



Australian Government

MEM23153 Contribute to the design of heat exchanger systems

Release: 1

MEM23153 Contribute to the design of heat exchanger systems

Modification History

Release 1. Supersedes and is equivalent to MEM23153A Contribute to the design of heat exchanger systems.

Application

This unit of competency defines the skills and knowledge required to contribute to the design of heat exchanger systems or to undertake the complete design for less complex systems.

The unit applies to heating, ventilation, air conditioning and refrigeration (HVACR) technicians in manufacturing, servicing and maintenance organisations who are required to undertake design work on heat exchangers. It applies to design work undertaken as part of a design team comprising engineers and other technicians and to individual design tasks within the scope of the technician's skill and knowledge.

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

Pre-requisite Unit

MEM23004 Apply technical mathematics

MEM23006 Apply fluid and thermodynamics principles in engineering

Competency Field

Engineering science

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. Establish requirements for heat exchanger design	1.1 Obtain and implement work health and safety (WHS) and environmental requirements for the work area 1.2 Determine scope of the design from design brief, reports and in consultation with appropriate personnel 1.3 Determine and interpret relevant standards, codes or regulations applicable to the design 1.4 Consult appropriate personnel to ensure that work is coordinated effectively with others

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 Obtain equipment and resources needed for the task in accordance with organisational procedures
2. Determine specifications for heat exchanger design	2.1 Obtain parameters and performance requirements in relation to refrigeration system 2.2 Model design solutions based on developed heat exchanger specifications to determine the most effective solution 2.3 Establish final selection on heat exchanger design in consultation with appropriate personnel 2.4 Provide solutions to unplanned situations consistent with organisational procedures
3. Document heat exchanger design	3.1 Document design, including all details of findings, calculations and assumptions in accordance with organisational procedures 3.2 Notify appropriate personnel about the completion of the design task

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.

WHS requirements include:	• relevant legislation • protective equipment • material safety management systems • hazardous substances and dangerous goods code • local safe operation procedures • awards provisions.
Environmental requirements include:	• relevant legislation, regulations and codes • correct handling and disposal of liquid and solid waste • elimination or minimisation of gas, fume, vapour and smoke

	- emissions, including fugitive emissions - dust elimination, minimisation and control - minimisation of energy and water use - elimination or control of excessive noise - use and recycling of refrigerants.
Appropriate personnel include:	- supervisor, leading hand, foreman or manager - engineer - technician - trainer or mentor - team member - customer.
Resources include:	- data sheets - appropriate modelling software - manuals and tables - stationery.
Organisational procedures include:	- use of tools and equipment - instructions, including job sheets, plans, drawings and designs - reporting and communication - manufacturer specifications - operational procedures - industry standards.
Equipment includes:	computer workstation and software, either stand alone or networked.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM23153A Contribute to the design of heat exchanger systems.

Links

Companion Volume Implementation Guides are available on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>