Australian Government

MEM05090 Weld using manual metal arc welding process

Release: 1

MEM05090 Weld using manual metal arc welding process

Modification History

Release 1. Supersedes and is equivalent to MEM05015 Weld using manual metal arc welding process.

Application

This unit of competency has been developed for Engineering Tradesperson – Fabrication apprenticeship training and the recognition of trade-level skills in manual metal arc welding (MMAW) on heavy or light metal fabrications. It may also apply to other trade occupations requiring higher level MMAW welding skills.

Weld quality would typically conform to AS 1554 General Purpose, and American Bureau of Shipping (ABS) or equivalent.

Where manual thermal processes associated with preparation, pre-heat and/or post-heat is required, the unit MEM05007 Perform manual heating and thermal cutting and the unit MEM05071 Perform advanced manual thermal cutting, gouging and shaping, should also be selected as appropriate.

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

Band: A

Unit Weight: 4

Pre-requisite Unit

MEM05012 Perform routine manual metal arc welding

MEM05052 Apply safe welding practices

MEM05085 Select welding processes

MEM09002 Interpret technical drawing

MEM11011 Undertake manual handling

MEM12023 Perform engineering measurements

MEM12024 Perform computations

MEM13015 Work safely and effectively in manufacturing and engineering

MEM14006 Plan work activities

MEM16006 Organise and communicate information

MEM18001 Use hand tools

MEM18002 Use power tools/hand held operations

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, drawings, job sheets or work instructions
2. Prepare materials for MMAW	2.1 Prepare materials to achieve the required weld requirements 2.2 Assemble/align materials to specification, where required
3. Select, assemble and set up welding equipment and consumables	3.1 Identify and select welding equipment and electrodes, accessories and consumables appropriate to the material 3.2 Assemble and set up alternating current (AC) or direct current (DC) welding equipment
4. Minimise and rectify distortion	4.1 Apply appropriate distortion prevention measures 4.2 Rectify any distortion using appropriate techniques
5. Weld to job specification using MMAW	5.1 Ensure weld deposit is to specifications 5.2 Clean joints to specifications
6. Ensure weld conformance	6.1 Inspect weld joints visually for conformance to specifications 6.2 Rectify any weld defects with minimum loss of sound metal using correct techniques and tools 6.3 Complete weld records in accordance with SOPs

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

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.	
Welds include the following:	• fillet and butt welds carried out in all positions.
Materials include one or more of the following:	• ferrous, including carbon or stainless steel • nonferrous metals • alloys suitable for MMAW welding.
Preparation of materials includes one or more of the following:	• pre-heating • setting up of jigs • fixtures and clamps • joint preparation (e.g. bevelling).
Distortion prevention measures include one or more of the following:	• preheating • setting up of jigs • fixtures and clamps.
Rectify includes the use of one or more of the following:	• oxy acetylene • air arc equipment • grinding devices.
Defects include one or more of the following:	• porosity • slag inclusions • discontinuities • lack of penetration • undercut.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM05015 Weld using manual metal arc welding process.

Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2