

**Specification of Competency Standards**  
**for the Manufacturing Technology Industry**  
**Unit of Competency**

Functional Area - Product Manufacturing

Title	Profile grinding
Code	106513L4
Range	This unit of competency is applicable to the production department of the corporation of tooling manufacturing industry. Practitioners should be capable to understand the knowledge of profile grinding, operate the CNC surface grinding and optical project grinding machines, carry out stone wash shaping on surface grinding, so as to carry out profile grinding
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Understand the techniques and technologies of profile grinding</p> <ul style="list-style-type: none"> <li>• Understand the relevant types, structures, size and applications of commonly used surface grinding fixtures, including magnetic chuck, universal vice and punch former etc Magnetic Chuck (Universal Vice) (Punch Former)</li> <li>• Understand the principles, aims and methods of stone wash</li> <li>• Understand the restrictions of applying stone wash machine to rectificate the grinding wheel to the appropriate shape</li> <li>• Understand the way to check and measure the puzzle wheel surfaces and maintenance/ repair method of profile surface /</li> <li>• Understand the types and applications of grinding cooling fluid</li> <li>• Understand the characteristics of grinding wheel, and the presentation methods of specifications and meaning, including abrasive, graininess, degree of combination, hardness, structure, shape and grinding wheel balance etc</li> <li>• Understand the limitations of the speed of grinding wheel and the caulation method of highest speed</li> <li>• Understand the formation principles and prevention methods of grinding internal stress</li> <li>• Understand the magnetic induction and demagnetization principle</li> <li>• Understand the principle of thermal expansion or contraction and its impacts on the precision of grinding</li> <li>• Understand the foundation principle of optical projection</li> <li>• Understand the structure, purpose, characteristics and precision of optical project grinding machines</li> <li>• Understand the structure and precision of CNC grinding machine</li> <li>• Understand the setting and optimization methods of parameters, such as the grinding speed and feed rate of CNC optical project grinding</li> <li>• Understand the common unusual conditions and causes of using surface grinding and optical project grinding machines to carry out profile grinding, and the solutions of problem</li> </ul> <p>2. Carry out profile grinding</p> <ul style="list-style-type: none"> <li>• Correctly use the fixtures and grip different shape of iron and non-ferrous metal workpiece</li> <li>• According to the engineering drawings, carry out stone wash for the front and side face of grinding wheel, such as angle, arc and shaped face</li> <li>• Set appropriate operating conditions to reduce the deterioration and risk of surface grinding machine when carrying out profile grinding</li> <li>• After using stone wash of surface grinding, carry out complex profile grinding, including Angular Grinding, Chamfer Grinding, V-Shaped Groove, sheet, Dovetail Groove and carry out tool grinding</li> </ul>

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	<ul style="list-style-type: none"> <li>• Operate optical project grinding machines to carry out profile grinding, such as hardware die punch</li> <li>• Adjust and optimize relevant parameters of optical project grinding machines</li> <li>• Compile CNC optical project grinding program and carry out processing</li> <li>• Handle all kinds of unusual circumstances of profile grinding, machines and grinding wheel</li> </ul> <p>3. Professional handling of profile grinding</p> <ul style="list-style-type: none"> <li>• Follow safety guidelines and related codes of practice of profile grinding (such as operation, inspection and preventive maintenance of grinding wheel), in accordance with the requirements of design drawings, specifications and production efficiency, carry out profile grinding by stone wash of surface grinding and optical project grinding machines</li> </ul>
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> <li>• Capable to carry out profile grinding by stone wash of surface grinding and optical project grinding machines</li> <li>• Capable to carry out CNC profile grinding programming</li> <li>• Capable to handle all kinds of unusual circumstances of profile grinding</li> </ul>
Remark	<p>Person who has the above knowledge and ability should also obtain the knowledge and ability of Surface grinding (106406L3) at the same time</p>