Australian Government
Department of Education, Employment and Workplace Relations

PMBPREP305B Change extrusion die and setup

Revision Number: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

PMBPREP305B Change extrusion die and setup

Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This competency covers the removal and refitting of dies, pins, sizing dies (calibrator), vacuum blocks and seals in preparation for production. This competency applies to extrusion, and similar, dies. For all other dies use PMBPREP304A Change equipment dies.
This competency is typically performed by advanced operators demonstrating some relevant theoretical knowledge and using a range of well-developed skills requiring some discretion and judgement.

Application of the Unit

Application of this unit

This competency applies to advanced operators who are responsible for changing setups to meet the production schedule for an extrusion line process. Setup changes means the work involving the extrusion die and sizing equipment only. The key factors are the safe and precise removal and installation.
The operator will:

- plan and prepare the change, including informing others selecting dies that match product/process specification removing, cleaning and storing the existing dies
- fit the replacement die according to specification testing the changeover and fine tuning as needed.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisites
This unit has **no** prerequisites.

Employability Skills Information

Employability Skills
This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency	Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
ELEMENT	Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Assessment of performance is to be consistent with the Evidence Guide.
1. Prepare to change dies or cores.	1.1 Plan process for closing down machinery and inform relevant personnel. 1.2 Take last-off samples as required for die reports. 1.3 Select dies or cores to match product/process specification. 1.4 Implement measures to control identified hazards in line with procedures and duty of care.
2. Shut down extruder.	2.1 Stop downstream equipment. 2.2 Stop feed, drop temperatures, stop vacuum pump and purge the extruder. 2.3 Activate isolating locks, disconnect power to heaters.
3. Change setup.	3.1 Remove, clean and store die according to workplace procedures. 3.2 Fit replacement die ensuring that locating devices and marks are matched and securing devices are installed and tightened to specification. 3.3 Remove and re-fit calibrator sleeve and seals as required. 3.4 Set heats according to pre-start procedures.
4. Restart and test-run the new setup.	4.1 Check operation of die against product quality 4.2 Compare machine setting ranges against documented requirements. 4.3 Check the first-off sample for required standards 4.4 Fine-tune settings and other production variables as required. 4.5 Note variances between standard operating procedures and actual production run. 4.6 Complete workplace documentation and report to appropriate personnel.
4. Anticipate and solve problems	4.1 Recognise a problem or a potential problem. 4.2 Determine problems needing priority action. 4.3 Refer problems outside area of responsibility to appropriate person, with possible causes. 4.4 Seek information and assistance as required to solve

ELEMENT ELEMENT	PERFORMANCE CRITERIA Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Assessment of performance is to be consistent with the Evidence Guide.
	problems. 4.5 Solve problems within area of responsibility 4.6 Follow through items initiated until final resolution has occurred.

Required Skills and Knowledge

This describes the essential skills and knowledge and their level required for this unit
Application of knowledge of the materials, equipment and process sufficient to recognise material and equipment conditions which may lead to out of specification production.
Knowledge of organisation procedures and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and work standards.
Application of the knowledge of managing risks using the hierarchy of controls applied to the extrusion process. Application of approved hazard control, safety procedures, the use of PPE in relation to handling materials, equipment operation and clean up.
Knowledge as a basis for solving processing and material problems, including:

- impact of incorrect or faulty fitting
- production work-flow sequences
- correct selection and use of equipment and procedures
- hazards of the removal and fitting process and appropriate hazard control procedures
- the performance of die and cores
- relevant information and workplace records
- safety precautions appropriate to the task.

Competence also includes the ability to:

- plan own work, including predicting consequences and identifying improvements
- start up equipment and make appropriate adjustments to bring process on line
- take samples when required and identify product out of specification
- safely shut down equipment in normal or abnormal circumstances
- identify and describe own role and role of others involved directly in the process
- identify factors which may affect product quality or production output and appropriate remedies
- identify hazards of the materials and process
- implement appropriate procedures for hazard control
- use PPE
- safely handle products and materials
- read relevant safety information and apply safety precautions appropriate to the task.

Language, **literacy and numeracy requirements**
This unit requires the ability to read and interpret typical product specifications, job sheets and material labels as provided to operators. Writing is required to the level of completing workplace forms and production reports.
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Basic numeracy is required, eg, to interpret and use dimensional and tolerance information relating to the die, design drawings and specifications.

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required skills and knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

A holistic approach should be taken to the assessment.

Assessors must be satisfied that the person can consistently perform the unit as a whole, as defined by the Elements, Performance Criteria and skills and knowledge.

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

It is essential that competence is demonstrated in the ability to perform a die-change smoothly and methodically, which will put the extruder back into full production of in-specification product in standard time. In particular it is essential that the operator can:

- select, install and check the performance of die and cores
- locate, interpret and apply relevant information
- maintain workplace records
- identify and safely handle products and materials
- apply safety precautions appropriate to the task
- recognise potential situations requiring action and then implement appropriate action.

Consistent performance should be demonstrated. For example, look to see that production standards are met consistently.

Assessment method and context

It is preferred that assessment takes place on an industrial extruder in a work environment. Competence in this unit may be assessed:

- on a processing plant, allowing for operation under all normal and a range of abnormal conditions
- in a situation allowing for the generation of evidence of the ability to respond to problems
  - by using a suitable simulation and/or a range of case studies/scenarios
  - through a combination of these techniques.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment. Assessors need to be aware of any cultural issues that may affect responses to questions.

Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the assessee and the work being performed.

Specific resources for assessment

This section should be read in conjunction with the Range Statement for this unit of competency. Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom.

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. Add any 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. Where reference is made to industry codes of practice, and/or Australian/international standards, the latest version must be used.

Context

This competency unit includes the selection and fitting of dies and cores.

This competency applies to all work environments and sectors within the plastics, rubber and cablemaking industry which use extrusion type dies and cores. It includes the operation of all relevant ancillary equipment.

Procedures

All operations are performed in accordance with procedures.

Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.

Tools and equipment

This competency includes use of equipment and tools such as:

- hand carts and trolleys
- hoists/lifting equipment not requiring any special permits or licences basic hand tools
- hand tools
- relevant personal protective equipment.

Hazards

Typical hazards include:

- hazardous materials
- manual handling hazards
- hot surfaces.

Problems

Typical process and product problems may include:

- lack of cleaning leading to corrosion
- inadequate fitting
- fine adjustments to optimise production.

Variables

Key variables to be monitored include:

- fitting and adjustments to die
- adjustments to extruder settings
- quality of the product against product specifications.
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Unit Sector(s)

Not applicable.