



Australian Government

PMBWELD308 Install PVC plastic pressure pipelines

Release: 1

PMBWELD308 Install PVC plastic pressure pipelines

Modification History

Release 1. Supersedes and is equivalent to PMBWELD308B Install PVC plastic pressure pipelines

Application

This unit of competency covers the skills and knowledge required to install polyvinylchloride (PVC) plastic pressure pipes and pipeline components in the field. It applies to PVC in the form of UPVC, MPVC or OPVC. Pipelines may be used for transmission of gaseous and water based fluids.

This unit of competency applies to experienced operators who are required to confirm that materials are suitable for the specific pressure applications; prepare for and perform chemical and mechanical jointing, repairs and service connections; 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 applications for alternative jointing**

1.1 Identify properties and limitations of mechanical jointing systems

1.2 Identify properties and limitations of chemical bonding

	technologies		jointing systems
		1.3	Perform trial jointing for all methods, identify non-conformance, report and rectify
		1.4	Assess quality against specification requirements.
2	Determine methods for handling, storage, transport and installation of PVC pipeline components	2.1	Identify requirements for handling and transport of PVC materials
		2.2	Determine requirements for long-term storage
		2.3	Determine requirements for installation, including additional materials
3	Identify appropriate service connection and repair techniques	3.1	Determine service connection requirements
		3.2	Identify alternative service connection methods to meet requirements
		3.3	Perform service connection to meet requirements
		3.4	Determine repair requirements
		3.5	Identify alternative repair options
		3.6	Perform repair installation to meet requirements
4	Assess quality of completed installation by determining appropriate testing and commissioning procedures	4.1	Determine specific installation test requirements
		4.2	Identify alternative test procedures to meet requirements
		4.3	Assess quality of completed installation
		4.4	Refer problems outside area of responsibility to appropriate person
		4.5	Solve problems within area of responsibility
		4.6	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 1477:2006 PVC pipes and fittings for pressure applications, or its replacement
 - AS/NZS 4441:2008 Oriented PVC (PVC-O) pipes for pressure applications, or its replacement
 - AS/NZS 4765:2007 Modified PVC (PVC-M) pipes for pressure applications, or its replacement
 - AS/NZS 2566.2:2002 Buried flexible pipelines – Installation, or its replacement
 - AS/NZS 2032:2006 Installation of PVC pipe systems ,or its replacement
- 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.

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:

- mechanical and chemical bond jointing equipment
- service connection and repair equipment
- jigs and fixtures
- measurement devices, including one or more of:
- pressure gauges
- timers
- callipers
- computer-based monitors.

Additional tools and equipment will be selected as required from:

- 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 personal protective equipment (PPE).

Hazards

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

- hazardous products and materials
- cutting equipment
- 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 Routine and non-routine problems must be resolved.

Non-routine problems must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts, to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report problems outside area of responsibility to designated person.

Non-routine problems are unexpected problems or variations of previous problems and include one or more of:

- variations in quality
- emergency situations
- intermittent faults.

Operational knowledge includes one or more of:

- procedures
- training
- technical information, such as journals and engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people.

Routine problems are predictable and have known solutions and include one or more of:

- variable materials, pipes and components as supplied
- equipment malfunction or wear and tear
- variable field site conditions
- limitations in available data on specific job requirements.

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMBWELD308B Install PVC plastic pressure pipelines

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

Assessment Requirements for PMBWELD308 Install PVC plastic pressure pipelines

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and demonstrate the ability to:

- read and interpret procedures, national standards, job specifications, material labels and safety data sheets (SDS)
- distinguish between UPVC, MPVC, OPVC and identify alternative jointing methods appropriate to the materials
- select and perform mechanical and chemical jointing methods to meet specifications
- perform trial jointing
- monitor key variables, including:
 - alignment
 - materials and conditions for joint
 - integrity of joint
 - general conformance to specification
- determine service connection requirements and make connections
- determine repair requirements and make repairs
- assess quality of completed installation
- make adjustments to remedy faults and non-conformity
- set up and maintain storage, handling, and transport instructions
- identify hazards and apply relevant hazard controls
- apply safety procedures
- apply housekeeping procedures
- apply waste management procedures
- recognise early warning signs of equipment/processes needing attention or with potential problems
- distinguish between causes of problems, including:
 - operational problems
 - materials properties
 - process variables
 - raw material/component variations
 - raw material contamination
 - procedural errors
- recognise and prioritise problems requiring action

- resolve routine and non-routine problems
- communicate effectively with team/work group and supervisors
- complete workplace records
- do basic arithmetical manipulations, including additions, subtractions, divisions, fractions and percentages.

Knowledge Evidence

Must provide evidence that demonstrates knowledge relevant to their job sufficient to operate independently and to solve routine and non-routine problems including knowledge of:

- UPVC, MPVC, OPVC materials/components and distinguishing characteristics
- range of methods, relevant to types of materials/components, for:
 - mechanical jointing
 - chemical bonding
 - service connections
 - repairs
- factors which may affect product quality or production output and appropriate remedies
- quality requirements and tests
- routine and non-routine problems that may arise, the range of possible causes and appropriate actions
- organisation procedures relevant to the work environment/job role
- hierarchy of control
- hazards that may arise in the job/work environment and:
 - their possible causes
 - potential consequences
 - appropriate risk controls.
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Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- In all plants it may be appropriate to assess this unit concurrently with units such as:
 - teamwork
 - communication.
- The collection of performance evidence:
 - should occur over a range of situations which include typical disruptions to normal, smooth operation of an operating plant
 - will typically include a supervisor/third-party report or other evidence, focusing on consistent performance and problem recognition and solving. A supervisor/third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency

- must include the use of an appropriate industrial item of equipment requiring demonstration of operation, start and stop procedures and responding to problems
- may use industry-based simulation for all or part of the unit particularly where safety, lack of opportunity or significant cost is an issue.
- Assessment should occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Assessment in a simulated environment should use evidence collected from demonstration of skills and one or more of:
 - walk-throughs
 - pilot plant operation
 - industry-based case studies/scenarios
 - 'what ifs'.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- In addition the assessor or anyone acting in subject matter expert role in assessment shall demonstrate both technical competency and currency. If the assessor cannot demonstrate technical competency and currency they shall assess with a subject matter expert who does meet these requirements.
- Technical competence can be demonstrated through one or more of:
 - relevant VET or other qualification/Statement of Attainment
 - appropriate workplace experience undertaking the type of work being assessed under routine and non-routine conditions
 - appropriate workplace experience supervising/evaluating the type of work being assessed under routine and non-routine conditions
- Currency can be demonstrated through one or more of:
 - being currently employed undertaking the type of work being assessed
 - being employed by the organisation undertaking the type of work being assessed and having maintained currency in accordance with that organisation's policies and procedures

- having consulted/had contact with an organisation undertaking the type of work being assessed within the last twelve months, the consultation/contact being related to assessment
- conducting on the job training/assessments of the type of work being assessed
- being an active member of a relevant professional body and participating in activities relevant to the assessment of this type of work.

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