WORKSAFE NEW ZEALAND | MAHI HAUMARU AOTEAROA

HEALTH & SAFETY AT WORK ACT · HSWA

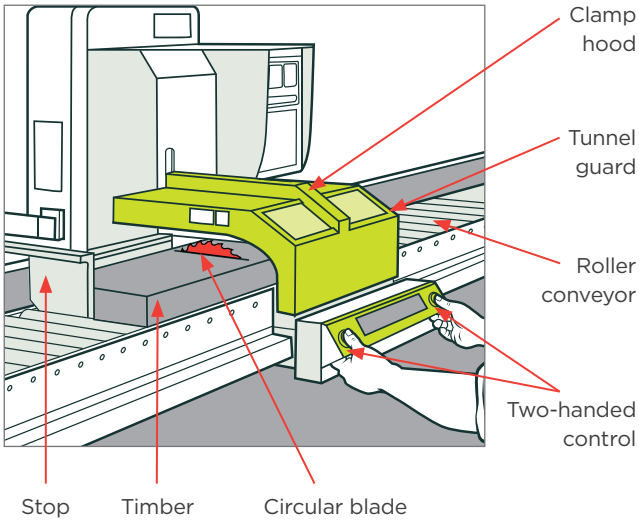
FACT SHEET

RISE AND FALL SAWS

A rise and fall saw follows a cycle of operations until the cut is complete. A clamp holds timber against the table, while a circular blade lifts to cut through it. Once the cut is complete, the blade retracts, the clamp lifts, and the timber can be moved, ready for the next cycle.

A rise and fall saw is used to cut knots and other imperfections from lengths of timber, as well as cutting timber for items like pallets and packing cases.

FIGURE 1: RISE AND FALL SAW



HAZARDS:

- Contact with clamp
- Contact with blade
- Noise
- Dust
- Slips, tripsand falls
- Contact with exposed blades (during maintenance, cleaning and repairs)

PPE:

TASK – SECURE AND CUT TIMBER

Cutting cycles can start by accident. Blades running down to stop turning after a cycle will present a hazard if access to them is possible before they stop turning.

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Hazard	Harm	Controls
Contact with clamp	> Trapped hand > Crush injuries	> CLOSE OFF the tunnel to within 10 mm above and on the sides of the timber being cut. > The tunnel guard must be no further than 6 mm away from the clamping hood and must not create a trapping point.
Contact with blade	> Deep cuts or amputation	> FIX guarding to prevent access to the blade. > REPLACE damaged guards. > USE two-hand control to ensure that both hands are removed from the point of operation. > USE a push stick or the following piece of timber to clear timber in the tunnel. > COVER pedals to prevent accidental operation.

OTHER (NON-MECHANICAL) HAZARDS

Hazard	Harm	Controls
Noise	> Hearing damage or loss > Discomfort/ ringing in the ears	> REDUCE noise levels by isolating machines or enclosing within noise barriers. > ASSESS noise levels. > ARRANGE hearing screenings. > ALWAYS WEAR hearing protection.
Dust	> Eye irritation or damage > Breathing problems, lung damage or cancer > Worsening of existing health problems	> USE dust extraction equipment to minimise dust getting in the operator's breathing zone. > ALWAYS WEAR eye protection. > ALWAYS USE respiratory protection.
Slips, trips and falls	> Trapping > Cuts > Bruising	> KEEP up-to-date housekeeping procedures. > KEEP the area around saws clear of slip and trip hazards.

TASK – MAINTENANCE, CLEANING & REPAIRS

Hazard	Harm	Controls
Contact with exposed blades	> Deep cuts or amputation	> LOCK-OUT all power supplies before maintenance, cleaning and repairs, or adjusting blades and guards. > ENCLOSE saw blades in a guard to prevent access until the blade stops moving.

Blades may be exposed when operators open the cabinet beneath the saw table for cleaning or blade replacement.

FIGURE 2: EXAMPLE OF LONGER TUNNEL GUARD

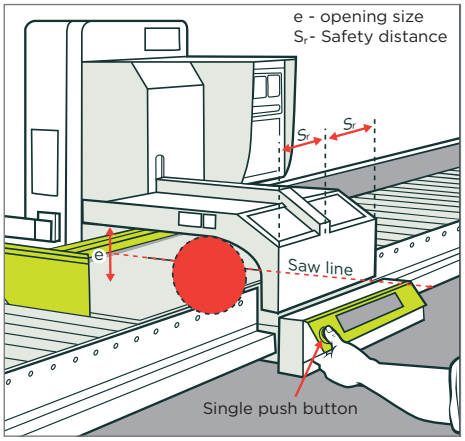


FIGURE 3: EXAMPLE OF SHORTER TUNNEL GUARD

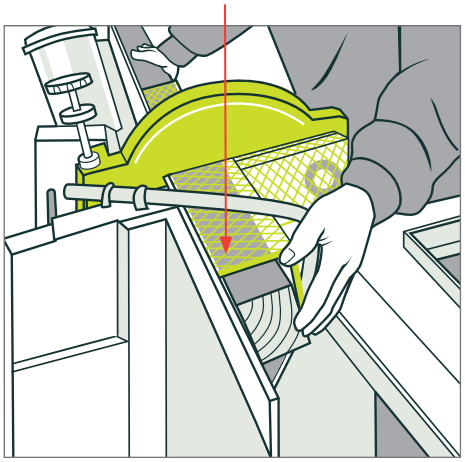
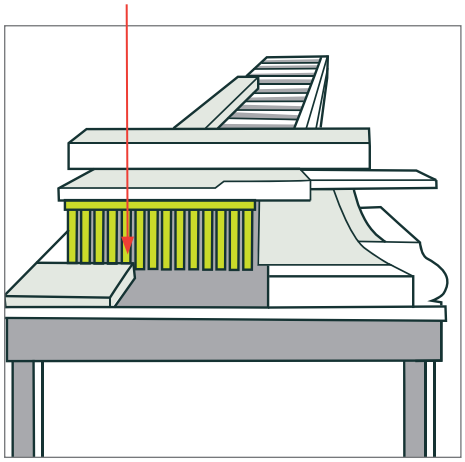
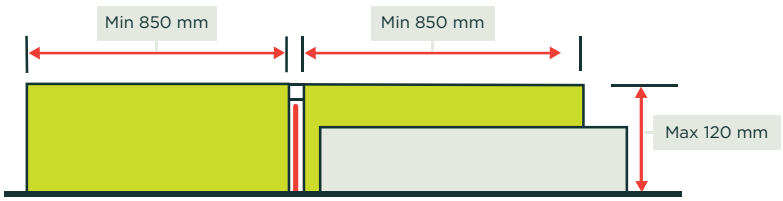


FIGURE 4: FINGER GUARD (OUT-FEED ONLY)



IN-FEED/OUT-FEED OPTIONS

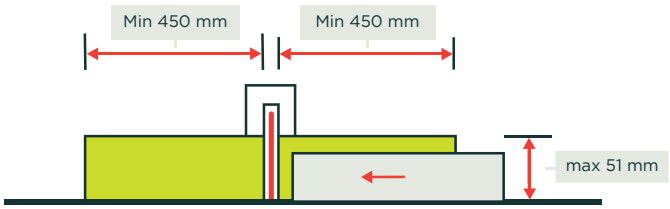


Tunnel Guard – Option A (refer to figure 2)

> Minimum tunnel guard length should be no less than 850 mm.

> Maximum safe gap should not be more than 120 mm.

> This option complies with AS/NZS 4024.1 and AS 1473.3.



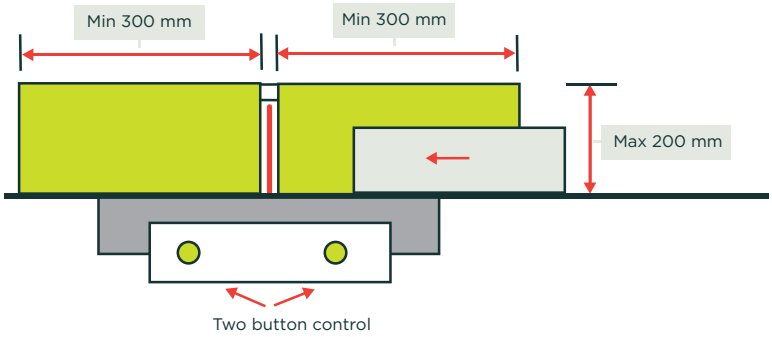
Tunnel Guard – Option B (refer to Figure 3)

Only use this option if option A is not practicable.

> Minimum tunnel guard length should be no less than 450 mm.

> Maximum safe gap should not be more than 51 mm.

> This option does not comply with AS/NZS 4024.1 or AS 1473.3; however, it does comply with WorkSafe's Ergonomics of Machine Guarding Guide which allows guarding to meet minimum requirements where other options are not practicable in a particular operation, eg manual feed or cutting short pieces.



Tunnel Guard – Option C (refer to Figure 1)

If options A and B are not practicable, this guarding option with two-hand control may be used.

> A fixed or movable guard interlocked with the saw blade rise and fall may be used.

> Operations should be restricted to a single operator.

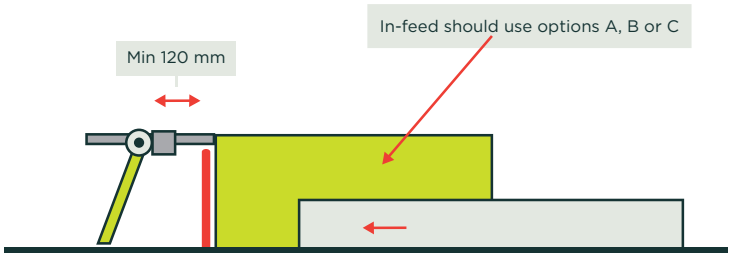
> Use both hands together to operate the saw blade control (anti-tie down type is required in Standard AS 4024.2601).

> Minimum tunnel guard length should be 300 mm.

> Maximum safe gap should not be more than 200 mm.

> This option complies with AS/NZS 4024.1 series and AS 1473.3.

If the above options are not practicable, then options D and E may be considered.



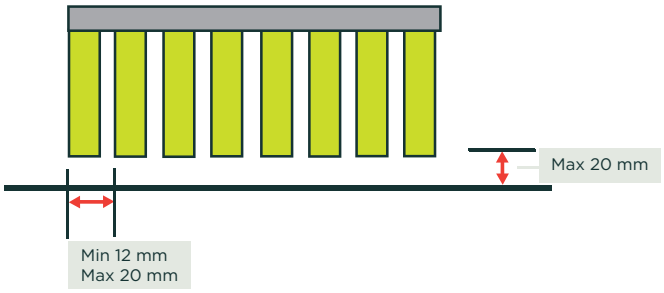
Finger Guard – Option D (refer to Figure 4)

> Minimum distances between the fingers and the clamp or saw should be 120 mm (refer AS/NZS 4024.1 series).

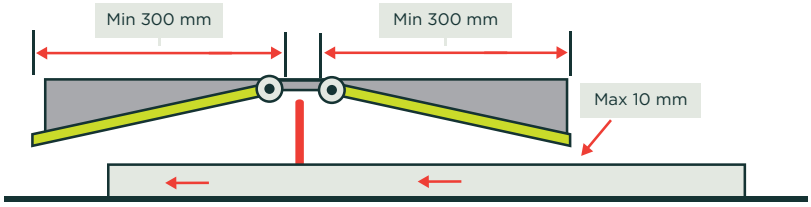
> Out-feed fingers and spacing should be no less than 12 mm and no greater than 20 mm (refer diagram below) and should extend the full width of the bench unless otherwise guarded.

> Gap between bottom of finger and table top should not be more than 20 mm.

> Finger should open outwards only and should be prevented from returning past vertical.



Finger Guard – Front elevation



Trip Guard with failsafe interlock – Option E

Note: In-feed and out-feed options can be interchangeable to meet production requirements (except Option C).

For options C, D and E, it is recommended that duty holders engage a competent person with machine guarding expertise (ie a certified machinery safety expert or mechanical engineer) to assist in undertaking a risk assessment to confirm the safeguard control (including failsafe interlock if any) comply with appropriate standards to ensure that it is adequate and safe.

FURTHER INFORMATION

WORKSAFE NEW ZEALAND PUBLICATIONS

> Best Practice Guide for Safe Use of Machinery

> Ergonomics of Machine Guarding Guide

Standards include, but are not limited to:

> AS/NZS 4024.1: Safety of machinery series

> AS 1473: Guarding and safe use of woodworking machinery

> AS 1473.2: Wood processing machinery – Safety, Finishing machinery – Common requirements

> AS 1473.3: Wood processing machinery – Safety, Finishing machinery – Circular sawing machines

> AS 1473.8: Wood processing machinery – Safety, Finishing machinery – Milling tools and circular saw blades

> AS 4024.2601: Safety of machinery – Design of controls, interlocks and guarding – Two-hand control devices – Functional aspects and design principles

Readers should check the latest version of a standard at the time of use.

References, current standards and information can be found on the Safe Use of Machinery project page at: www.worksafe.govt.nz

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