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|  | <b>MRAT<br/>012</b>         | <b>Cutting and shaping metal<br/>by hand</b>                                                             | <b>Applicable to:</b><br>saws for metal;<br>files;<br>cold chisels | <b>See also:</b> |
|                                                                                  | <b>Process(es) covered:</b> | The use of hacksaws to cut metal.<br>The use of cold chisels to cut metal.<br>The use of files on metal. |                                                                    |                  |

### Control Measures

- With all of the tools covered by this risk assessment, give inexperienced users appropriate instructions in their use.
- When using a hacksaw or junior hacksaw to cut metal, or when using a cold chisel, the work should be held in a metal-work vice. Check the head of the chisel for burrs which should be removed using a suitable grinding machine. Wear eye protection when using a cold chisel to cut metal.
- When sawing work that is too large to fit into a suitable vice, hold the work as securely as possible, with the aid of several G-clamps. Take care to ensure that at no time the saw is cutting towards any part of the body of the operator, or any assistant who may be holding the work.
- Check wooden file handles regularly for tightness or for splits and replace when necessary. Plastic handles are usually more robust and are less likely to work loose. Instruct students to seek assistance from a teacher or technician should they find that a file handle is loose.

### Immediate Remedial Measures:

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| Cuts                           | If cuts are minor, ie, of a sort which casualties would normally treat themselves, the wound should be washed clean and a small, sterilised dressing applied by the casualty.                                                                                                                                                                                                                                                                                                                                                      |
| Severe cuts                    | Apply pressure on or as close to the cut as possible, using fingers or a pad of cloth. Leave any embedded large bodies and press round them. Lower the casualty to the floor and raise the wound as high as possible. Protect yourself from contamination by blood. Call 111 and seek medical attention.                                                                                                                                                                                                                           |
| Impact injury                  | Rest the injured part; apply ice to reduce the bruising and pain; attention from a first aider may be required.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| A particle could be in the eye | Tell the casualty not to rub the eye, sit him/her down facing the light with the head leaning back. Stand behind the casualty to look for the particle in the eye. If it is over the iris or pupil, DO NOT ATTEMPT TO MOVE IT. Tell the casualty to hold a gauze pad over the eye and close the other one. Send for an ambulance to take the casualty to hospital.<br><br>If the particle is visible over the white of the eye, the corner of a moistened handkerchief can be used to remove it. Otherwise send for a first aider. |

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| <b>Storage</b> | Store hand tools at a height appropriate for safe collection by the students. The storage system should be such that it is easy to check that all tools have been returned. In some situations it might be considered necessary to lock the cupboard(s) containing hand tools. |
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| <b>Disposal</b> |  |
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## Risk Assessment

### Hazards:

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| Cuts to user<br>Eye injury<br>Impact injury | <p>Incorrect or careless use of a hacksaw can cause cuts. Poor holding of the work can cause saws to slip and cause cuts. Handles of files may work loose from the tang and cause injury. Wooden file handles may split allowing the tang to pierce the palm of the hand.</p> <p>Prolonged use of a cold chisel can cause a burr to occur on its head. In extreme cases, the end of the cold chisel will 'mushroom' over. Striking this burr at an angle could cause chips of metal to fly off.</p> <p>The hammer may cause impact injury if used inaccurately.</p> |
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### Risks:

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| Cuts to user  | The risk of cuts is greater if the saw blade is not fitted correctly and if the vice or clamp is inappropriate for the task. Old file handles present a greater risk than new. |
| Eye injury    | The use of excessive force because the chisel is blunt increases the risk of chips of metal flying. Injury from burrs is rare.                                                 |
| Impact injury | Novices are quite likely to hit their fingers with a hammer while attempting to use a cold chisel, but the resulting injury is usually trivial.                                |

### Further Information:

- Only suitably trained adults should sharpen cold chisels and remove of burrs .