avoid crushing of parts of the human body

EN ISO 13855
Safety of Machinery – The Positioning of Protective Equipment in Respect of Approach Speeds of the Human Body.

Type "B2" Standards:

EN ISO 13850
Safety of Machinery – Emergency Stop Devices, Functional Aspects – Principles for Design.

EN ISO 13851
Safety of Machinery. Two-hand control devices. Principles for design and selection

EN ISO 14119
Safety of Machinery – Interlocking Devices Associated with Guards – Principles for Design & Selection.

EN ISO 14120
Safety of Machinery – General Requirements for the Design and Construction of Guards.

EN ISO 13856-1
Safety of Machinery – Pressure Sensitive Safety Devices – Mats & Floors.

EN ISO 13856-2
Safety of Machinery – Pressure Sensitive Safety Devices – Edges & Bars.

EN IEC 61496-1
Safety of machinery. Electro-sensitive protective equipment. General requirements and tests

EN IEC 61496-2
Safety of machinery. Electro-sensitive protective equipment. Particular requirements for equipment using active opto-electronic protective devices (AOPDs)

EN IEC 61496-3
Safety of machinery. Electro-sensitive protective equipment. Particular requirements for active opto-electronic protective devices responsive to diffuse Reflection (AOPDDR)

Type "C" Standards:

EN415 Packaging Machines

EN ISO 16092-2 - Machine tools safety. Presses. Safety requirement for mechanical presses

EN693 Hydraulic Presses

EN746 Thermoprocessing Machines

EN931 Footwear Manufacturing Machines

EN1114-1 Rubber & Plastics Machines

EN1672 Food Processing Machines

SOURCE FOR STANDARDS

EN & IEC Standards are available from:
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