

Preparing and setting power presses

Overview

This standard identifies the competences you need to prepare and set up single and multi-action power presses and associated equipment, in accordance with approved procedures. This involves selecting the appropriate press tools, and mounting and positioning them to the machine in the correct location for the type of operation being carried out. You will also be expected to set up and align all associated equipment, which will include material positioning mechanisms, workpiece ejection mechanisms, and all machine safety devices and guards.

You will need to set up the machine operating parameters to produce the workpiece to the required specification. You must produce trial pressings and prove that the press is working satisfactorily before declaring the press tool is ready for operation. Making adjustments to settings to achieve specification, and solving machine-related problems will also form part of your role.

Your responsibilities will require you to comply with organisational policy and procedures for power press setting activities undertaken, and to report any problems with the press, press tools, equipment or setting-up activities that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You will be expected to work with a minimum of supervision, taking personal responsibility for your own actions and for the quality of the work that you carry out.

Your underpinning knowledge will demonstrate a good understanding of your work, and will provide an informed approach to applying the appropriate techniques and procedures for the setting-up of the various power presses. You will understand the power press used, and its application, and will know about the workholding devices, press tools, relevant materials, consumables and setting-up procedures, in adequate depth to provide a sound basis for setting-up the equipment, correcting or reporting faults and ensuring that the work produced meets the required specification.

You will understand the safety precautions required when working with power operated presses and their associated tools and equipment, and the safeguards necessary for undertaking the activities safely and correctly.

You will be required to demonstrate safe working practices throughout, and will understand the responsibility you owe to yourself and others in the workplace.

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Performance criteria

You must be able to:

1. work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
2. select appropriate tooling for the operations to be performed
3. check that the tooling is in a safe and usable condition
4. mount and secure the tooling to the appropriate points on the machine
5. set and adjust the machine tool operating parameters to produce components to the specified requirements
6. check that all safety mechanisms are in place and are set correctly for the required operations
7. confirm that the machine is producing components to the required specification
8. deal promptly and effectively with problems within your control and report those that cannot be solved

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Knowledge and understanding

You need to know and understand:

1. the relevant parts of the Power Press Regulations, and how they apply to you and the work that you are undertaking
2. the specific safety precautions to be taken when working with single and multiple action power presses and press tooling
3. the hazards associated with working with power presses (such as moving parts of machinery, material handling, material ejection, automatic processes, lifting and handling press tooling, using faulty or badly maintained equipment), and how they can be minimised
4. the correct protective clothing (PPE) to be worn and the handling precautions to be taken when working with power presses and press materials
5. the correct methods of lifting and moving press tooling, and the types of equipment used for this
6. how to check that lifting equipment is within its current test dates
7. how to obtain the necessary drawings and forming specifications
8. how to use and extract information from engineering drawings and related specifications (to include symbols and conventions to appropriate BS or ISO standards) in relation to work undertaken
9. how to interpret first and third angle drawings, imperial and metric systems of measurement, workpiece reference points and system of tolerancing
10. the various types of power presses that are used, and their typical applications
11. how to prepare and set up the power press and its tooling for a range of different applications
12. the types of press tools that are used for the various operations, and how they are secured and set to the machine's toolholding device
13. the preparations to be carried out on the materials, prior to using them
14. the basic characteristics of the materials with regard to the pressing operations undertaken
15. the need to take care of the press tools and equipment; how to recognise faulty or damaged press tools; how bending and forming tools should be stored
16. the problems that can occur during the pressing activities, and how they can be avoided
17. the organisational quality control procedures that are used, and how to recognise defects in the components that are produced
18. how to make dimensional and forming inspection checks, and the tools and equipment that can be used
19. accuracy and limitations of the processes
- 20.

the extent of your own responsibility and whom you should report to if you have

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problems that you cannot resolve

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Scope/range related to performance criteria

1. Carry out **all** of the following during the power press setting activities:

1. adhere to risk assessment, COSHH and other relevant safety standards
2. ensure that the machine selected is appropriate for the operation being performed (tonnage, open height, stroke)
3. ensure the safe isolation of equipment (such as mechanical, electricity, gas, air or fluids)
4. ensure that the power press tool setters safety clutch lock, brakes, and emergency stop facilities operate correctly
5. check that press tools are undamaged and are in a serviceable condition
6. use appropriate and safe setting techniques and procedures
7. ensure that machine settings are suitable for the material thickness and operations to be performed
8. check that the machine guards and safety devices function correctly

2. Prepare and set up **one** of the following types of power press:

1. single action
2. multiple action

3. Select, prepare, mount and position press tools to the machine, to cover **all** of the following:

1. preparing the press to receive the tooling
2. setting workpiece feed and ejection systems
3. positioning, aligning and securing press tools
4. ensuring the correct clamping of materials
5. fitting and adjusting guards, interlocks and other safety mechanisms
6. setting up press operating parameters (such as stroke, stroke speed, material feed mechanisms)
7. carrying out tool try-outs of the complete cycle, using manual operation

4. Set up the press to carry out **five** of the following operations:

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1. blanking
2. piercing
3. cropping/shearing
4. bending/forming
5. notching
6. joggling
7. cupping
8. planishing/flattening
9. raising of first draw
10. forming of second draw
11. compound operations
12. securing/assembling
13. progression tool
14. embossing
15. coining
16. other specific operations

5. Produce components in **one** of the following types of material:

1. ferrous materials
2. non-ferrous materials
3. deep drawing steels

6. Produce pressed components which comply with **all** of the following quality and accuracy requirements:

1. dimensional accuracy is within the specification tolerances
2. the form or sharpness of the profile conforms to best practice and/or specification, without deformation or cracking
3. the components produced conform to specification without defects

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