Electro-Sensitive Protective Equipment (ESPE)

As technology has moved on, the use of electro-sensitive protective equipment (ESPE) has significantly increased. Items such as light guards and laser scanners are more prevalent in use than ever before and whilst they may have benefits in terms of output and production over more traditional types of guarding, their role within the safety related parts of the control system (SRP/CS) cannot be underestimated. When carrying out a PUWER assessment of a machine all aspects of guarding against dangerous parts of the machine and the entire control system, including safety controls, should be inspected in line with Regulation 6. However, does this type of inspection fully take into account specific parts of the machine, such as any ESPE that it used?

HSE have published HSG 180, "Application of electro-sensitive protective equipment using light curtains and light beam devices to machinery". It replaced Guidance PM41 "Application of photo-electric safety systems to machinery". HSG 180 has a chapter on inspection and test which refers you to specific parts of Regulation 6 of PUWER, in particular paragraph 2 which states:

"Every employer shall ensure that work equipment exposed to conditions causing deterioration which is liable to result in dangerous situations is inspected:

- At suitable intervals; and
- Each time that exceptional circumstances which are liable to jeopardise the safety of the work equipment have occurred.

To ensure that health and safety conditions are maintained and that any deterioration can be detected and remedied in good time."

Paragraph 118 of HSG 180 goes on to say that "inspection and testing is required where the safe operation is critically dependent on its condition in use and deterioration would lead to a significant risk to the operator or other worker. If this is the case then installations using ESPEs should be inspected at suitable intervals".

The questions then arise, how often are these periodic inspections required, what is a suitable interval? Paragraph 124 of HSG 180 states that "the recommended maximum period between each periodic inspection

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and test is six months for type 4 ESPE and 12 months for type 2 ESPE, but this will depend on the equipment it is fitted to and the risk as a whole". IEC 61496-1 (Safety of machinery, Electro-sensitive protective equipment; Part 1: General requirements and tests) specifies the types of ESPE. Type 2 has a means of periodic test to reveal a failure to danger. Type 4 will not fail to danger for a single fault and is resistant to an accumulation of undetected faults. So the frequency of inspection depends on the type of ESPE you are using, but this also shows the limitations of only carrying out a full PUWER assessment.

There isn't a simple answer to how often a full PUWER assessment should be carried out, but it is unlikely to be as often as every six months. The industry standard seems to be annually which highlights the need to take ESPEs into account as an individual item, not just part of the larger machine. HSG 180 is only guidance, but due to the safety critical nature of the use of ESPEs, it is very good practice to follow it.

Competence for Inspection

Both the PUWER approved codes of practice (ACOP) L22 and HSG 180 raise the issue of the competence of the person carrying out the assessment or inspection. Alongside the competence is the availability of such competence in the general workplace and whether an in-house solution is the best route to use.

Engineers from Safety Systems have vast experience of all types of machinery safety assessments and remedial engineering. Due to customer demand, Safety Systems now offer a stand-alone ESPE periodic inspection and test service, following the guidance given in HSG 180.

The service includes:

- Inspecting the position to ensure the correct distance from the danger zone
- Ensure additional safeguards are provided to prevent access to the danger zone from directions not covered by the ESPE
- Test the overall response time
- Test the detection capability
- Inspect the stopping performance monitor (if fitted)
- Inspect and test primary machine control elements to ensure correct functionality

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