



**Australian Government**

# **PMBTECH402 Set advanced or complex dies**

**Release: 1**

## PMBTECH402 Set advanced or complex dies

### Modification History

Release 1. Supersedes and is equivalent to PMBTECH402B Set advanced or complex dies

### Application

This unit of competency covers the skills and knowledge required to set and remove advanced or complex dies as typically used for injection or blow moulding.

This unit of competency applies to technicians or those in similar roles who are required to plan the die changeover, remove and replace the die, set machine conditions, fine tune settings and production variables to achieve desired results, and rectify production/quality problems.

This unit of competency applies to a technician applying specialised theoretical and technical knowledge and well developed skills in situations that require autonomy, discretion and judgement. The person may work alone or as a member of a team or group and will work in liaison with other shift team members, team leader and supervisor, as appropriate.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

### Pre-requisite Unit

PMBPREP304 Set a die

### Competency Field

Technical

### Unit Sector

Not applicable

### Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	<b>Prepare to change advanced or complex die</b>	1.1	Determine when changeover will be required, and plan requirements for die change
		1.2	Prepare dies and all equipment related to the advanced or complex die change

- 1.3 Prepare the moulding machine for die removal according to enterprise procedures
- 2 **Change dies**
  - 2.1 Remove die according to enterprise procedures, in a safe, systematic and time efficient manner
  - 2.2 Clean and store die according to workplace procedures applying corrosion protection if required.
  - 2.3 Prepare the moulding machine according to procedures
  - 2.4 Attach replacement die to the machine according to procedures
- 3 **Set advanced or complex die**
  - 3.1 Set machine conditions for new die
  - 3.2 Restart machine in accordance with procedure
  - 3.3 Dry cycle machine and die according to enterprise procedures
  - 3.4 Check operation of die and power and control devices against die set up specifications.
  - 3.5 Check the first-off sample for compliance with required standards
  - 3.6 Fine tune settings and other production variables as required
  - 3.7 Note any equipment variances between actual production and documented set up conditions
  - 3.8 Complete workplace documentation and report to appropriate personnel
- 4 **Anticipate die setting problems**
  - 4.1 Identify potential problems which may occur during the die changing and setting process
  - 4.2 Determine possible causes of these problems
  - 4.3 Identify most likely causes and prioritise appropriate actions

- 4.4 Rectify problems using appropriate solutions within area of responsibility
- 4.5 Recommend improvements in systems or procedures

## Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

## Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

**Regulatory framework** The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, manual handling and hazardous materials
- Australian/international standards relevant to the materials being used and products being made
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and such requirements the legislative requirements take precedence.

**Procedures** All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or any combination of:

- technical specifications
- technical drawings
- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

**Die** A die is a former used to give shape to the product and used under pressure. Dies are typically used in the extrusion, injection, blow moulding and general rubber sectors.

Dies which are not subject to pressure are referred to as 'moulds' in this Training Package.

**Advanced die** An advanced die is a two or three plate die which has one or more product forming components which:

- move in a direction other than the mould open axis
- are driven by the mould rather than external actuation.

An advanced die will typically feature one or more of:

- sliding blocks or cores actuated by skew pins or cams
- baffled, spiral, tube, and heat pipe cooling systems
- rising cores
- internally actuated unscrewing systems.

**Complex die** A complex die is either:

- a die which has one or more product forming components that:
- use an external power and control source to actuate product forming components
- move in a direction other than the mould open axis
- require sequencing with the mould operation
- a mould which retains molten material within the mould between cycles.

A complex die will typically feature one or more of:

- hot runners
- insulated runners
- externally actuated sliding blocks, cores and unscrewing systems
- safety interlocks.

### **Tools and equipment**

Tools and equipment include:

- dies/tools
- ancillary equipment, including one or more of:
  - hot-runner temperature control
  - hydraulic or pneumatic power supply for actuation of equipment, such as cores or sliding blocks
  - mould temperature control
- hand/power tools used in this process.

Additional tools and equipment will be selected as required from:

- hoists/lifting equipment not requiring any special permits or licences
- manual handling, aids such as hand carts and trolleys
- relevant personal protective equipment (PPE).

### **Hazards**

Hazards must be identified and controlled. Identifying hazards requires consideration of:

- weight, shape, volume of materials to be handled
- hazardous products and materials
- rotational equipment or vibration
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- smoke, dust or other atmospheric hazards
- high temperatures
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- equipment failures
- machinery, equipment and product mass
- other hazards that might arise.

## Unit Mapping Information

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## Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>