



Australian Government

Department of Education, Employment and Workplace Relations

RIIPGP203A Operate compressors

Release: 1

RIIPGP203A Operate compressors

Modification History

Not applicable.

Unit Descriptor

This unit covers the operation of compressors in the metalliferous mining industry. It includes starting up compressors, monitoring and controlling compressors, changing compressor output, maintaining plant effectiveness, and shutting down compressors. Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Relevant information must be sourced prior to application of the unit.

Application of the Unit

This unit is appropriate for those working in an operational role at worksites within:

- Metalliferous mining

Licensing/Regulatory Information

Refer to Unit Descriptor.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

<p>Elements describe the essential outcomes of a unit of competency.</p>	<p>Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.</p>
--	---

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Start-up compressor	1.1. Access, interpret and apply <i>compliance documentation</i> relevant to the work activity 1.2. Plan and prepare for <i>compressor</i> operation 1.3. Perform pre-start-up checks 1.4. Start-up <i>individual items of equipment</i> and the entire compressor system 1.5. Start-up normally and after maintenance 1.6. Build pressure steadily with no surging 1.7. Stabilise compressor system to produce specified pressures and flows within minimum time
2. Monitor and control the compressor	2.1. Complete routine checks, logs and paper work 2.2. Recognise the signs of <i>potential and actual problems</i> 2.3. Take action to minimise the impact on safety, health, the <i>environment</i> and the business of potential and actual problems 2.4. Monitor temperatures and lubrication oil and take action as required 2.5. Trim plant to achieve required pressures and flows while maximising plant efficiency
3. Change compressor output	3.1. Predict the need to change compressor output to meet process requirements 3.2. Change compressor output as required 3.3. Manage changes smoothly and in a timely manner
4. Maintain plant effectiveness	4.1. Frequently and critically monitor all plant throughout shift 4.2. Use measured/indicated data and smell, sight, sound and feel as appropriate to monitor plant 4.3. Identify critical equipment/processes and tune their performance 4.4. Identify issues likely to impact on plant performance and take appropriate action 4.5. Predict impact of a change in one unit/area on other plant units/area and communicate

	<p>this to relevant people</p> <ul style="list-style-type: none">4.6. Test trips and alarms4.7. Prepare plant for maintenance/vessel entry as required4.8. Complete minor maintenance according to standard procedures4.9. Receive plant back from maintenance4.10. Prepare plant for the introduction of gas and operation
5. Shutdown compressor	<ul style="list-style-type: none">5.1. Determine type of shutdown required5.2. Give advanced warning of shutdown where possible5.3. Changeover individual items of equipment5.4. Shutdown individual items of equipment and the entire compressor system5.5. Shutdown in an emergency when required5.6. Reset trips and alarms after a shutdown5.7. Leave plant in a condition ready to restart5.8. Shutdown for maintenance when required

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes the ability to carry out the following, as required to operate compressors:

- apply legislative, organisation and site requirements and procedures for operating compressors
- distinguish between:
 - process gas
 - instrument
 - equipment (electrical/mechanical)
- maintain compressors
- identify causes of problems
- isolate problems to item of equipment

Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes knowledge of the following, as required to operate compressors:

- principles of compressor operation
- effects of temperature and compression ratio/the need for multi staging
- pressure/temperature relationships and effects on condensation (e.g. moisture and/or gas)
- control of output
- causes of, and remedies for surging
- methods of resolving problem

Evidence Guide

<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<p>Overview of assessment</p>	
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the performance criteria, required skills and knowledge and the range statement of this unit and include evidence of the following:</p> <ul style="list-style-type: none"> • knowledge of the requirements, procedures and instructions for operating compressors • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of compressor operation • working with others to undertake and complete the operation of compressors that meets all of the required outcomes • consistent timely completion of compressor operation that safely, effectively and efficiently meets the required outcomes
<p>Context of and specific resources for assessment</p>	<ul style="list-style-type: none"> • This unit must be assessed in the context of the work environment. Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills. • Assessment of this competency requires typical resources normally used in a resources and infrastructure sector environment. Selection and use of resources for particular worksites may differ due to the site circumstances. • The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job. • Customisation of assessment and delivery environment to sensitively accommodate

	<p>cultural diversity.</p> <ul style="list-style-type: none"> • Aboriginal people and other people from a non English speaking background may have second language issues. • Where applicable, physical resources should include equipment modified for people with disabilities. Access must be provided to appropriate learning and/or assessment support when required.
Method of assessment	<p>This unit may be assessed in a holistic way with other units of competency. The assessment strategy for this unit must verify required knowledge and skill and practical application using more than one of the following assessment methods:</p> <ul style="list-style-type: none"> • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> • implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes • consistent achievement of required outcomes • first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> • working with others to undertake and complete the operation of compressors
Guidance information for assessment	<p>Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.</p>

Range Statement

<p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.</p>	
<p>Relevant compliance documentation may include:</p>	<ul style="list-style-type: none"> • legislative, organisational and site requirements and procedures • manufacturer's guidelines and specifications • Australian standards • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
<p>Compressors may include:</p>	<ul style="list-style-type: none"> • reciprocating compressors • rotary compressors (e.g. screw, centrifugal) • and may be: <ul style="list-style-type: none"> • multistage • intercoolers • advanced lubrication systems
<p>Individual items of equipment may include:</p>	<ul style="list-style-type: none"> • pumps • utilities • heat exchangers and may also include other equipment as well as compressor itself • cooling towers
<p>Potential and actual problems may include:</p>	<ul style="list-style-type: none"> • surging • control of temperature • variations to feed
<p>The environment refers to environmental requirements that may include:</p>	<ul style="list-style-type: none"> • drainage • dust and fumes • emissions • hazardous chemicals • noise • run-off • spills • waste management and disposal • water quality

Unit Sector(s)

Processing

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.