



Australian Government

Department of Education, Employment and Workplace Relations

MEM04003B Operate pressure die casting machine

Release: 1

MEM04003B Operate pressure die casting machine

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers starting, operating and shutting down pressure die casting machines.
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Application of the Unit

Application of the unit	<p>This unit applies to all pressure die casting machines. All work is carried out to predetermined specifications and standards of quality and safety. Work may be carried out autonomously or as part of a work team.</p> <p>Band: A</p> <p>Unit Weight: 4</p>
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM13004B	Work safely with molten metals/glass

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Conduct pre-operational checks	1.1. The start-up procedure is conducted according to standard operating procedures. 1.2. If necessary, the shot size is adjusted. 1.3. If applicable, nitrogen and/or vacuum systems are checked 1.4. If applicable, a functional check is made of the picking robot, and the component gripper is adjusted if necessary. 1.5. Die spray nozzles are adjusted as necessary. 1.6. Planning is carried out which ensures efficient flow of finished product i.e. breaking of runners, stacking baskets, bins, conveyors.
2. Operate all functions on machine control panel	2.1. Appropriate knowledge of die casting process is applied to the operation, adjustment and monitoring of machine functions.
3. Operate machine to produce castings	3.1. The die casting machine is operated to standard operating procedures, including maintenance of liquid metal and die operating conditions. 3.2. Runners are broken off correctly. 3.3. Castings are visually inspected for porosity, cracks, tears, splits, sinks, cold shuts, tinning and die surface crazing according to standard operating procedures. 3.4. Castings are handled in a manner that minimises risk of damage to the casting and injury to personnel. 3.5. First-off castings are produced, visually inspected and submitted for checking against specifications.
4. Monitor furnace	4.1. The furnace is maintained at optimum operating condition to standard operating procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Look for evidence that confirms skills in:

REQUIRED SKILLS AND KNOWLEDGE

- reading and following information on written job procedures and specifications
- performing pre-start checks
- adjusting the shot size
- checking nitrogen and/or vacuum systems for correct operation
- checking and adjusting the picking robot and component gripper
- adjusting die spray nozzles
- sequencing of operations
- starting, operating and shutting down a die casting machine
- visually checking for conformance to specifications
- handling castings

Required knowledge

Look for evidence that confirms knowledge of:

- procedures for pre-start checks
- procedures for starting up the die casting machine
- adjustments that can be made to ensure correct operation of the machine
- procedures for adjusting the shot size
- the effects of incorrect shot size on the quality of the die casting
- the function of nitrogen and vacuum systems in the die casting process
- the procedures for checking/ adjusting nitrogen and/or vacuum systems
- the function of a picking robot and the component gripper
- procedures for adjusting the picking robot
- the effects of adjustments on robot performance
- the reasons for spraying the die
- procedures for adjusting the die spray nozzles
- operations to be performed subsequent to the die casting of the product
- tools and equipment
- methods of transporting/conveying the die cast product
- the die casting process
- the effect of adjusting each machine control on the quality of the die casting produced
- procedures to adjust the operation of the die casting machine
- die casting machine operation
- maintenance of liquid levels
- operating parameters
- procedures to remove runners from the die casting
- procedures to inspect die castings
- common faults in die castings and probable causes
- damage that can be caused to castings through inappropriate handling and storage
- procedures for checking first-off castings for conformance to specification

REQUIRED SKILLS AND KNOWLEDGE

- specifications of the die cast product
- shut-down procedures
- hazards and control measures associated with operating a die casting machine, including housekeeping
- safe work practices and procedures
- use and application of personal protective equipment

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

A person who demonstrates competency in this unit must be able to operate a pressure die casting machine. Competency in this unit cannot be claimed until all prerequisites have been satisfied.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.

Context of and specific resources for assessment

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with operating a pressure die casting machine or other units requiring the exercise of the skills and knowledge covered by this unit.

Method of assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

EVIDENCE GUIDE**Guidance information for
assessment****Range Statement****RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Unit Sector(s)

Unit sector	
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Co-requisite units

Co-requisite units		

Competency field

Competency field	Casting and moulding
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