



Australian Government

MEM30006 Calculate stresses in simple structures

Release: 1

MEM30006 Calculate stresses in simple structures

Modification History

Release 1. Supersedes and is equivalent to MEM30006A Calculate stresses in simple structures.

Application

This unit of competency defines the skills and knowledge required to determine stresses and their effect on the strength and stability of simple structures and mechanical components in centrally-loaded bolted connections, fillet and butt-welded connections. It includes the verification of the stress levels using appropriate reference material such as design manuals, handbooks, relevant codes and regulations, databases and manufacturers' references.

The unit applies to engineering or related activities and is suitable for people giving technical support in manufacturing or engineering operations and those pursuing technical qualifications and careers at paraprofessional or technician level. All work is carried out under supervision.

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

Pre-requisite Unit

MEM30012 Apply mathematical techniques in a manufacturing engineering or related environment

Competency Field

Engineering technician

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Determine stresses in simple structures and mechanical components	1.1 Follow standard operating procedures (SOPs) and comply with work, health and safety (WHS) requirements at all times 1.2 Determine the shear stresses in simple bolted connections 1.3 Determine the nominal weld size or length of weld required on simple welded connections to meet load requirements 1.4 Draw and use torque distribution diagrams to calculate torsional shear stress and angle of twist on threaded bolts subjected to torques

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
2. Verify stress levels using appropriate reference material	2.1 Use appropriate reference materials to verify that stress loading is acceptable 2.2 Report verification results

Foundation Skills

This section describes those language, literacy, numeracy and employment skills 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.

Simple structures calculations are limited to consideration of centrally-loaded:	• bolted connections • fillet and butt-welded connections.
Reference materials include:	• design manuals • handbooks • relevant codes and regulations • databases • manufacturer references.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM30006A Calculate stresses in simple structures.

Links

Companion Volume Implementation Guides are available on VETNet -

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