



Australian Government

MEM07022 Program CNC wire cut machines

Release: 2

MEM07022 Program CNC wire cut machines

Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM07022 Program CNC wire cut machines (Release 1).

Release 1. Supersedes and is equivalent to MEM07022C Program CNC wire cut machines.

Application

This unit of competency defines the skills and knowledge required to write and trial a program for computer numerically controlled (CNC) wire cut machines. Technical difficulties are resolved in consultation with appropriate technical advisers.

Where the selection and use of power tools/hand held operations is required unit MEM18002 Use power tools/hand held operations should also be selected.

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

Band: B

Unit Weight: 2

Pre-requisite Unit

MEM07015	Set computer controlled machines and processes
MEM07016	Set and edit computer controlled machines and processes
MEM07018	Write basic NC and CNC programs
MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements
MEM12024	Perform computations
MEM13015	Work safely and effectively in manufacturing and engineering
MEM14006	Plan work activities
MEM16006	Organise and communicate information
MEM18001	Use hand tools

Plus, one or more of the following including their prerequisites:

MEM07005	Perform general machining
MEM07028	Operate computer controlled machines and processes

Competency Field

Machine and process operations

Elements and Performance Criteria

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1 Determine job requirements	1.1 Follow standard operating procedures (SOPs) 1.2 Comply with work health and safety (WHS) requirements at all times 1.3 Use appropriate personal protective equipment (PPE) in accordance with SOPs 1.4 Identify job requirements from specifications, drawings, job sheets or work instructions
2 Write CNC wire cut program	2.1 Interpret engineering drawings to define optimum tool path geometry 2.2 Program tool path using advanced operations, canned cycles and sub-routines or other appropriate sub-routines within system 2.3 Write program in standard code format, and confirm and edit, as necessary 2.4 Store program in accordance with SOPs 2.5 Produce operation sheets to specification in accordance with SOPs which includes appropriate Australian Standards, where required
3 Trial CNC wire	3.1 Download program and select machining parameters

Elements describe the essential outcomes.

cut program

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 3.2 Prepare machine, load and align work piece, establish datum and reference points
- 3.3 Operate machine in appropriate mode to test and prove program and work piece positioning
- 3.4 Check finished components for conformance with specifications

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

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, accessibility of the item, and local industry and regional contexts) are included.

Programming includes one (1) or more of the following:

- 2 axis tool paths
- 4 axis conical cutting
- auto multi-cavity work pieces

Program includes setting of one (1) or more of the following:

- speeds
- tolerances
- taper angles
- macros
- nesting tool paths
- chained linear tool paths
- differential profiles

Machining parameters include one (1) or more of the following:

- wire offset
- wire speed
- power settings

Unit Mapping Information

Release 2. Supersedes and is equivalent to MEM07022 Program CNC wire cut machines (Release 1).

Release 1. Supersedes and is equivalent to MEM07022C Program CNC wire cut machines.

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for MEM07022 Program CNC wire cut machines

Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM07022 Program CNC wire cut machines (Release 1).

Release 1. Supersedes and is equivalent to MEM07022C Program CNC wire cut machines.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting specifications, charts, lists, drawings and other applicable reference documents in programming computer numerically controlled (CNC) wire cutting machines
- calculating coordinates of all relevant points on the part or product to be produced
- writing a CNC wire cut program tool path using advanced operations, canned cycles and sub-routines
- storing the program and producing an operations sheet in accordance with SOPs for the programs use
- downloading program and setting parameters
- loading, aligning and operating machine to test the program
- checking components or products for conformance to specifications.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- operations to be controlled by the program to be written
- tool path(s) to be followed when producing the part or product and the sequence of operations to be programmed with reasons for selecting the chosen tool path(s) and sequence of operations
- techniques for determining the zero point of a wire cut machine
- canned cycles and sub-routines accessible in the particular CNC wire cut machine and the application of each canned cycle and sub-routine available
- canned cycles and/or sub-routines to be used in the CNC wire cut program and reasons for selecting the chosen canned cycles and/or sub-routines
- standard codes used in the writing of CNC wire cut programs and their application

- procedures for writing and storing CNC wire cut programs in standard code format
- procedures for completing CNC wire cut operation sheets and the information to be included
- procedures for downloading and verifying CNC wire cut programs
- machining parameters that may be entered into the machine controller and the effect of varying the machining parameters on the product or part produced
- work holding fixtures/devices/tools and procedures for mounting work holding fixtures/devices tools
- location of the required work holding fixtures/devices/tools relative to the machine datum or zero
- purpose of datum setting
- pre-start checks and the purpose and function of safety features and equipment of the CNC wire cut machine
- machine mode appropriate to the testing and proving of the CNC wire cut program and the checking of the position of the work piece and procedures to be followed when using the machine in this mode
- relative position of the work piece to the machine datum or zero
- specifications of the part or product and measuring equipment/techniques to be used to check for conformance to specification.

Assessment Conditions

- Assessors must:
 - have vocational competency in programming CNC wire cutting machines at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Assessment must occur in a functioning workplace. Where assessment in the workplace would be unsafe, impractical or threatens the environment, assessment must occur in a sufficiently rigorous simulated environment that reflects the circumstances that would be experienced in a functioning workplace. Assessment must cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Links

Companion Volume implementation guides are found in VETNet -

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

