

<b>Training Package</b>	Metal and Engineering (MEM05)			<b>HSC Requirements and Advice</b>
<b>Title</b>	<b>Use comparison and basic measuring devices</b>			
<b>Unit code</b>	<b>Competency field</b>	<b>Band</b>	<b>Unit weight</b>	<b>HSC Indicative Hours</b>
<b>MEM12001B</b>	Measurement	A	2	<b>10</b>

<b>Unit descriptor</b>	This unit covers sorting items using basic comparison measuring equipment, and maintaining the equipment.
<b>Prerequisites</b>	None
<b>Application of the competency</b>	Measurements are conducted in a production environment or at a work station. Work is undertaken autonomously or as part of teamwork. All comparative measurements are undertaken to standard operating procedures and to regulatory and legislative requirements.
<b>Related units</b>	None

### Evidence Guide

The evidence guide specifies the evidence required to demonstrate achievement in the unit of competency as a whole. It must be read in conjunction with the unit descriptor, performance criteria, range statement and the assessment guidelines for the Metal and Engineering Training Package.

<b>Overview of assessment requirements</b>	<b>Context of assessment</b>	<b>Interdependent assessment</b>	<b>Method of assessment</b>
A person who demonstrates competency in this unit must be able to use comparison and basic measuring devices.	This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.	This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with using comparison and basic measuring devices or other units requiring the exercise of the skills and knowledge covered by this unit.	Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Evidence Guide cont/d			HSC Requirements and Advice
Consistency of performance	Required skills	Required knowledge	Key Terms and Concepts
Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.	Look for evidence that confirms skills in: <ul style="list-style-type: none"> <li>• using device in accordance with standard operating procedures</li> <li>• storing and maintaining devices</li> <li>• using basic numeracy skills for undertaking comparison measurements</li> <li>• following oral instructions and written standard operating procedures.</li> </ul>	Look for evidence that confirms knowledge of: <ul style="list-style-type: none"> <li>• use and application of various comparison or measurement devices</li> <li>• procedures for the correct use of devices</li> <li>• procedures for maintaining and storing devices</li> <li>• hazards and control measures associated with conducting measurements, including housekeeping</li> <li>• safe work practices and procedures.</li> </ul>	<ul style="list-style-type: none"> <li>• basic arithmetic operations</li> <li>• basic measuring devices</li> <li>• checking and sorting items</li> <li>• comparison measuring devices</li> <li>• comparisons</li> <li>• imperial</li> <li>• measurements</li> <li>• metric</li> <li>• safe work practices and procedures</li> <li>• selection of basic and comparison measuring devices</li> <li>• standard operating procedures (SOP)</li> <li>• units of measurement</li> <li>• use, maintenance and storage of basic and comparison measuring devices.</li> </ul>

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
<p>1 Use <i>comparison</i> and/or <i>basic measuring devices</i></p>	<p>1.1 Measuring devices are identified and used to undertake required <i>comparisons</i> or measurements using standard operating procedures.</p>	<p>The range statement provides information about the context in which the unit of competency is carried out. The variables [in bold] and scope [dot points] cater for different work requirements, work practices and knowledge between States, Territories and the Commonwealth, and between organisations and workplaces. The range statement relates to the unit as a whole and provides a focus for assessment. Text in italics in the performance criteria is explained here.</p> <p>The following variables may be present and <i>may include</i>, but are not limited to, the examples listed under the scope. All work is undertaken to relevant legislative requirements, where applicable.</p> <p><b>Basic measuring devices</b></p> <ul style="list-style-type: none"> <li>• linear measuring devices measuring to within 1mm graduation – may include rules, tapes and retractable tapes.</li> </ul> <p><b>Comparison measuring devices</b></p> <ul style="list-style-type: none"> <li>• go/no-go devices, thread angle and taper gauges, temperature gauges, pressure gauges, measuring gauges and overlay indicators, templates, digital devices and pre-set verniers and micrometers.</li> </ul> <p><b>Comparisons</b></p> <ul style="list-style-type: none"> <li>• comparison of length, angle, size, temperature, pressure, weight, voltage, resistance and amperage.</li> </ul>	<p><b>Learning experiences for the HSC must address:</b></p> <p>Safe work practices and procedures.</p> <p>Hazard identification and risk control.</p> <p>Housekeeping/clean-up procedures with due consideration to occupational health and safety (OHS) and the environment.</p> <p>A basic knowledge of a range of comparison and basic measuring devices including:</p> <ul style="list-style-type: none"> <li>• name</li> <li>• characteristics</li> <li>• application</li> <li>• standard operating procedures (SOP) for correct use</li> <li>• limitations</li> <li>• hazard controls</li> <li>• maintenance/basic care and storage.</li> </ul> <p>A range of devices including:</p> <ul style="list-style-type: none"> <li>• comparison measuring <ul style="list-style-type: none"> <li>- projectors</li> <li>- dividers</li> <li>- go/no-go devices</li> <li>- gauges <ul style="list-style-type: none"> <li>▪ thread angle</li> <li>▪ taper</li> <li>▪ temperature</li> <li>▪ depth</li> <li>▪ pressure</li> <li>▪ measuring</li> <li>▪ volume</li> </ul> </li> <li>- overlay indicators</li> <li>- templates</li> <li>- digital devices</li> <li>- callipers <ul style="list-style-type: none"> <li>▪ vernier</li> <li>▪ inside/outside</li> <li>▪ jenny</li> </ul> </li> <li>- micrometers</li> <li>- tension wrench</li> </ul> </li> <li>• basic measuring</li> </ul>

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
			<ul style="list-style-type: none"> <li>- rule (metric and imperial)</li> <li>- tapes</li> <li>- retractable tapes.</li> </ul> <p>Consideration/s for the selection of comparison and basic measuring devices including:</p> <ul style="list-style-type: none"> <li>• skills/training</li> <li>• appropriateness for purpose</li> <li>• time</li> <li>• cost</li> <li>• limits and tolerances</li> <li>• job specification</li> <li>• work environment (production environment or workstation).</li> </ul> <p>Safe work practices for using tools and equipment including:</p> <ul style="list-style-type: none"> <li>• following SOP and manufacturer’s specifications before, during and after use</li> <li>• risk management (identifying hazards and implementing control measures)</li> <li>• correct manual handling</li> <li>• safe handling, application and storage of hazardous substances</li> <li>• appropriate use of personal protective equipment (PPE)</li> <li>• regular servicing and maintenance of tools and equipment</li> <li>• selection of appropriate tool for use</li> <li>• working with electricity in a safe manner</li> <li>• adequate ventilation</li> <li>• attaching appropriate safety guards where required.</li> </ul> <p>A range of comparisons including:</p> <ul style="list-style-type: none"> <li>• length</li> <li>• angle</li> <li>• size</li> <li>• temperature</li> <li>• pressure</li> <li>• weight</li> <li>• voltage</li> <li>• resistance</li> <li>• amperage.</li> </ul>
			Appropriate units of measurement.

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
	<p>1.2 Checking or sorting of items is undertaken using <i>comparison</i> and/or <i>basic measuring device</i> according to standard operating procedures.</p>		<p>Basic arithmetic operations to enable comparison measurements including:</p> <ul style="list-style-type: none"> <li>• addition</li> <li>• subtraction</li> <li>• multiplication</li> <li>• division.</li> </ul> <p>Identification and selection of appropriate comparison and basic devices and methods to perform a range of measurements applicable to the task/project in a manufacturing, engineering and related services industries workplace.</p>
<p>2 Maintain comparison and/or basic measuring devices</p>	<p>2.1 Basic care and storage is maintained to manufacturers' standards or standard operating procedures.</p>		<p><b>Learning experiences for the HSC must address:</b></p> <p>Issues relating to the storage of basic and comparison measuring devices including:</p> <ul style="list-style-type: none"> <li>• security</li> <li>• climatic effects</li> <li>• OHS considerations</li> <li>• stability</li> <li>• ease of access.</li> </ul> <p>Knowledge of methods by which comparison and basic measuring devices are stored and accessed.</p>