



Australian Government

MEM05085 Select welding processes

Release: 1

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Modification History

Release 1. Unit code changed. Changes to elements and performance criteria, performance evidence and knowledge evidence. Supersedes and is not equivalent to MEM05051 Select welding processes.

Application

This unit of competency was developed for engineering fabrication trade training and the recognition of trade skills in selecting welding processes.

It defines the skills and knowledge required to identify basic material properties and select appropriate welding processes to produce welds that conform to AS 1554 General Purpose (GP) and American Bureau of Shipping (ABS) or equivalent as defined by the unit in conjunction with its prerequisites.

The unit includes all welding processes within the scope of AS 1554 GP and the identification of basic properties and characteristics of all commonly welded metals to the extent required to inform the selection of appropriate welding processes.

This unit must be selected in combination with one or more of the following units:

- MEM05090 Weld using manual metal arc welding process
- MEM05091 Weld using gas metal arc welding process
- MEM05092 Weld using gas tungsten arc welding process
- MEM05093 Weld using submerged arc welding process
- MEM05096 Weld using flux core arc welding process
- MEM05097 Weld using oxy fuel gas welding process.

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

Band: A

Unit Weight: 2

Pre-requisite Unit

MEM13015 Work safely and effectively in manufacturing and engineering

MEM16006 Organise and communicate information

Competency Field

Fabrication

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Determine job requirements	1.1 Follow standard operating procedures (SOPs) 1.2 Comply with work health and safety (WHS) requirements at all times 1.3 Use appropriate personal protective equipment (PPE) in accordance with SOPs 1.4 Identify job requirements from specifications, job sheets or work instructions
2. Identify properties of commonly used metals	2.1 Identify materials to be welded 2.2 Identify characteristics and properties of commonly used materials 2.3 Identify uses and purposes of commonly used materials 2.4 Consider basic metallurgical characteristics of job requirements
3. Identify and provide for welding contingencies	3.1 Source Information relevant to welding processes to meet job requirements 3.2 Identify potential contingencies and consider solutions
4. Identify appropriate welding process	4.1 Identify effects of welding processes on materials being used for the job 4.2 Identify distortion prevention measures 4.3 Identify situations where alternative joining methods may be more appropriate than welding 4.4 Identify and select welding processes to achieve specified outcomes with selected metals

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

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.

Basic metallurgical characteristics include:	alloys and grades of metals and different types of fuel and shielding gases, fluxes, and electrodes.
Reference information includes one or more of the following:	• steel suppliers' handbooks • welding company materials • SOPs • safety documentation.
Welding processes include one or more of the following:	• fusion – electric arc welding, gas (oxy-fuel) welding and thermit welding • pressure welding processes – resistance welding, fire or forge welding, friction welding and explosive welding • low temperature processes – soldering and brazing • other – ultrasonic welding and electron beam welding.
Effects include one or more of the following:	• thermal expansion • heat affected zones • fume emissions • altered density • distortion.
Distortion prevention measures include one or more of the following:	• heat treatments • consolidations.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>