

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

Functional Area - Product Design and Development

Title	Plastic injection mould functional design
Code	106571L5
Range	This unit of competency is applicable to design and development departments of the corporations of Tooling Manufacturing Industry. Practitioners should be familiar with the principles of Plastic injection mould, and capable to carry out all aspects of functional design in accordance with the plastic injection mould assembly and structural design
Level	5
Credit	9 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Understand relevant knowledge of plastic injection mould functional design</p> <ul style="list-style-type: none"> • Understand the customer's requirements on appearance and functions, such as water injection method, ejection method, injection position and cooling method • Understand the principles of Heat Transfer and Heat distribution • Understand the relationships between product shape and plastic Specific Volume, Specific Heat Capacity, Viscosity and Plastic Flow • Understand the shape of plastic injection gate, ways of plastic injection, calculate the loss of pressure transmission coefficient, parting hole form and application methods • Understand the interrelationship of thickness & length ratio • Understand the types and specifications of surface treatment of the commonly used plastic injection moulds • Understand the impact of different methods of water gap and parting methods on appearance and functions of plastic products • Understand the relationship between plastics and runner shape • Understand the types, structures and application methods of hot runner • Understand the ejection principles and application methods of finished goods • Understand the principles of plastic flow filling • Understand the principles and application methods of mould temperature control system • Understand the principles, mould structure and functions of all kinds of Fluid-Assisted Injection Moulding Technology, such as Gas assisted Injection, Water assisted Injection and Mucell Injection • Recognise the commonly used types, structures, specifications and working principles of the commonly used equipment of plastic injection moulding <p>2. Carry out plastic injection mould functional design</p> <ul style="list-style-type: none"> • According to the plastic injection mould assembly and structural design, carry out all kinds of plastic injection mould functional design, including heat treatment, cooling system, plastic runner, gate, outtake, release device, lubrication device of slider, mould temperature control system, ejection device, hot runner system and gas assisted ejection system • Set the appropriate tolerance and processing, so as to reach the requirements of cumulative tolerance limits mould, sliding or fixed workpiece, and provide appropriate description of all workpiece drawing • Select the appropriate injection mould and all kinds of mould standard parts, such as Spring, Sleeve Ejector, Ejector, Slider, Positioning Lock, Ejector Guide Bushing and Sprue Bushing • According to different functional design requirements, select the appropriate die surface treatment • Communicate with internal and external customers and stakeholders and achieve consistent standards

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	<p>3. Professional handling of plastic injection mould functional design</p> <ul style="list-style-type: none">• Carefully consider elements of safety, risk, capacity, quality, environmental protection and cost etc, carry out plastic injection mould functional design and also meet all aspects of requirements
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none">• Capable to set the appropriate tolerance and processing in accordance with the plastic injection mould assembly and structural design, complete all kinds of plastic injection mould functional design• Capable to draw all workpiece drawing, provide appropriate instructions and ensure the content is accurate
Remark	