



Australian Government

PMBWELD307 Install high temperature plastic pressure pipelines

Release: 1

PMBWELD307 Install high temperature plastic pressure pipelines

Modification History

Release 1. Supersedes and is equivalent to PMBWELD307B Install high temperature plastic pressure pipelines

Application

This unit of competency covers the skills and knowledge required to install relevant elements of plastics pressure pipes and pipeline components operating under high temperature in the field.

This unit of competency applies to experienced operators who are involved in the installation of pipes and pipeline components to quality assurance requirements whilst maintaining personal and immediate site safety. They are required to confirm that materials are suitable for the specific pressure applications; prepare for and perform jointing, repairs and service of plastic pressure pipes and pipeline components; and solve problems within area of responsibility.

This unit of competency applies to an experienced operator demonstrating theoretical and technical knowledge and well developed skills in situations that require some discretion and judgement. The operator may work alone or as a member of a team or group and will work in liaison with other shift team members, team leader and supervisor, as appropriate.

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

Pre-requisite Unit

Nil

Competency Field

Welding

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

- | | | | |
|---|---|-----|---|
| 1 | Identify plastic pipe materials as being suitable for specific pressure applications | 1.1 | Identify plastic materials from national standards, job specifications and work site instructions |
| | | 1.2 | Determine plastic material properties from national standards and material data sheets |
| | | 1.3 | Identify job needs from work site instructions and specifications |
| | | | |
| 2 | Identify applications for alternative jointing technologies | 2.1 | Identify properties and limitations of mechanical jointing systems |
| | | 2.2 | Identify properties and limitations of thermal welding jointing systems |
| | | 2.3 | Identify properties and limitations of chemical bonding jointing systems |
| | | 2.4 | Perform trial jointing for mechanical jointing and thermal fusion methods, identify non-conformance, report and rectify |
| | | 2.5 | Assess quality against specification requirements |
| | | | |
| 3 | Determine requirements for working with of plastics pipeline components | 3.1 | Identify requirements for handling and transport of plastics materials |
| | | 3.2 | Determine requirements for long-term storage |
| | | 3.3 | Determine requirements for installation including additional materials |
| | | | |
| 4 | Connect and repair plastic pressure pipelines | 4.1 | Determine connection requirements |
| | | 4.2 | Identify possible alternative material connection methods to meet specified requirements |
| | | 4.3 | Connect pipework to meet requirements |

- 4.4 Determine repair requirements
 - 4.5 Identify alternative repair options
 - 4.6 Repair installation to meet requirements
- 5 **Assess quality of completed installation**
 - 5.1 Test installation
 - 5.2 Identify alternative test procedures to meet requirements
 - 5.3 Assess quality of completed installation
 - 5.4 Refer problems outside area of responsibility to appropriate person
 - 5.5 Solve problems within area of responsibility
 - 5.6 Maintain quality records

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

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.

Regulatory framework

The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, manual handling and hazardous materials
- Australian/international standards relevant to the materials being used and products being made, including one or more of:
 - AS/NZS 2642.2:2008 Polybutylene (PB) plumbing pipe systems - Polybutylene (PB) pipe for hot and cold water applications or its replacement
 - AS/NZS 2642.3:2008 Polybutylene (PB) plumbing pipe systems - Mechanical jointing fittings for use with polybutylene (PB) pipes for hot and cold water applications or its replacement
 - AS/NZS 2492:2007 Cross-linked polyethylene (PE-X) pipes for pressure applications or its replacement
 - AS 4176.1-2010 Multilayer pipes for pressure applications - Multilayer piping systems for hot and cold water plumbing applications – General other relevant parts of AS 4176 and their replacements
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and such requirements the legislative requirements take precedence.

Plastic pressure pipe materials

Plastic pressure pipe materials include:

- polybutylene (PB)
- polypropylene (PP)
- cross linked polyethylene (PEX)
- A1/PEX composites
- polyvinylidene fluoride (PVDF)

- chlorinated polyvinyl chloride (CPVC).

Joining methods Joining methods for installers include one or more of:

- mechanical
- thermal
- chemical bond.

Installation Installation can be one or more of:

- above ground
- below ground.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or any combination of:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Tools and equipment Tools and equipment include one or more of:

- jointing equipment
- service connection and repair equipment
- jigs and fixtures
- calculators
- hand tools used in this process
- hoists/lifting equipment not requiring any special permits or licences
- manual handling aids, such as hand carts and trolleys
- relevant safety equipment
- relevant personal protective equipment (PPE).

Measurement Measurement devices include one or more of:

- devices**
- pressure gauges
 - timers
 - callipers
 - temperature probes
 - computer-based monitors.

Hazards Hazards must be identified and controlled. Identifying hazards requires consideration of:

- pipe material handling
- heavy stationary and moving machinery
- cutting and heating equipment
- hazardous products and materials
- sharp edges, swarf and scrap
- protrusions or obstructions
- slippery surfaces, spills or leaks
- rotational equipment or vibration
- smoke, dust, vapours or other atmospheric hazards
- high temperatures
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- equipment failures
- machinery, equipment and product mass
- other hazards that might arise.

Problems Problems include one or more of:

- variable PE materials, pipes and components as supplied
- equipment malfunction or wear and tear
- variable field site conditions
- limitations in available data on specific job requirements
- variations in quality
- emergency situations
- intermittent faults.

Unit Mapping Information

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Links

MSA Training Package Implementation Guides - <http://mskills.org.au/training-packages/info/>