

## SAFETY ALERT

# Safe use of hand-held cutting saws

This alert reminds persons conducting business or undertaking (PCBUs) and workers using hand-held cutting saws, in particular saws used to cut concrete storm water pipes, to avoid cutting with the upper quadrant of the blade and ensure that the object being cut does not move.

### Background

In a recent incident, a worker was severely injured when he lost control of a hand-held concrete saw, resulting in it striking him on the shoulder and cutting his neck.

When a hand-held saw is rotating, reactive forces sometimes occur. It is a well known hazard when using these saws. The powerful force used by the operator can cause problems. If the blade slows or stops due to frictional contact, or from pinching or binding, a reactive force can occur instantly and cause the operator to lose control of the saw. It can result in a serious or fatal injury.

Generally, cutting with the lower half of the blade causes the saw to push forward, while cutting with the upper half of the blade forces the saw up and back towards the operator. This kickback is difficult to control.

### Contributing factors

Preliminary findings indicate that the operator did not position supports under the pipe he was cutting. Positioning the pipe on supports would have allowed the pipe to be chocked then rolled. It would have enabled a gradual and systematic cut. Instead, the operator chocked the pipe and attempted a single cut.

When an object like a pipe is cut in half with a single cut, rather than being docked in small sections, the risk of kickback increases. The blade is more likely to trap if the object moves or sags while being cut.

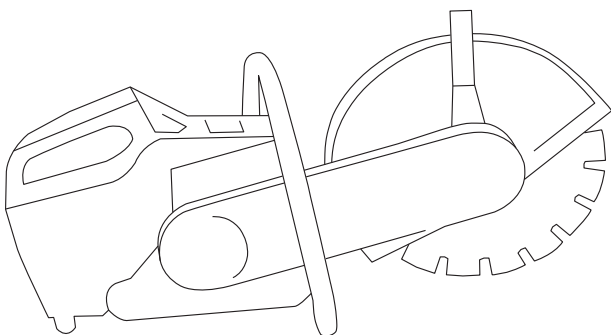


Figure 1 – Petrol powered concrete saw with diamond blade.

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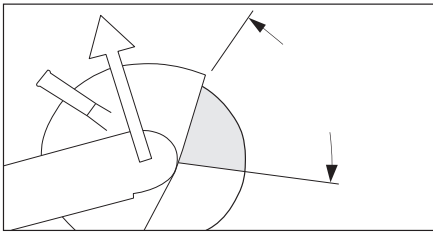
## Action required

- Operators must be given training and instruction on the safe use of hand-held concrete saws, including:
  - how to hold the saw firmly with both hands, maintain good balance and footing at all times, and avoid using it in awkward positions
  - how to position the saw in such a way that they are neither bending over nor standing directly behind the blade, especially when the guard is pulled back towards the top of the blade
  - not over-reaching, or holding the saw above the line of the shoulder
  - not cutting objects for which an abrasive blade is not intended
  - not using the saw to pry or shovel away objects.
- Operators must be competent in using a hand-held concrete saw – they should be regularly assessed.
- Only use diamond and composite abrasive blades that are ‘fit for purpose’ – if the wheel is damaged, wobbles or has abrasive material on its sides, don’t use it.
- Never use tooth blades of any sort – they increase the risk of thrown tips, reactive forces and kickback.
- The guard should be designed to prevent cutting with the front and upper quadrant of the blade – don’t pull the guard beyond the limit stop.
- Position the object so that the cut does not close and pinch the blade, especially in the upper quadrant, and don’t make a cut that causes the blade to bind.
- Use wet-cutting when possible – the water acts as a lubricant, reduces reactive forces and limits dust and fumes.
- Reduce pressure on the saw as the cut nears its end – too much pressure may cause loss of control, particularly if the blade strikes a foreign object and shatters.
- Align the wheel with the cut and gently re-enter the cut – don’t roughly push the blade into the cut as it may cause the blade to bind, and don’t twist the blade at an angle.
- Ensure the object:
  - is fully supported – eg place pipes on timber supports
  - is secured so that it cannot roll or slip away – eg chocked
  - does not vibrate
  - use timber wedges to prevent cut from closing.
- Operators should avoid long-term, repetitive use of a hand-held saw.
- Operators must wear appropriate personal protective equipment (PPE) – eg mask, goggles and hearing protection.
- Anyone assisting the operator to wet down and rotate the pipe must also be provided with information, instruction and training on the activity they are undertaking, and they must wear appropriate PPE.
- A safe system of work must ensure that no-one is exposed to any risks when working in the vicinity of the saw – eg establish an exclusion zone, with clearly defined physical barriers and signage, when the saw is in use.

## Further information

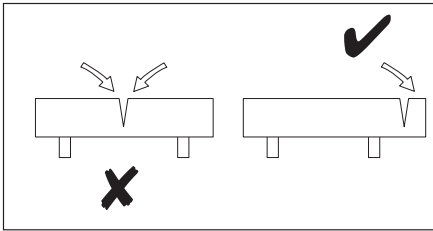
The *Work Health and Safety Act 2011* (WHS Act) requires a person conducting a business or undertaking to ensure, so far as is reasonably practicable, that safe systems of work are provided and maintained and that all workers are provided with the necessary information, training, instruction or supervision.

For more information, call WorkCover NSW on **13 10 50** or visit [workcover.nsw.gov.au](http://workcover.nsw.gov.au)



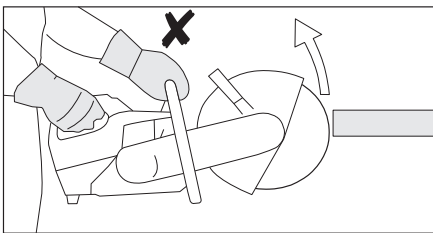
**Figure 2**

Kickback occurs when the cut-off machine is suddenly thrown up and back in an uncontrolled arc towards the operator.



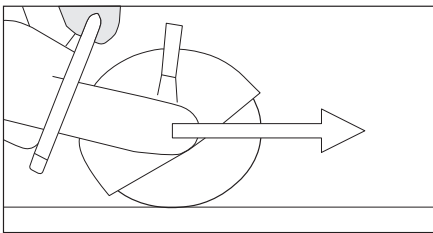
**Figure 3**

Always be aware that the object to be cut may move and other factors may cause the cut to close and jam the cutting wheel.



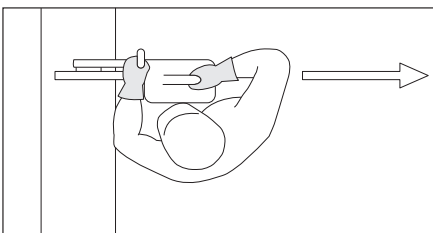
**Figure 4**

Do not use the upper quarter of the cutting wheel for cutting. The cutting wheel must be introduced into the cut with extreme care, without twisting and without pushing.



**Figure 5**

The machine pulls forward, away from the user, when the cutting wheel touches the object to be cut from above.



**Figure 6**

Do not stand in line with the cutting wheel.

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Information on the latest laws can be checked by visiting the NSW legislation website ([www.legislation.nsw.gov.au](http://www.legislation.nsw.gov.au)).

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 WorkCover NSW, 92-100 Donnison Street, Gosford, NSW 2250  
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