



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **MEM05041B Weld using powder flame spraying**

**Release: 1**

## MEM05041B Weld using powder flame spraying

### Modification History

Not Applicable

### Unit Descriptor

<b>Unit descriptor</b>	This unit covers powder spraying, using hot and/or cold processes on a range of heavy or light materials.
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### Application of the Unit

<b>Application of the unit</b>	<p>This unit applies to welding of materials using powder spraying equipment where powders are fed through the flame and are deposited onto the surface to be built up or joined.</p> <p>For remedial action using machining processes other than grinding with grinding wheels (ceramic or other), the appropriate machining units should also be accessed.</p> <p><b>Band: A</b></p> <p><b>Unit Weight: 4</b></p>
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### Licensing/Regulatory Information

Not Applicable

### Pre-Requisites

<b>Prerequisite units</b>		
<b>Path 1</b>	MEM05004C	Perform routine oxy acetylene welding
	MEM12023A	Perform engineering measurements

## Employability Skills Information

<b>Employability skills</b>	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. Prepare work for spray welding	1.1. Spray weld requirements are identified from specifications and/or drawings. 1.2. Work is prepared using appropriate tools and techniques. 1.3. Work is assembled/aligned to specifications as required.
2. Select spray welding equipment and powders	2.1. Appropriate spray welding equipment and consumables for materials and work requirements are selected.
3. Set up spray welding equipment	3.1. Gas setting on spray welding equipment is adjusted to task requirements.
4. Implement distortion prevention/control measures	4.1. Distortion prevention/control measures are identified. 4.2. Appropriate distortion prevention/control measures are applied to minimise and rectify distortion.
5. Spray weld material	5.1. Spray weld is correctly deposited to specification.
6. Inspect spray weld	6.1. Weld area/joints are visually inspected against specification. 6.2. Detected defects are removed with minimum loss of sound material.

## 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:

- preparing materials
- selecting equipment and powders
- setting up equipment
- spray welding material
- identifying defects in welds
- rectifying weld defects
- applying techniques for distortion prevention and rectification

**REQUIRED SKILLS AND KNOWLEDGE**

- cleaning welds
- reading and interpreting routine information on written job instructions, specifications and standard operating procedures. May include drawings
- following oral instructions
- entering routine and familiar information onto proformas and standard workplace forms

**Required knowledge**

Look for evidence that confirms knowledge of:

- correct welding equipment, hoses, tips, hand pieces and filler powder
- procedures and processes for material preparation
- procedures and processes for joint preparations
- causes of distortion for materials within the scope of this unit
- causes of defects and methods of rectification
- use and application of personal protective equipment
- safe work practices and procedures
- relevant hazards and control measures related to the competency

## 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 powder spray, using hot and/or cold processes, on a range of heavy or light materials. 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 to 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 welding using powder spraying equipment 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.

<b>Welds</b>	Fillet and butt in all positions
<b>Prepared</b>	Preheating, setting up of jigs, fixtures, clamps, etc., joint preparation e.g. bevelling
<b>Equipment</b>	AC or DC welding machines
<b>Materials</b>	Steels, carbon steels, cast iron, etc. or non-metallic materials (plastic/nylon)
<b>Distortion prevention</b>	Preheating, setting up of jigs, fixtures, clamps, etc.
<b>Defects</b>	Porosity, slag inclusions, discontinuities, lack of penetration, undercut
<b>Removal of defects</b>	Oxy acetylene and air arc equipment, grinding devices

**Unit Sector(s)****Unit sector**

## Co-requisite units

Co-requisite units		

## Competency field

Competency field	Fabrication
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