

PERFORM MANUAL METAL ARC WELDING

UNIT CODE: ENG/OS/WEF/CR/02/6/A

UNIT DESCRIPTION

This unit specifies competencies required to prepare materials, set up Manual Metal Arc (MMA) equipment and apply safety in MMA welding. It involves competencies to weld in all positions using manual metal arc welding process. It is also known as Shielded Metal Arc Welding (SMAW).

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA <i>(Bold and italicized terms are elaborated in the Range)</i>
1. Set up MMA equipment and materials	1.1 Safety and health is observed as per Workplace procedures and OSHA 1.2 Working drawings are interpreted as per job specifications 1.3 Materials, tools and equipment are selected as per job specifications 1.4 Joints are prepared as per working drawings 1.5 Set up <i>MMA welding equipment</i> as per job specifications
2. Carry out MMA welding process	2.1 Welded workpieces using manual metal arc welding process as per job specifications and ISO 9606-1 standard 2.2 Post weld treatment is performed according to job specifications 2.3 Weld joint is examined as per ISO 17637 standards 2.4 Housekeeping is conducted as per workplace procedures

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
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1. MMA welding equipment may include but is not limited to:	<ul style="list-style-type: none"> • MMA welding PPE • Welding machine • Welding accessories e.g driers, welding containers • Electrodes
2. Materials may include but is not limited to:	<ul style="list-style-type: none"> • Metal tubing • Metal sheets • Metal plates • Metal bars

REQUIRED KNOWLEDGE

The individual needs to demonstrate knowledge of:

- Workplace procedures and OSHA
- MMA welding equipment
- Joint preparation
- Types of electrodes
- MMA welding techniques and specification procedure
- Setting current on MMA equipment
- BS and ISO welded joint standards
- Applications of MMA
- MMA cutting techniques
- MMA welding safety procedures
- Workplace housekeeping procedures

REQUIRED SKILLS

The individual needs to demonstrate the following skills:

- Interpreting working drawings
- Preparing joints
- MMA welding
- Manipulation of electrodes
- MMA cutting
- Product assessment
- Observation of safety
- Workplace housekeeping procedures

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Observed safety and health as per Workplace procedures and OSHA 1.2 Selected materials, tools and equipment 1.3 Prepared joints as per working drawing 1.4 Set up MMA welding equipment in accordance with job specifications 1.5 Welded work piece using MMA process as per job specifications and ISO 9606-1 1.6 Welded Work pieces are examined as per ISO 17637 1.7 Dressed welded joint as per standard operating procedures
<p>2. Resource implications</p>	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> 2.1 Fully equipped welding workshop meeting OSHA standards 2.2 Welding consumables and equipment 2.3 Personal Protective Equipment
<p>3. Methods of assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 3.1 Observation 3.2 Oral questioning 3.3 Written tests 3.4 Projects
<p>4. Context of assessment</p>	<p>Candidate will be assessed</p> <ul style="list-style-type: none"> 4.1 On job 4.2 Off job 4.3 During industrial attachment
<p>5. Guidance information for</p>	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>

assessment.	
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