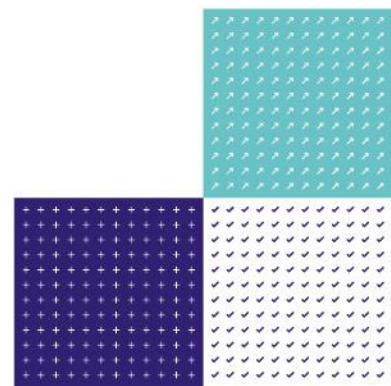


RG 1

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Accreditation for In-service Inspection of Power Presses and Other Specified Machines and their Safeguarding Systems



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Changes since last edition

ISO/IEC 17020 clauses referenced in document aligned with ISO/IEC 17020:2012 edition. Reference documents updated to latest revision. Other editorial changes.

1. Introduction

- 1.1 This publication has been produced by the United Kingdom Accreditation Service (UKAS) in conjunction with the UKAS Technical Advisory Committee for Engineering Inspection. It provides guidance to those requirements in ISO/IEC 17020 *Conformity assessment - Requirements for the operation of various types of bodies performing inspection* which need interpretation when applied by Inspection Bodies carrying out in-service inspection of power presses or machine safeguarding systems. ISO/IEC 17020, as applied by UKAS in accordance with ILAC-P15, remains the authoritative publication in cases of dispute or differences in interpretation.
- 1.2 The terms used in this publication have been drawn from ISO/IEC 17020 or defined within this publication. Where specific terms are drawn from other documents, such as the Provision and Use of Work Equipment Regulations (PUWER), reference is made to those documents.
- 1.3 For the purposes of this publication the term **Inspection Body** shall be taken to mean an accredited Inspection Body.
- 1.4 The use of an inspection body accredited against the requirements of ISO/IEC 17020 is intended to assist employers in discharging their duty to select a competent person to carry out certain requirements of the Provision and Use of Work Equipment Regulation 1998 (PUWER 98). These requirements specifically include the need for thorough examination of certain types of power presses and their associated guards and protective devices in Part IV of PUWER 98, as well as the inspection of other work equipment in certain circumstances (See Regulation 6).
- 1.5 Whilst PUWER 98 does not specify whether or not the competent person should be external to the organisation for whom the thorough examination or inspection is being undertaken, guidance is available on this matter (see HSE ACOP L112 paragraph 75 and HSE booklet HSG236 paragraph 15). Therefore, should the employer wish to use an external organisation to carry out such examinations and inspections, this document should be of assistance to the employer in the selection process.
- 1.6 This publication is not applicable to daily and resetting inspections and tests of guards and protection devices carried out by employer's nominee, as required by Regulation 33 of PUWER 98 or to the inspection of other work equipment that is carried out by employers' nominees.

2. Scope - Inspection Services Covered by RG 1

- 2.1 This publication covers the accreditation of in-service inspection of plant, equipment and systems undertaken with the aim of detecting potential and actual defects, particularly those which may be a cause of danger to persons, and to ascertain if equipment meets relevant statutory requirements, national or international standards, Codes of Practice and similar documents. The plant, equipment and systems covered are:
- a) Power presses as defined in PUWER 98, i.e. a press or a press brake for the working of metal by means of tools, cold or for die proving, which is power driven, and which embodies a flywheel and clutch. These machines are subject to 'thorough examination'.
 - b) Those power presses listed in Schedule 2 of PUWER 98, which are also included in Table 1 or 2 of this publication. These machines are subject to 'inspection'.
 - c) Other specified machines in the engineering industry which are included in Table 1 or 2 of this publication, i.e. machines not already included in 2 a) or 2 b) above. These machines are subject to 'inspection'.
 - d) Safeguarding systems associated with 2 a), 2 b) and 2 c) above.

3. Personnel (ISO/IEC 17020 Clause 6.1)

- 3.1 The Inspection Body shall demonstrate that it has identified the competences required to undertake the range of inspection activities covered by its scope of accreditation and that it has processes in place to train, assess and monitor staff against those competences. UKAS Publication RG 0 *Guidelines on the Competence of Personnel Undertaking Engineering Inspections* provides a framework for a competence management system for inspection bodies. The qualification categories in Appendix 1 of this publication may also be used to develop competence criteria for inspection and supervision of inspection of power presses or other machines and their safeguarding systems.
- 3.2 The Inspection Body shall have sufficient number of permanent management personnel with suitable experience in the design, manufacture, inspection, operation or maintenance of power presses and their safeguarding systems and have the technical knowledge to make professional judgements on the range of safety related problems likely to arise from the accredited scope of inspection.

Such personnel shall be knowledgeable in the:

- (a) Problems likely to arise from the declared processes or mechanical conditions;
- (b) Mechanical design standards for power press and other machines and their safeguarding systems;
- (c) Likely problems associated with various operating processes involved;
- (d) Effects of operating conditions on the mechanical integrity of systems including interactions with upstream and downstream plant;
- (e) Relevant legislative requirements and associated codes of practice;
- (f) Inspection techniques associated with power press and other machines and their safeguarding systems.

- 3.3 The Inspection Body shall only use staff to carry out inspections of power presses and other machines and their safeguarding systems that have the necessary competence for the inspections to be carried out. The Inspection Body shall maintain records of qualifications, training and experience, and records to show how, and when, each member of staff was issued authorisation to perform specific examination and testing activities. These records shall, as a minimum, indicate the type of power presses and other machines as defined in Tables 1 & 2 in Appendix 2 of this publication considered to be within the competence of the staff.
- 3.4 Where the Inspection Body personnel carry out calibration or specialised types of testing (e.g. NDT or Metallurgical testing) in connection with the inspection of power presses and other machines, records of their training, qualifications and experience shall be maintained. The Inspection Body shall also record details of who is authorised to perform specific calibrations or tests and to evaluate the results obtained.

4. Training (ISO/IEC 17020 Clause 6.1.3)

- 4.1 The training provided by the Inspection Body shall provide a working knowledge of the plant, equipment and systems including design construction, operation, maintenance, significance of defects, typical problem areas and associated method of rectification.
- 4.2 The training shall include the safe conduct of the inspectors' duties, in particular safe practices applicable to power presses and other machines such as proper isolation of power, entry into fixed guarding areas, authorisation from the tool setter or other responsible person that the press or machine is safe to operate and similar safe methods.

5. Inspection Methods and Procedures (ISO/IEC 17020 Clauses 7.1.2, 7.1.3, 7.1.4)

- 5.1 The procedure used to inspect power presses and other specified machines and their safeguarding systems shall detail how the inspection body interprets and applies guidance included in any requirement documents such as statutory regulations, standard specifications and codes of practice or guidance notes. For example, the method should indicate how the guidance in HSE publication HSG236, *Power Presses: Maintenance and thorough examination* is to be applied by inspection personnel.
- 5.2 Guidance on the frequency that power presses are required to be stripped to inspect the condition of enclosed parts (clutch mechanisms) and the parts that require to be stripped out shall be documented by the Inspection Body including the NDT techniques to be used including a demonstrable justification for using the technique.
- 5.3 Reporting requirements including statutory requirements for reporting imminent danger shall be detailed in procedures.

6. Subcontracting (ISO/IEC 17020 Clause 14)

- 6.1 Where the Inspection Body uses results of specialised testing techniques supplied by other organisations (e.g. subcontractors) for making judgements on the integrity of the power press and other specified machines and their safeguarding systems for inclusion in inspection reports, the Inspection Body shall be able to demonstrate the competence of the testing organisation.
- 6.2 Inspection Bodies should endeavour to use results supplied by organisations that hold accreditation for those tests to ISO/IEC 17025 from an accreditation body that is an ILAC MRA signatory (e.g. UKAS).
- 6.3 Where the subcontractor is not an accredited organisation, the Inspection Body shall demonstrate that its subcontractors are competent in accordance with guidance provided in ILAC-P15.

References

This list is not exhaustive, but the main legislation, standards, specifications and trade association codes pertinent to this document are listed below.

1 UK Legislation

- Health and Safety at Work etc Act 1974
- The Provision and Use of Work Equipment Regulations 1998 (PUWER 98) SI 1998 No 2306

2 HSE Guidance

- Safe use of work equipment. PUWER 98. Approved Code of Practice and Guidance L22
- Safe use of power presses. PUWER 98 as applied to power presses. Approved Code of Practice and Guidance on Regulations – L112
- Power presses: Maintenance and thorough examination – HSG236
- Power presses: A summary of guidance on maintenance and thorough examination – INDG 375
- Application of electro-sensitive protective equipment using light curtains and light beam devices to machinery – HSG180
- Procedures for daily inspection and testing of mechanical power presses and press brakes – INDG316

3 Standards and Related Documents

- ISO/IEC 17020:2012, Conformity assessment - Requirements for the operation of various types of bodies performing inspection
- ILAC-P15:07/2016, Application of ISO/IEC 17020:2012 for the Accreditation of Inspection Bodies
- ISO 9712:2012 Non-destructive testing - Qualification and certification of NDT personnel
- BS EN 61496-1 and BS EN 61496-2 *Safety of machinery – Electro-sensitive protective equipment*
- BS EN 61508-1 to 7 *Functional safety of electrical/electronic/programmable electronic safety-related systems*
- BS EN ISO 4414 *Pneumatic Fluid Power. General Rules and Safety requirements for systems and their components*
- BS EN ISO 13857 *Safety of Machinery. Safety distances to prevent hazard zones being reached by upper and lower limbs*
- BS EN 349 *Safety of Machinery minimum gaps to avoid crushing of parts of the human body*
- PD5304 *Guidance on the safe use of Machinery*

Appendix 1 - Qualification Categories

Category 1. Chartered Engineer as defined by the Engineering Council or equivalent (e.g. appropriate degree with relevant experience, NVQ Level V Engineering) including at least 3 years' experience within an engineering discipline associated with inspection of power presses and other specified machines and their safeguarding systems.

Category 2. Incorporated Engineer as defined by Engineering Council or equivalent (e.g. appropriate HNC with relevant experience, NVQ Level IV Engineering) including at least 5 years' experience within a relevant engineering discipline of which at least one year** shall have been spent working within an engineering discipline associated with inspection of power presses and other specified machines and their safeguarding systems.

Category 3. Engineering Technician as defined by Engineering Council or equivalent (e.g. appropriate ONC with relevant experience, NVQ Level III) having a minimum of 5 years' experience within a relevant discipline of which at least one year shall have been spent working within an engineering discipline associated with the inspection of power presses and other specified machines and their safeguarding systems.

Category 4. Person trained* in a relevant engineering discipline with a recognised and documented engineering apprenticeship with a minimum of 5 years' experience within a relevant discipline of which at least one year** shall have been spent working within an engineering discipline associated with the inspection of power presses and other specified machines and their safeguarding systems.

Category 5. Person employed prior to the date of application for accreditation in the inspection of power and other specified machines and their safeguarding systems with less than tradesmen's apprenticeship but meeting the criteria of Category 6 below.

Category 6. Person with a minimum of 5 years*** spent working with or within the industry associated with power presses and other specified machines and their safeguarding systems and has general knowledge of that area and its operating environment. Such employees shall be placed on recognised training courses with appropriate and documented tests in that area. The minimum age for persons in this Category shall be 21 years.

* Persons in Categories 4, 5 & 6 shall pass a qualifying test, established by the Inspection Body, associated with the particular inspection activities relating to power presses and other specified machines and their safeguarding systems and this should cover relevant knowledge of the law, codes of practice and inspection techniques.

** Where a person meets the minimum requirement for a specific discipline and is to be trained in a second discipline, it may not be necessary to have experience of at least one year in the second discipline provided that the required competence can be demonstrated.

***For some routine, well-monitored activities this period may not be necessary.

Appendix 2 - Classification of Plant, Equipment and Systems

Table 1: Class A

<p>Machines and/or Safety devices (excluding those defined in Class B in Table 2) such as:</p>	<p>Mechanical, hydraulic, pneumatic presses having a total related capacity in excess of 10 tons</p> <p>Mechanical, hydraulic, pneumatic presses having a total rated capacity up to 10 tons which are not guarded exclusively by fixed guards and/or closed tools</p> <p>Power press for the working of hot metal Mechanical press brakes Hydraulic press brakes Friction screw presses Die presses Powder compacting presses Turret punch presses Universal metal workers Metal cutting guillotines All forms of interlocking guards Automatic sweep away guards Electro sensitive safety systems Early rising press brake/inter-locking guards Distance bar trip guards or similar devices Perimeter fencing Pressure sensitive mats</p>
<p>Qualification Category</p>	<p>1,2,3 or 4 only</p>
<p>Level of Supervision required</p>	<p>Occasional: Regular documented meetings shall take place during the year between inspection personnel and senior engineers competent in the relevant field(s) of inspection to discuss technical and quality issues. Ready access shall be available to authoritative technical support from personnel qualified to Category 1, 2 or 3.</p>
<p>Conditions of Authorisation (Inspection personnel are not permitted to perform inspections covered by accreditation unless the inspections are within their designated competence)</p>	<p>Category 4 staff shall only be authorised to undertake approval of non-routine repairs, modifications to plant, changes to plant operating parameters or changes in inspection procedures involving considerations or calculations not defined within the relevant national or international code or standard if they have the specific documented approval of a member of staff authorised and qualified in such matters</p>

Table 2: Class B

<p>Machines with basic controls and safety devices such as:</p>	<p>Mechanical, hydraulic and pneumatic presses up to 10 tons total rated capacity, guarded exclusively by means of fixed guards and/or closed tools</p> <p>Riveting machines Folders Non-powered machines</p>
<p>Qualification Category</p>	<p>1, 2, 3, 4, 5 and 6</p>
<p>Level of Supervision required:</p> <p>Categories 1, 2, 3 and 4</p> <p>Categories 5 and 6</p>	<p>Occasional: Regular documented meetings shall take place during the year between inspection personnel and senior/supervisory engineers competent in the relevant field(s) of inspection to discuss technical and quality issues. Ready access shall be available to technical support from personnel qualified to Category 1, 2 or 3</p> <p>Frequent: Supervision at least once a week by a senior/supervisory engineer technically competent in the relevant field of inspection. Ready access to authoritative technical support from personnel qualified to Category 1, 2 or 3. <i>Supervision requirements may be modified provided that there is documented evidence of ongoing satisfactory performance.</i></p>
<p>Conditions of Authorisation (Inspection personnel are not permitted to perform inspections covered by accreditation unless they are within their designated competence)</p>	<p>Category 3 and Category 4 staff shall only be authorised to undertake approval of non-routine repairs, modifications to plant, changes to plant operating parameters or changes in inspection procedures involving considerations or calculations not defined within the relevant national or international code or standard if they have the specific documented approval of a member of staff authorised and qualified in such matters.</p> <p>Category 5 and Category 6 staff shall not be authorised to undertake any activities other than inspection and testing to identify faults and weaknesses within limits defined by persons qualified to Category 1 or 2. The documented approval of an authorised person qualified to Category 1 or 2 shall be obtained before making decisions involving limits of acceptability, repairs or modifications.</p>