Australian Government

UEERA0042 Evaluate thermodynamic and fluid parameters of refrigeration systems

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to evaluate thermodynamic and fluid parameters of refrigeration systems.

It includes working safely, setting up and conducting evaluation measurements, evaluating thermodynamic and fluid parameters from measured parameters, and reporting results for use in design work.

The skills and knowledge described in this unit may, in some jurisdictions, require a licence or permit to practice in the workplace subject to regulations for undertaking refrigeration and air conditioning work. Practice in the workplace and during training is also subject to work health and safety (WHS)/occupational health and safety (OHS) regulations.

Permits may also be required for some work environments, such as confined spaces, working aloft, near live electrical apparatus and site rehabilitation.

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

Pre-requisite Unit

UEERA0038 Establish the thermodynamic parameters of refrigeration and air conditioning systems

UEERA0001 Analyse the operation of HVAC air and hydronic systems

UEERA0002 Analyse the psychrometric performance of HVAC/R systems

and

UEERA0003 Analyse the thermodynamic performance of HVAC/R systems

or

UEERA0094 Verify functionality and compliance of refrigeration and air conditioning installations

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0020 Fix and secure electrotechnology equipment

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEECD0016 Document and apply measures to control WHS risks associated with electrotechnology work

UEERA0059 Prepare and connect refrigerant tubing and fittings

UEERA0036 Establish the basic operating conditions of vapour compression systems

UEERA0035 Establish the basic operating conditions of air conditioning systems

UEERA0050 Install refrigerant pipe work, flow controls and accessories

UEERA0081 Select refrigerant piping, accessories and associated controls

UEERA0031 Diagnose and rectify faults in air conditioning and refrigeration control systems

UEERA0092 Solve problems in low voltage refrigeration and air conditioning circuits

UEERL0005 Locate and rectify faults in low voltage (LV) electrical equipment using set procedures

UEERL0004 Disconnect - reconnect electrical equipment connected to low voltage (LV) installation wiring

UEERL0001 Attach cords and plugs to electrical equipment for connection to a single phase 230 Volt supply

UEERL0002 Attach cords, cables and plugs to electrical equipment for connection to 1000 V a.c. or 1500 V d.c.

Competency Field

Refrigeration and air-conditioning

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS		PERFORMANCE CRITERIA	
Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1	**Prepare to evaluate fluid and thermodynamic parameters of refrigeration systems**	**1.1**	WHS/OHS procedures are obtained and implemented in accordance with workplace procedures
		1.2	WHS/OHS risk control measures and workplace

			procedures for work are followed
		1.3	The extent of evaluation is determined from specifications for the refrigeration system and discussed with relevant person/s
		1.4	Advice is sought from work supervisor to ensure work is coordinated effectively with others
		1.5	Tools, testing devices and materials required for work are obtained and checked for correct operation and safety in accordance with workplace procedures
2	**Evaluate parameters of refrigeration systems**	**2.1**	WHS/OHS risk control measures and workplace procedures for carrying out the work are followed
		2.2	Need to test and measure live work is determined in accordance with workplace procedures and WHS/OHS requirements
		2.3	Fluid and thermodynamic parameters are applied to the evaluation process
		2.4	Energy evaluation tests for each parameter under scrutiny are conducted in accordance with workplace procedures and test methods
		2.5	Fluid and thermodynamic parameter evaluation tests are conducted methodically and results/comments systematically noted
		2.6	Unplanned situations are dealt with safely with the approval of authorised person/s
		2.7	Evaluation is conducted without damage to systems, circuits, the surrounding environment and/or services using sustainable energy practices
3	**Report on evaluation of fluid and thermodynamic parameters of refrigeration systems**	**3.1**	WHS/OHS work completion risk control measures and workplace procedures are followed
		3.2	Worksite is cleaned and made safe in accordance with workplace procedures
		3.3	Results of fluid and thermodynamic parameters evaluation are documented for use in design work
		3.4	Energy evaluation report is forwarded to appropriate

	person/s for endorsement in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Evaluating and reporting fluid and thermodynamic parameters must include at least the following:	• two types of refrigeration systems

Unit Mapping Information

This unit replaces and is equivalent to UEENEEJ165A Evaluate thermodynamic and fluid parameters of refrigeration systems.

Links

Companion Volume implementation guides are found in VETNet - - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6