

<b>Title</b>	<b>Inspect parts using magnetic particle inspection</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>10</b>

<b>Purpose</b>	<p>This unit standard is for people seeking certification at Surface Methods level 1 (SM1) from the Certification Board for Inspection Personnel (CBIP) to meet regulatory obligations of surface methods operators.</p> <p>People credited with this unit standard are able to: prepare for inspection of the part; inspect the part using magnetic particle inspection; and report on the inspection.</p>
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<b>Classification</b>	Mechanical Engineering > Mechanical Engineering Inspection
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<b>Available grade</b>	Achieved
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**Explanatory notes**

- 1 **References**  
 Health and Safety at Work Act 2015 and supporting regulations.  
 ISO 9712:2012, *Non-destructive testing - Qualification and certification of NDT personnel*.
  
- 2 **Definitions**  
*Accepted industry practice* refers to approved codes of practice and standardised procedures accepted by the wider mechanical engineering industry sectors as examples of best practice.  
*Contract* refers to customer instructions and the requirements of standards, codes and specifications.  
*Part* refers to structures such as buildings and bridges, machinery, transport equipment including aircraft, and pressure equipment.  
*Workplace procedures* refer to procedures used by the organisation carrying out the work and applicable to the tasks being carried out. They may include but are not limited to – standard operating procedures, safety procedures, equipment operating procedures, codes of practice, quality management practices and standards, procedures to comply with legislative and local body requirements.
  
- 3 **Range**  
 This unit standard covers new work, modifications, and repairs.
  
- 4 **Assessment information**
  - a All on-job activities must comply with applicable workplace procedures and must be consistent with accepted industry practice.

- b The inspection procedure(s) shall meet the requirements of a recognised code or standard such as the American Society for Mechanical Engineers (ASME) Section V, Art 7.
- c Evidence requirements of this unit standard require near vision acuity at the level of N5 at 380 mm as outlined in ISO 9712, *Non-destructive testing - Qualification and certification of personnel*.
- d Certification requirements in addition to the competencies outlined in this unit standard are available from CBIP, PO Box 8056, New Plymouth, Email [cbip@cbip.co.nz](mailto:cbip@cbip.co.nz).

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## Outcomes and evidence requirements

### Outcome 1

Prepare for inspection of the part.

#### Evidence requirements

- 1.1 Inspection requirements are established from supervisor and contract.  
  
Range powder type – black, fluorescent, colour, wet and/or dry; magnetisation – permanent magnet, electro-magnetic yoke, bench machine.
- 1.2 Equipment and consumables are selected and set up for inspection in accordance with the manufacturer's instructions.  
  
Range materials, tools, safety equipment, ultra violet (UV) light, cleaner, cleaning materials, test pieces, contrast paint.
- 1.3 Preparation of the part is carried out.  
  
Range preparation may include but is not limited to – cleaning, verifying part condition, part identification.

### Outcome 2

Inspect the part using magnetic particle inspection.

#### Evidence requirements

- 2.1 Part is magnetised.  
  
Range magnetising methods may include – alternating current (AC), direct current (DC), permanent magnet; longitudinal, circular, induction.
- 2.2 Application of particles to part is carried out.  
  
Range application methods include – dry, wet, brush, dip, flow, spray.
- 2.3 Defects are located by examination of the part.

Range defect types may include – relevant, non relevant, false indications.

2.4 Alternating current and/or direct current is used to demagnetise the part.

2.5 Post inspection actions are completed and the inspection area is left ready for the next inspection.

Range post inspection activities may include but are not limited to – cleaning marking, storage, dispatch.

### Outcome 3

Report on the inspection.

### Evidence requirements

3.1 Results are classified, interpreted and documented to meet the contract requirements.

3.2 Inspection report(s) is completed to meet the contract requirements.

<b>Planned review date</b>	31 December 2021
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### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 July 1999	31 December 2018
Review	2	15 September 2016	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0013
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

### Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMRs). The CMR also includes useful information about special requirements for organisations wishing

to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

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### **Comments on this unit standard**

Please contact Competenz [qualifications@competenz.org.nz](mailto:qualifications@competenz.org.nz) if you wish to suggest changes to the content of this unit standard.