



Australian Government

MEM09209 Detail bearings, seals and other componentry in mechanical drawings

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM09209A Detail bearings, seals and other componentry in mechanical drawings.

Application

This unit of competency defines the skills and knowledge required to produce detailed engineering drawings containing bearings, seals and other componentry to Australian Standard (AS) 1100.101 Technical drawing - General principles. It includes applying geometric tolerances to provide specific clearances and confirm the geometric shape of components.

This unit is suitable for those working within a drafting work environment and can be applied across all engineering disciplines. Drawings are carried out with or without the use of computer-aided design (CAD) systems.

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

Pre-requisite Unit

MEM09204 Produce basic engineering detail drawings

MEM09229 Read and interpret technical engineering drawings

Competency Field

Drawing, drafting and design

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 job requirements	1.1 Follow standard operating procedures (SOPs) 1.2 Comply with work health and safety (WHS) requirements at all times 1.3 Identify job requirements from available information 1.4 Determine purpose and scope for drawing and identify and address further information needs

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	1.5 Determine project consultation requirements 1.6 Identify and prepare equipment, organisational files, templates and symbols required to complete work
2. Identify system requirements	2.1 Determine required components from catalogues, tables, standards and specifications 2.2 Identify required bearings based on their type, features and uses 2.3 Identify required mechanical seals based on their type, features and uses 2.4 Determine method of general tolerancing, classes of fit and forms of geometric shapes from engineer, sketches or specifications 2.5 Determine other componentry and type of lubricants to be used 2.6 Apply codes, standards and symbols used for components and methods used to locate on drawings
3. Prepare detail drawing	3.1 Lay out drawing in accordance with the sketches and specifications 3.2 Apply line work in accordance with standard industry drawing practice 3.3 Produce detail and assembly drawings containing engineering bearings and mechanical seals, applying general tolerances 3.4 Produce detail drawings requiring sizing and tolerancing of keys and keyways 3.5 Produce detail drawings containing shafts and holes and fully tolerance to suit particular class of fit 3.6 Produce detail drawings of engineering components applying geometric tolerances to the shape 3.7 Apply surface texture finishes to detail drawings 3.8 Present drawing according to organisational requirements
4. Document and store drawings	4.1 Document drawings and associated technical information in accordance with project requirements and SOPs 4.2 Store drawings in accordance with SOPs

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.

Available information includes one or more of the following:	• construction documents • assembly and installation drawings • work specifications • information for plant services equipment • industry codes, standards and regulations • design brief.
Bearings include one or more of the following plain and anti-friction bearings:	• ball • roller • angle • self-aligning • thrust • taper.
Seals are defined as devices designed to prevent the movement of fluid from one area to another, or to exclude contaminants and include one or more of the following:	• static seals • dynamic seals • wiper • rod • piston • guide • V-packing O-rings.
Other componentry includes one or more of the following:	• engineering keys • keyways • holes • shafts.
General tolerances include one or more of the following:	• unilateral • bilateral • limits of size • direct.
Appropriate personnel include one or more of the	• designer • engineer

following:	• supervisor • contractor/consultant • builder.
Support services include one or more of the following:	• estimating department and personnel • engineering department and personnel • drafting department and personnel • project manager • factory manager or staff.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM09209A Detail bearings, seals and other componentry in mechanical drawings.

Links

Companion Volume implementation guides are found in VETNet -

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