

Standards

Introduction

The harmonized European safety standards establish technical specifications which comply with the minimum safety requirements defined in the related directives. Compliance with all applicable harmonized European standards can be assumed to ensure compliance with the related directives. The main purpose is to guarantee a minimum safety level for machinery and equipment sold within the EU market and allow the free circulation of machinery within the European Union.

The 3 groups of European standards

- > **Type A** standards
Basic safety standards which specify the basic concepts, design principles and general aspects valid for all types of machine: e.g. EN/ISO 12100
- > **Type B** standards
Standards relating to specific aspects of safety or to a particular device that can be used on a wide range of machines
- > **Type B1** standards
Standards relating to specific safety aspects of machines: e.g. EN/IEC 60204-1 Electrical equipment of machines
- > **Type B2** standards
Standards relating to specific products such as two-hand control stations (EN 574), guard switches (EN 1088/ISO 14119), emergency stops (EN/ISO 13850), etc
- > **Type C** standards
Standards relating to various families or groups of machines (e.g.: hydraulic presses EN 693, robots, etc) and giving detailed applicable requirements

A selection of standards

Standards	Type	Subject
EN/ISO 12100	A	Machinery safety - General principles for design, risk assessment and risk reduction
EN 574	B	Two-hand control devices - Functional aspects and design principles
EN/ISO 13850	B	Emergency stop - Principles for design
EN/IEC 62061	B	Functional safety of safety-related electrical, electronic and electronic programmable control systems
EN/ISO 13849-1	B	Machinery safety - Safety-related parts of control systems - Part 1 General principles for design
EN/ISO 13849-2	B	Machinery safety - Safety-related parts of control systems - Part 2 Validation
EN 349	B	Minimum gaps to avoid crushing parts of the human body
EN 294	B	Safety distances to prevent hazardous zones being reached by upper limbs
EN 811	B	Safety distances to prevent hazardous zones being reached by lower limbs
EN/IEC 60204-1	B	Machinery safety - Electrical equipment of machines - Part 1: general requirements
EN 999/ISO 13855	B	Positioning of protective equipment in respect of approach speeds of body parts
EN 1088/ISO 14119	B	Interlocking devices associated with guards - Principles for design and selection
EN/IEC 61496-1	B	Electro-sensitive protective equipment
EN/IEC 60947-5-1	B	Electromechanical control circuit devices
EN 842	B	Visual danger signals - General requirements, design and testing
EN 1037	B	Prevention of unexpected start-up
EN 953	B	General requirements for the design and construction of fixed and movable guards
EN/IEC 61800-5-2	B	Adjustable speed electrical power drive systems. Part 5-2: Safety requirements – Functional
EN 201	C	Machinery for plastics and rubber - Injection moulding machines – Safety requirements
EN 692	C	Mechanical presses - Safety requirements
EN 693	C	Hydraulic presses - Safety requirements
EN 289	C	Machinery for plastics and rubber - Presses - Safety requirements
EN 422	C	Blow moulding machines for producing hollow parts - Design and construction requirements
EN/ISO 10218-1	C	Manipulating industrial robots - Safety requirements
EN 415-4	C	Safety of packaging machines - Part 4: palletisers and depalletisers
EN 619	C	Safety and EMC requirements for equipment for mechanical handling of unit loads
EN 620	C	Safety and EMC requirements for fixed belt conveyors for bulk material
EN 746-3	C	Industrial thermo processing equipment - Part 3: safety requirements for the generation and use of atmosphere gases