TRAINING

Machinery Safety for Machinery Manufacturers



Description and purpose

The course aims to give participants in-depth knowledge about the legislation that applies to machine safety:

- Understand What are the Directives and the standards? Which ones have to be applied to a given machine?
- Know the Machinery Directive.
- Know about the most important safety standards to take into account for CE Marking.
- Perform the risk assessment of the machine.
- Know the principal standards regarding mechanical, pneumatic, hydraulic and electrical design.

Intended for:

- Machine manufacturers who need a thorough knowledge of the most important safety regulations that affect machinery design.

The course is suitable for technical personnel involved in the machinery engineering process and/or who validate a layout or have to modify a machine.

Examples

Some examples of the course contents are shown below:



Definitions of the Machinery Directive



Calculation of vertical ESPE safety distance



IFA SISTEMA software

Contents / agenda

Day 1 (5 H):

- Directive, Royal Decrees and Regulations.
- Machinery Directive 2006/42/EC.
- Work equipment R.D. 1215/97.
- Other Directives, B.T., CEM, ATEX, summary.

Day 2 (5H):

- EN ISO 11161, Safety of machinery. Integrated manufacturing systems. Fundamental requirements.
- EN ISO 10218-2 Robots and robotic devices. Safety requirements for industrial robots. Part 2: Robot systems and integration.

Day 3 (5 H):

- General principles for design, risk assessment and risk reduction, EN ISO 12100.

Day 4 (5 H):

- EN ISO 13857, Safety of machinery. Safety distances to prevent hazard zones being reached by upper and lower limbs.

- EN ISO 13855, Safety of machinery. Positioning of safeguards with respect to the approach speeds of parts of the human body.
 EN 349Safety of machinery. Minimum gaps to avoid crushing of parts.
- EN 349Safety of machinery. Minimum gaps to avoid crushing of parts of the human body.
- Operating modes.
- Lock-out / Tag-out.

Day 5 (5 H):

- EN ISO 13949 part 1, Safety-related parts of control systems, mention of IFA SISTEMA software.
- Mention of the following standards: EN 60204-1 Electrical equipment, ISO 4414 and ISO 4413. Pneumatic and hydraulic fluid power EN ISO 14120, Safety of machinery. Guards. General requirements for the design and construction of fixed and movable guards, EN ISO 14122-1 to 4, Safety of machinery. Permanent means of access to machinery.

Documentation

Each student will receive a paper dossier of the course contents, in A4 colour and in Spanish.

A certificate of attendance will be issued.

Speakers

The speakers will be engineers specialising in machinery safety from the company i9s, S.A.

