

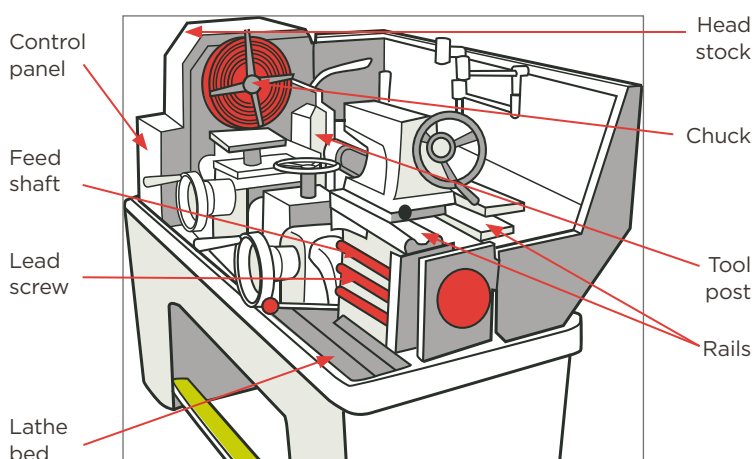
## FACT SHEET

# METAL TURNING LATHES

**Metal turning lathes, particularly centre or engine lathes, are commonly used for machining metal parts.**

A workpiece secured in a chuck is turned against a tool which cuts metal from the workpiece. Parts are created by turning the workpiece in one or both ends of the lathe, and changing its shape using tools with specific cutting edges.

**FIGURE 1: METAL TURNING LATHE**



### HAZARDS:

- > Heavy lifting
- > Contact, impact or entanglement from moving parts/ loose objects
- > Contact with metal chips or swarf
- > Contact with liquid coolant
- > Leaking hydraulic hoses
- > Inappropriate tooling and polishing techniques
- > Noise
- > Slips, trips & falls
- > Contact, impact or entanglement from unexpected movement (during maintenance, cleaning & repairs)

### PPE:



### TASK - LOAD & UNLOAD

#### Hazard

Heavy lifting



#### Harm

> Strain injury



#### Controls

- > USE a mechanical lifting aid when necessary.
- > DO NOT operate the lathe during loading and unloading.

## TASK –SECURE THE WORKPIECE & MAKE THE CUT

| Hazard   | Harm  | Controls  |
|--|---|---|
| Contact, impact or entanglement from moving parts/ loose objects | <ul style="list-style-type: none"> <li>&gt; Deep cuts or amputation</li> <li>&gt; Bruising</li> <li>&gt; Fractures</li> </ul> | <ul style="list-style-type: none"> <li>&gt; ENCLOSE parts (eg. Chuck keys, tools or swarf) in interlocked guards to avoid being hit.</li> <li>&gt; USE the appropriate chuck for the workpiece.</li> <li>&gt; KEEP the headstock free of loose items.</li> <li>&gt; AVOID wearing loose clothing, jewellery or gloves - they increase the risk of entanglement.</li> <li>&gt; PLACE lathe controls to AVOID reaching through the work zone.</li> <li>&gt; Workpieces SHOULD NOT extend beyond the headstock of the lathe. If they do, adequate support MUST be provided.</li> </ul> |

Moving parts can include:

- > drive gears
- > chucks/chuck keys
- > lead and feed screws
- > tools or swarf
- > oversized or inadequately secured workpieces.

Chuck keys can be spring loaded to eject when the operator's hand is removed. The interlocked guard over the chuck cannot close until the key is removed.

|                                   |   |   |
|-----------------------------------|---|---|
| Contact with metal chips or swarf | <ul style="list-style-type: none"> <li>&gt; Burns or skin damage</li> </ul> | <ul style="list-style-type: none"> <li>&gt; KEEP chips of metal contained.</li> </ul> |
|-----------------------------------|---|---|

## OTHER (NON-MECHANICAL) HAZARDS

| Hazard                      | Harm  | Controls   |
|-----------------------------|---|--|
| Contact with liquid coolant | <ul style="list-style-type: none"> <li>&gt; Breathing difficulties and skin damage</li> </ul>   | <ul style="list-style-type: none"> <li>&gt; ENSURE that cooling fluids and lubricants are:               <ul style="list-style-type: none"> <li>&gt; CONTAINED to prevent harm</li> <li>&gt; TREATED or REPLACED in accordance with manufacturer's instructions.</li> </ul> </li> </ul>  |
| Leaking hydraulic hoses     | <ul style="list-style-type: none"> <li>&gt; Leakages may penetrate skin</li> <li>&gt; Hand pain</li> <li>&gt; Tissue and muscle damage</li> <li>&gt; Puncture wounds</li> </ul> | <ul style="list-style-type: none"> <li>&gt; Leaking oil, or bulging or abraded hose walls, MUST have faulty parts replaced.</li> <li>&gt; DO NOT use hands or fingers to detect hydraulic oil leaks.</li> <li>&gt; If oil seeps onto anyone's skin, or someone working near hydraulic oil under pressure thinks they were bitten by an insect, they MUST be TAKEN to hospital, with full information presented to medical staff.</li> <li>&gt; APPLY a programme preventive maintenance (hydraulic hoses and hydraulic hose couplings).</li> </ul> |

Entanglement from inappropriate tooling and polishing techniques with emery paper



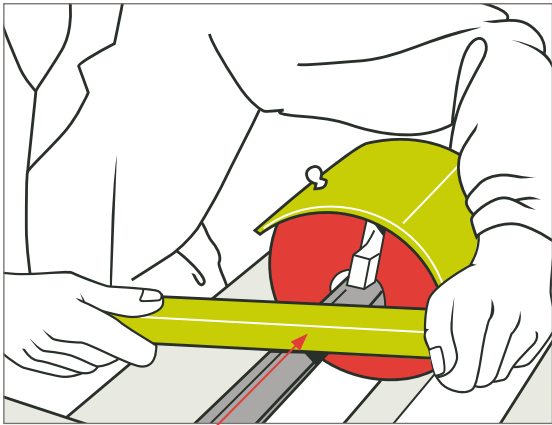
- > Cuts
- > Crushing injuries



- > AVOID wearing loose clothing, jewellery or gloves - they increase the risk of entanglement.
- > Emery paper MUST be securely held by the ends - DO NOT wrap around hands or all the way around the workpiece.

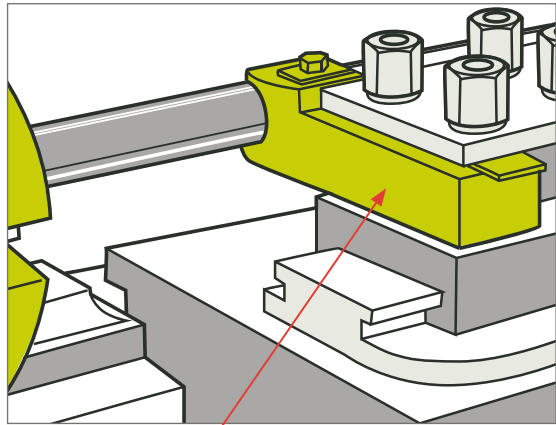
Tools MUST be buffed and polished. If they have scratches or gashes in them, the metal is more likely to catch and tear as it is spinning.

**FIGURE 2: EMERY PAPER IS SECURED TO A STRONG STICK**



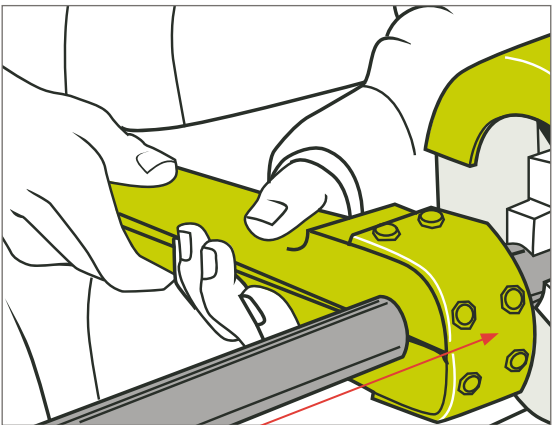
Emery paper is secured to a strong stick

**FIGURE 3: EMERY PAPER IS SECURED TO THE TOOL POST**



Emery paper is secured to a tool post

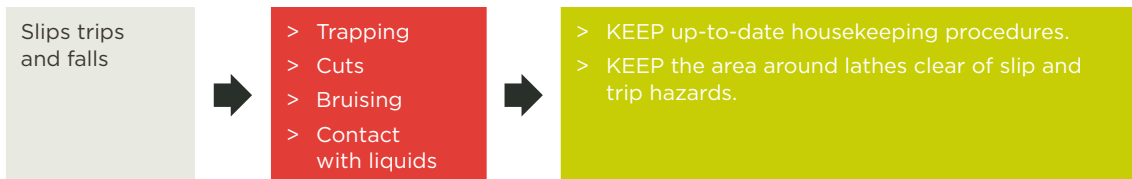
**FIGURE 4: EMERY PAPER IS SECURED IN A "NUTCRACKER"**



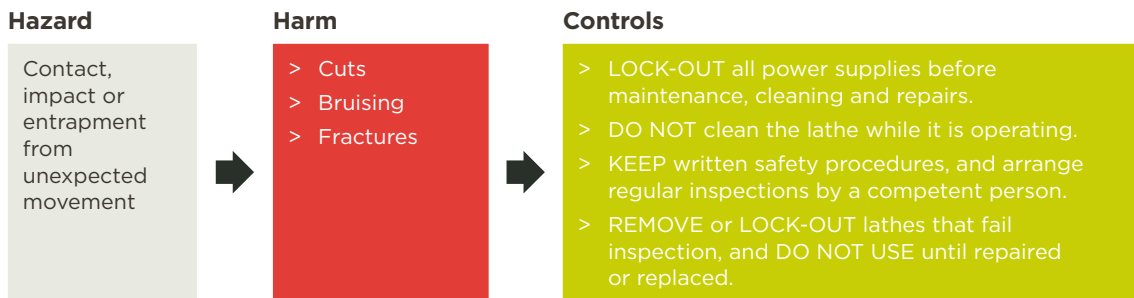
Emery paper is secured in a "nutcracker"



A safe noise level over an eight hour day is 85dB(A). A metal turning lathe may exceed this noise intensity. Hydraulic pumps can also be noisy.



## TASK – MAINTENANCE, CLEANING & REPAIRS



References, current standards and further information can be found on the Safe Use of Machinery project page at: [www.worksafe.govt.nz](http://www.worksafe.govt.nz)

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