



Australian Government

MEM05044B Perform welds to code standards using gas tungsten arc welding process

Release 3

MEM05044B Perform welds to code standards using gas tungsten arc welding process

Modification History

Release 3 - equivalent. Australian Standard code corrected to AS4041.

Unit Descriptor

Unit descriptor	This unit covers preparing and producing welds to code standards using gas tungsten arc welding (GTAW).
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Application of the Unit

Application of the unit	This unit applies to welds associated with high quality fabrications, using a range of materials. Butt and fillet welds in the flat, horizontal, vertical and overhead positions would be applied to meet Australian Standards 1210, AS 4041, ASME IX or equivalent. The unit, together with Unit MEM05026C (Apply welding principles), may satisfy the requirements of AS 1796 Certificate 7. Where advanced manual thermal cutting, gouging and shaping is carried out, Unit MEM05008C (Perform advanced manual thermal cutting, gouging and shaping) should also be selected. Band: This unit has dual status and is to be regarded as both a Specialisation band A unit and Specialisation band B unit for progression to C7 (AQF level IV). Unit Weight: 6
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM05007C	Perform manual heating and thermal cutting
	MEM05019D	Weld using gas tungsten arc welding process
	MEM05020C	Perform advanced welding using gas tungsten arc welding process
	MEM05026C	Apply welding principles
	MEM05049B	Perform routine gas tungsten arc welding
	MEM05051A	Select welding processes
	MEM05052A	Apply safe welding practices
	MEM09002B	Interpret technical drawing
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools
	MEM18002B	Use power tools/hand held operations

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. Maintain welding equipment	1.1. Routine maintenance is performed on welding equipment.
2. Prepare welding materials and equipment for GTAW welding to code standard	2.1. Weld requirements for GTAW welding to code standards are determined. 2.2. Materials are prepared to produce weld to code standard. 2.3. Welding equipment is set up correctly.
3. Weld joints using GTAW to procedure specifications	3.1. Materials are welded as per weld procedure specification.
4. Ensure weld quality	4.1. Discontinuities are rectified to ensure conformance to code requirements. 4.2. Weld records are maintained in accordance with 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:

- depositing welds to procedure requirements
- determining weld outcomes, consumables and settings from welding procedure specification
- interpreting technical drawings and weld specifications for welding to code standards using GTAW
- using hand and power tools to prepare and weld materials to code standard
- using measurement and numeracy skills for welding to code standards
- reading and interpreting routine information on written job instructions, specifications and standard operating procedures. May include drawings
- following oral instructions

Required knowledge

Look for evidence that confirms knowledge of:

REQUIRED SKILLS AND KNOWLEDGE
• requirements to produce welds to quality of AS 1210, AS 4041, ASME IX or equivalent • safe welding practices • use and application of personal protective equipment for GTAW • relevant standards or codes • methods for preparing plate and pipe for code standard welding • pre-welding and post-welding heating methods and requirements for plate and pipe welding to code standard • requirements for maintaining weld records to code standard • hazards and control measures associated with welding, including housekeeping

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 prepare and produce welds to code standards using GTAW process. 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 performing welds to code standards using gas tungsten arc welding process (GTAW) 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.

Routine maintenance

Ensuring hand piece, gas shroud, flow meter etc. are in serviceable condition

Prepared

Flame cut and ground or machined, preheating, setting up of jigs, fixtures, clamps, etc.

Materials

Carbon/manganese steel, low alloy steel and aluminium materials, etc. on plate, pipe and rolled steel sections

Unit Sector(s)**Unit sector****Co-requisite units****Co-requisite units**

Competency field

Competency field	
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