



**Australian Government**

# **MEM48008 Evaluate mould design and gating**

**Release: 1**

# MEM48008 Evaluate mould design and gating

## Modification History

Release 1. Supersedes and is equivalent to MSATCM403A Evaluate mould design and gating.

## Application

This unit of competency defines the knowledge and skills required to evaluate mould design, gating, running and feeding of castings (known as methoding) including understanding the solidification process and techniques to eliminate defects to meet specified quality requirements.

It applies where a technician will be required to examine a mould design and draw some conclusions as to the appropriateness of gating, running and feeding design, or alternatively make some recommendations as to design.

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

## Pre-requisite Unit

MEM48004 Interpret basic binary phase diagrams

MEM48005 Apply basic knowledge of casting operations

## Competency Field

Metallurgy

## Elements and Performance Criteria

| Elements                                                    | Performance Criteria                                                                                                                                                             |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i>            | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                           |
| 1. Determine job requirements                               | 1.1 Follow standard operating procedures (SOPs)<br>1.2 Comply with work health and safety (WHS) requirements at all times<br>1.3 Identify job requirements from work information |
| 2. Identify specification requirements for required casting | 2.1 Obtain all relevant job requirements and design specifications in accordance with workplace procedures<br>2.2 Identify and interpret drawing requirements and specifications |

| Elements                                                          | Performance Criteria                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i>                  | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                                                                                                                                         |
| 3. Evaluate proposed mould design for causes of potential defects | 3.1 Select running, gating and feeding principles and techniques relevant to the particular casting<br>3.2 Apply relevant scientific principles and techniques<br>3.3 Review placement and sizing of feeder heads<br>3.4 Calculate the size and number of feeder heads and gating for castings |
| 4. Report results                                                 | 4.1 Identify reporting requirements<br>4.2 Prepare report to meet requirements<br>4.3 Circulate and file report to procedures                                                                                                                                                                  |

## Foundation Skills

### Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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

## Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

|                                                                                                  |                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Calculation of size and number of feeder heads and gating includes one or more of the following: | <ul style="list-style-type: none"> <li>ferrous or nonferrous alloys</li> <li>pressurised or unpressurised gating systems</li> <li>solidification rate of the material</li> <li>thermal centre of the casting.</li> </ul> |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Unit Mapping Information

Release 1. Supersedes and is equivalent to MSATCM403A Evaluate mould design and gating.

## Links

The MEM Metal and Engineering Training Package Companion Volume Implementation Guide is available from VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>