

IV. Safety Standards, CE Marking and the European Machinery Directive

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What is the “CE” mark and what does it mean?

The “CE” mark (for Conformance Europeene) is a symbol applied to finished products and machinery which meet applicable European Directives. For electrical and electronic “finished products,” these include the Low Voltage Directive and, where relevant, the Electromagnetic Compatibility (EMC) Directive.

The CE mark on a machine indicates that the machine as a whole conforms to the requirements of the European Machinery Directive (EMD). The EMD states that the machine must comply with the Essential Health & Safety requirements and the EMC.

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Does the CE mark on a safety interlock switch, coded-magnet sensor, safety controller or other finished product intended for use in a safety circuit signify the product is safe?

No, the CE mark is not a safety mark. It simply serves to advise European customs officials that the product meets all applicable European Directives, allowing it to be placed

on the European Economic Market Area (The European Union and the countries of Iceland, Liechtenstein and Norway).

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Are third-party approvals needed to apply the CE mark to safety components?

Third-party examination by an approved, independent testing agency or notified body is required for some safety components. Specific products include light curtains, safety mats, and two-hand controls. In addition some countries, such as Germany, require third-party certification for safety circuit controllers.

For most other safety components (such as interlock switches, coded-magnet sensors, limit switches, et al) self-certification by the manufacturer is acceptable.

Despite this liberty, as policy SCHMERSAL has all of their safety products certified by an independent third party (such as the BG).

Whether third-party or self-certified, all CE-marked components must be documented by a Declaration of Conformity. This document, signed by a highly positioned technical manager (e.g. Director of Engineering, et al), lists all standards and directives to which the product conforms. In addition, component manufacturers must maintain technical files documenting test results, etc.

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Are machine guarding safety interlock switches and related safety control products subject to CE-marking?

SCHMERSAL considers all of their safety interlock switches, sensors and related control accessories as products requiring mandatory CE-marking. Consequently these products are designed to meet the EMC

and Low Voltage Directives as required. The CE-marking on SCHMERSAL's products affirms their compliance with these applicable Directives.

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Since CE-marking of safety products is (for most items) a self-certification process, how can a user be assured “CE-marked” products truly meet relevant European Directives?

Users of CE-marked products have three vehicles of assurance at their disposal. These include an EC Declaration of Conformity, EC Type-Examination, and Type-Certification (Technical Report). Each of these is described below.

EC Declaration of Conformity

The Declaration of Conformity is mandatory for all products that are CE-marked. It is also mandatory for machine components which, if they fail, could lead to a dangerous or hazardous condition on the machine. These mandates are defined in the European Machinery Directive, and must be issued by the manufacturer for all products that are CE-marked.

This document, signed by a highly-positioned technical manager (e.g. Director of Product Development, Director of Research, Head of Engineering, et al), lists all the Standards and Directives to which the product conforms. It is a self-certification procedure normally undertaken by the manufacturer.

All SCHMERSAL safety products have a Declaration of Conformity document according to the European Machinery Directive mandates.

EC Type-Examination

This is a third-party examination conducted by an approved, independent testing agency/notified body (such as the BG in Germany), and is compulsory for selected safety equipment. Here the product is investigated to confirm that it conforms to all the Standards and Directives listed in the Declaration of Conformity.

The examination procedure, the definition of an approved independent testing agency/notified body, and the types of safety equipment for which this examination is mandatory is defined in the European Machinery Directive. (Specific products for which an EC Type-Examination is mandated include light curtains, safety mats, and two-hand controls. In addition the German authorities include safety circuit controllers as requiring such testing.)

This examination may only be conducted once, by one approved body, whose findings are then valid for the entire European Economic Community.

All SCHMERSAL safety controllers are so tested and certified. And each can be supplied with an “EC Type-Examination Certificate” issued by a recognized, approved body/notified body.

Type Certification (Technical Report)

This is similar to the EC Type-Examination, but is not compulsory. Here the product is investigated by an approved independent testing laboratory (usually by a notified body) to confirm that it conforms to all the Standards and Directives listed in the Declaration of Conformity. This examination may be carried out in as many countries and as often as required.

All SCHMERSAL safety products not covered by an EC Type-Examination certificate (such as our electro-mechanical safety interlock switches) have been so tested and certified. And each can be supplied with a “Type Certificate” issued by a recognized, notified body (e.g. BG, TÜV).

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To what type machines does the European Machinery Directive apply?

The European Machinery Directive applies to all machinery that is powered and has moving parts. Excluded are manually-powered equipment, motor vehicles, medical

machinery and other special equipment ... some of which is regulated by other legislation under European Community Directives.

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Who is responsible for certifying that an affected machine complies with the “essential health and safety requirements” embodied in the European Machinery Directive?

For most classes of machines, the affixing of the CE mark to demonstrate compliance with relevant European Directives is a self-certification process. For the most dangerous types of machines (Schedule 2, Annex IV of the European Union Machinery Directive, such as presses, sawing machines, manually-loaded injection/compression plastics molding machines and others listed in this Schedule), certification must be done by a recognized, independent, third party (known in Europe as a “notified body”). A list of notified bodies is available from

The Official Journal of the European Communities, U.S. Contact, UNIPUB; Lanham, MD.

While self-certification of many machines is legally acceptable, many machinery buyers prefer purchasing machines which have been evaluated and certified by independent, recognized third parties. This preference, in some cases, has been precipitated by sale of self-certified machines which were found to not meet relevant Directives.

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What are “Consensus Standards,” and how do they relate to OSHA guidelines?

“Consensus Standards” are those industry standards developed by groups of professionals representing a cross-section of firms within that industry. Examples are standards prepared by ANSI (American National Standards Association), ISA (Instrument Society of America), ASME (American Society of Safety Engineers), SAE (Society of Automatic Engineers) and RIA (Robotics Industry Association). These standards provide safety guidelines for machinery designers and users.

OSHA specifically requires that guarding devices at the point-of-operation be in conformity with any appropriate standards (which include any OSHA or “industry consensus standards”). Hence OSHA may cite such consensus standards as a basis for their findings and enforcement.