Overview

This standard identifies the competences you need to carry out corrective maintenance activities on mould, press tool or die equipment, in accordance with approved procedures. You will be required to maintain a range of mould, press tool or die equipment such as single stage, multi-stage, compound, transfer, draw, extrusion and progression press tooling; trim, draw, re-strike, flange, combination, pierce, pressure, transfer, progression, pultrusion and extrusion dies; injection moulding dies; blow moulding dies; and vacuum tools. In addition, you will be expected to maintain mould, press tool and die material feed and ejector systems and other ancillary equipment. This will involve jacking/chocking or installing safety rams prior to tool or die removal, then dismantling, removing and replacing faulty equipment or components on a variety of different types of tool and die equipment.

You will be expected to apply a range of dismantling and assembling methods and techniques, such as proof marking to aid reassembly, dismantling components requiring pressure or expansion/contraction techniques, setting, aligning and adjusting components, torque loading components and making `off-load' checks before starting up the maintained equipment.

Your responsibilities will require you to comply with organisational policy and procedures for the maintenance activities undertaken, and to report any problems with these activities, or with the tools and equipment used, that you cannot personally resolve or are outside your permitted authority, to the relevant people. You must ensure that all tools, equipment, and materials used in the maintenance activities are removed from the work area on completion of the activities, and that all necessary job/task documentation is completed accurately and legibly. You will be expected to work with a minimum of supervision, taking personal responsibility for your own actions and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will provide a good understanding of your work, and will provide an informed approach to applying maintenance procedures to mould, press tool or die equipment. You will understand the dismantling and reassembly methods and procedures, and their application. You will know how the equipment functions, the purpose of the individual components and associated defects, in adequate depth to provide a sound basis for carrying out the maintenance activities, correcting faults and ensuring that the repaired equipment functions to the required specification. In addition, you will have sufficient in-depth knowledge of the component parts to ensure that they are fit for purpose and meet the specifications, thus providing a sound basis for carrying out reassembly.

You will understand the safety precautions required when carrying out the
maintenance activities, especially those for preventing movement of the press/machine, and for isolating the equipment. You will also understand your responsibilities for safety, and the importance of taking the necessary safeguards to protect yourself and others in the workplace.
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. follow the relevant maintenance schedules to carry out the required work
3. carry out the maintenance activities within the limits of your personal authority
4. carry out the maintenance activities in the specified sequence and in an agreed time scale
5. report any instances where the maintenance activities cannot be fully met or where there are identified defects outside the planned schedule
6. complete relevant maintenance records accurately and pass them on to the appropriate person
7. dispose of waste materials in accordance with safe working practices and approved procedures
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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 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 health and safety requirements of the area in which the maintenance activity is to take place
4. the press jacking, chocking, isolation and lock-off procedure or permit-to-work procedure that applies
5. the specific health and safety precautions to be applied during the maintenance procedure, and their effects on others
6. the importance of wearing protective clothing and other appropriate safety equipment (PPE) during the maintenance process
7. hazards associated with carrying out mould, press tool and die equipment maintenance activities (such as lifting and handling, use of oils and greases, stored pressure/force, misuse of tools, using practices that do not follow laid-down procedures)
8. how to obtain and interpret drawings, specifications, manufacturers’ manuals and other documents needed in the maintenance process
9. the procedure for obtaining replacement parts, materials and other consumables necessary for the maintenance
10. how to use lifting and handling equipment in the maintenance activity; the different types of lifting and handling equipment that could be used, and their application
11. the methods and techniques involved in redressing moulds, press tools and dies
12. the techniques involved in setting critical datums and critical part location
13. the application of compressed air equipment used on tool and die systems
14. company policy on the repair/replacement of components during the maintenance process
15. the methods and techniques used to dismantle and reassemble mould, press tool and die equipment (such as release of pressures/force, proof marking to aid reassembly, removing components by extraction or pressing)
16. methods of checking that components are fit for purpose, and how to identify defects and wear characteristics
17. how to make adjustments to components/assemblies to ensure that they function correctly
18. the working purpose of individual components, and how they interact
19. how to check that tools and equipment are free from damage or defect, are
   in a safe and usable condition and are configured correctly for the intended
   purpose
20. the generation of documentation and/or reports following the maintenance
   activity
21. the equipment operating and control procedures to be applied during the
   maintenance activity
22. the relationship and responsibility of other departments involved in the
   equipment's operation and maintenance
23. the problems associated with the maintenance activity, and how they can
   be overcome
24. the procedure to be adopted for the safe disposal of waste of all types of
   materials
25. the limit of your authority, and whom you should report to if you have
   problems that you cannot resolve
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Scope/range related to performance criteria

1. Carry out all of the following during the maintenance activity:
   1. plan the maintenance activities to cause minimal disruption to normal working
   2. use the correct issue of company and/or manufacturers' drawings and maintenance documentation
   3. adhere to risk assessment, COSHH and other relevant safety standards
   4. ensure that jacks/chocks or safety rams are fitted and are operating correctly (where appropriate)
   5. ensure the safe isolation of equipment (such as mechanical, electricity, gas, air or fluids)
   6. provide safe access and working arrangements for the maintenance area
   7. carry out the maintenance activities, using appropriate techniques and procedures
   8. re-connect and return the system to service on completion of the maintenance activities
   9. dispose of waste materials in accordance with safe working practices and approved procedures
  10. leave the work area in a safe and tidy condition

2. Carry out maintenance activities on two of the following types of equipment:
   1. press tools (such as single stage, multi-stage, compound, transfer, draw, extrusion and progression tooling)
   2. die tools (such as draw, trim, re-strike, flange, combination, pierce dies, pressure, transfer, progression, pultrusion and extrusion dies)
   3. moulding tools (such as injection moulding two plate, three plate, combination, split and unscrewing tools)
   4. blow moulding
   5. vacuum forming tools
   6. ancillary equipment (pneumatic cylinders, hoses and couplings, sensors, scrap chutes)
   7. material load or ejector systems

3. Carry out all of the following maintenance activities, as appropriate to the equipment being maintained:
   1. chocking/jacking and inserting safety rams into press
   2. torque loading of bolts
   3. isolation or disconnection (such as electrical, fluids)
   4. applying correct locking devices
   5. recording critical positional datums, and proof marking
6. replenishing oils and greases
7. removing components by extraction or compression
8. adjusting working clearance
9. dismantling mould, press tool or die components
10. function testing
11. reassembling mould, press tool or die components
12. draining and removing fluids
13. inspecting tool components for serviceability
14. cleaning tool components
15. replacing non-serviceable/'lived' components
16. dressing dies or moulds, where appropriate

4. Replace a range of mould, press tool or die components/systems, to include six of the following:
   1. springs (such as gas, coil, rubber)
   2. slides
   3. ejectors
   4. locking/retaining devices
   5. fluid power cylinders
   6. dies
   7. inserts
   8. dowel/location devices
   9. guides (such as bush, pillar)
   10. cores
   11. bearings
   12. sensors/switches
   13. stripper plates
   14. wear plates
   15. valves
   16. pipes/hoses
   17. punches
   18. clamps
   19. seals
   20. other specific components

5. Ensure that the maintained equipment complies with all of the following:
   1. equipment manufacturer's specification
   2. appropriate regulations
   3. organisational guidelines and codes of practice
   4. component specification
6. Provide a record of the outcome of the maintenance activities, using one of the following:
   1. job cards
   2. specification and inspection sheets
   3. permits to work/formal risk assessment
   4. preventive maintenance log or report
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