

## Guidance Note



# Safe use of meat band saws

This information sheet and table provides practical advice to employers about controlling hazards whilst using meat band saws

October 2010

## Background

Meat band saws are commonly used in the meat industry for portioning meat and other products.

In Victoria, meat band saws have been associated with a number of serious incidents. Those injured have included both experienced and non experienced operators.

## Main hazards

The most common causes of injury on band saws are:

- Lacerations and amputations of fingers when working in close proximity to the blade
- Lacerations and amputations of fingers when operators are distracted whilst cutting
- Lacerations whilst changing or fitting band saw blade
- Musculoskeletal disorders from repetition of task and forcing product through the saw blade

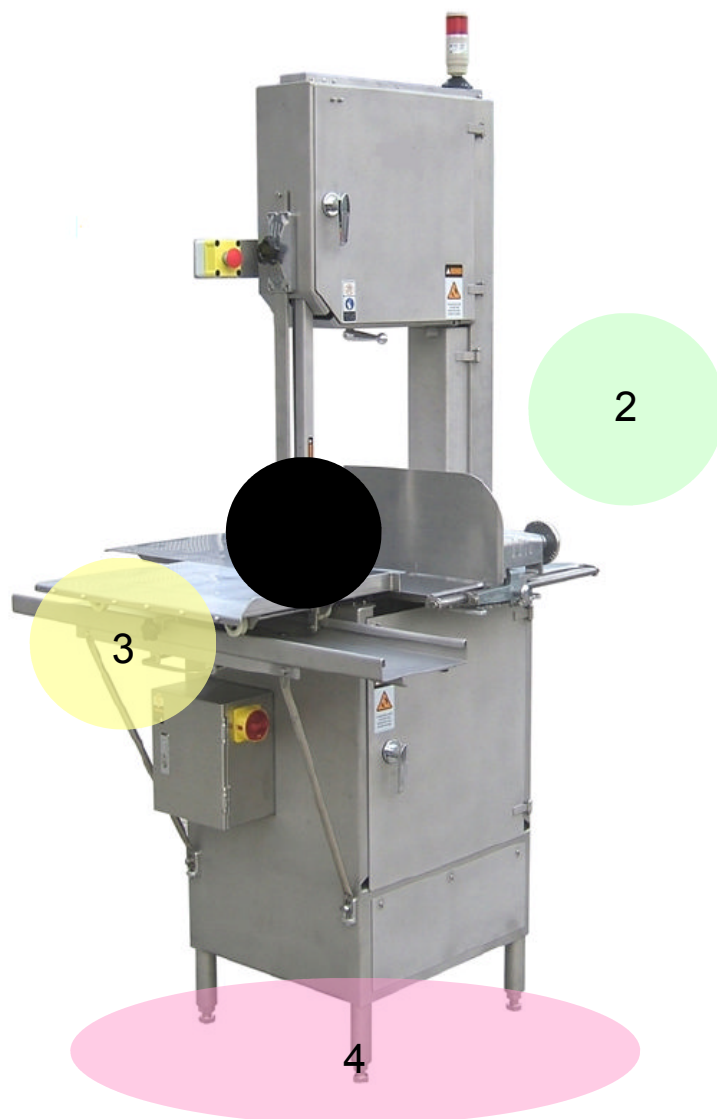
Employers must provide a safe work environment for workers by implementing adequate controls to all identified hazards.

## How to use the table


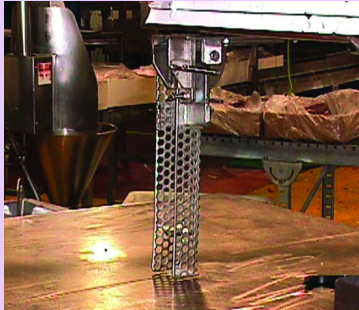

The table over the page lists and shows examples of the main hazards while using a band saw. It also includes the possible consequence of the hazard and provides a list of recommended controls.

The zone numbers in the table refer to the zones in the band saw diagram opposite.


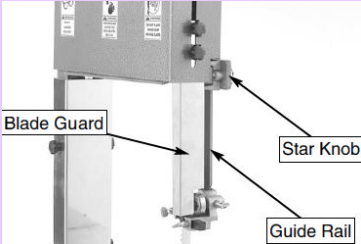

1. Saw blade at cutting zone
2. Saw blade outside cutting zone
3. Sliding feed table
4. Feet



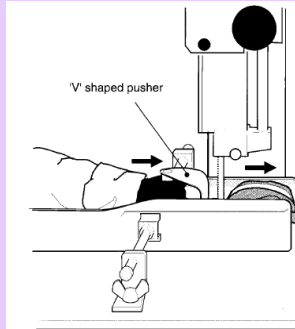

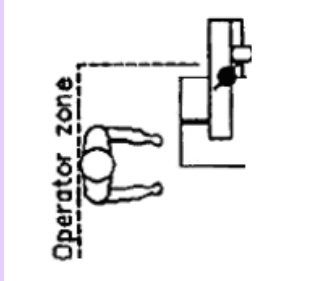
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Hazard	Possible consequence	Recommended controls
<b>Zone 1</b>		
Saw blade at cutting zone	Cutting or severing fingers whilst feeding product	<p>Introduce technology e.g. blade brake mechanism incorporating operator arm band 'sensor' and microcontroller based control unit</p> <p>Fit a hinged (spring return) guard, providing back and side protection between the operators hand and blade</p> <div style="text-align: right;">  <p><b>hinged spring guard in operation</b></p>  <p><b>hinged spring guard in rest position</b></p> </div>
		<p>Use specific machines for specific cuts e.g. such as a four bladed band saw for frozen blocks of meat - the product is fed by air activation or is manually fed with a push guard</p> <div style="text-align: right;">  <p><b>four bladed band saw</b></p> </div>



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Hazard	Possible consequence	Recommended controls
		<p><b>- manual push guard</b></p>  <p><b>four bladed band saw - rear chute</b></p>
		<p>Use the height adjustable fixed protective blade guard</p> <p>Modify and adjust the blade guard so that it is as close to the product as practicable and specific to task being undertaken</p>  <p><b>adjustable blade guard</b></p>
		<p>Install a motor brake where possible with a braking speed of 3-4 seconds</p> <p>Install a brake pedal or pressure pad so the machine is unable to be left to run continuously</p>
		<p>Use jigs to push / feed product to avoid close hand proximity to the blade</p>  <p><b>'jig' - product pusher</b></p>


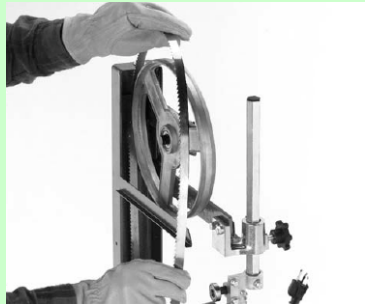
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Hazard	Possible consequence	Recommended controls
		<p>Use a guide tunnel and pusher e.g. halving frozen pork loins chops, lamb loin, beef t-bones</p>  <p><b>'jig' – product pusher</b></p> <p>Thumb protector guard on sliding table</p>  <p><b>'jig' – thumb guard</b></p>
<p>Congestion around operators work zone</p>	<p>Cutting or severing fingers if knocked by passers by working in close proximity to operator</p>	<p>Design the work zone in such a manner as to prevent persons other than operator of the saw from intruding into the workspace and bumping into operators</p> <p>Clearly identify with line markings operators work zone</p>  <p><b>designated operator</b></p>

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Hazard	Possible consequence	Recommended controls
	Workers can slips or trip on wet and slippery floors from build up of product on floors that are not cleaned	<p style="text-align: center;"><b>work zone</b></p> <p>Tubs and other materials on the floor are kept clear of operators work zone</p>
Congestion of product behind band saw e.g. product build up on table causing operator to throw product around blade	Cutting or severing fingers	<p>Ensure regular cleaning of operators work zone e.g. product clearing and tubs emptied regularly</p> <p>Ensure chutes or conveyors are in use to prevent build up of product behind saw table</p>  <p style="text-align: center;"><b>chute to wheeled tub</b></p>
Condition of blade guide (e.g. wear or damage)	Cutting or severing fingers	<p>Replace blade guides that show signs of wear or damage (wear patterns on your blade can be an indicator that wheels in the machine need to be adjusted or that worn guides are causing problems and need to be replaced)</p>  <p style="text-align: center;"><b>blade guide in good condition</b></p>
Poor condition of saw blade and vibration of moving parts	Permanent hearing loss	Ensure equipment is well maintained and vibration-free (this will enable better and faster cuts, improve blade life and reduce noise)
<b>Zone 2</b>		
Saw blade outside of cutting zone – upper and/or lower blade exposed	Cutting or severing fingers on blade of upper and lower wheels	Install guarding with interlock devices on the upper and lower



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	Workers can become entangled on upper and lower wheels	<p>blade wheel guards, so that opening either door immediately shuts off the power</p> <p>Install a time lock on upper and lower wheel guard to prevent access during run-down of machine</p>  <p><b>interlocked blade wheel guards</b></p>
Changing blade tool	Cutting or severing fingers whilst handling or transporting blade during replacement or installation	<p>Transport or move blade in a box or protective guard to protect against sharp edges</p> <p>Wear cut resistant gloves whilst installing / changing blade</p>  <p><b>cut resistant gloves while handling blade</b></p>
Removal of blockages, assisting product flow and cleaning between different products	Cutting or severing fingers during cleaning operations	<p>Ensure cleaning of the saw only undertaken once locked and tagged out</p> <p>Ensure saw is switched off and isolated from the power supply during cleaning operations and when not in use</p>
Lack of power isolation switch that can be locked out	Entanglement in upper and lower wheel or lacerations during	Ensure a lockable isolation switch is present on saw


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	maintenance and repair activities	Ensure standard operating procedures exist for maintenance and repair of saw
Upper and lower wheels exposed  In-running nip on upper and lower wheels  Spokes on upper and lower wheels  Drive units on upper and lower wheels	Crushing hazard to hand and fingers  Entanglement in upper and lower wheels	Install guarding and interlock devices on the upper and lower blade wheel guards  An alternative may be an interlock device on upper blade wheel guard with pin to prevent bottom guard opening independently
<b>Zone 3</b>		
Sliding feed table	Impact of crushing hazard to hands or feet, should the sliding feed table fall out of the guide	Design of feed table ensures sliding tables are unable to slide out
<b>Zone 4</b>		
Loss of stability	Impact crush to the body should saw become unbalanced or tip	Ensure stability of equipment, this can be achieved by fixing equipment to the floor or ensuring equipment is positioned on a firm and stable base  Wheel-mounted machines must be equipped with locking devices to prevent turning and rolling
<b>Other</b>		
Body posture or excessive physical effort	Musculoskeletal disorder	Ensure band saw blades are changed on a regular basis to reduce the need to force product through the saw  Ensure band saw blades are kept sharp  Ensure table heights are set to prevent sustained awkward posture  Ensure floor is stable with high quality anti fatigue matting; this should not create secondary manual handling problems when moving matting during cleaning activity  Water may be used on table to make pushing product through easier

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Hazard	Possible consequence	Recommended controls
<p>Lack of or poorly placed emergency stop button / pedal</p>	<p>Cutting or severing fingers as operator is unable to stop band saw in case of emergency</p>	<p>Ensure emergency stop buttons on band saws are present, identifiable (e.g. red) and can be reached by operators from working position</p> <p>Provide knee or foot pressure emergency stop</p> <div style="text-align: center;">  <p><b>identifiable emergency stop</b></p> </div> <div style="text-align: center;">  <p><b>kick button emergency stop</b></p> </div>
Training and Supervision		
<p>Poorly trained and supervised operators working on the saw</p>	<p>Workers who are inexperienced, lack training or adequate supervision are at risk of injuring themselves and others</p>	<p>Ensure operators have extensive training on the safe use of the saw and how to process product safely through the machine</p> <p>Ensure training is progressive e.g. that a novice trainee commences training on cuts where their hands are kept away from the blade. Intricate cuts are not performed by newly trained operators</p> <p>A more recent option for training is the use of a laser projector to provide a visual warning prompt for operators</p> <p>The laser is lined up with the saw</p>

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		<p>blade and provides a beam of light along the intended line of cut for the operator to use as a guide. The beam of light acts as a visual prompt for the operator to keep hands and fingers clear of the blade.</p>  <p><b>laser projector – visual warning prompt for trainees</b></p> <p>Training records are documented – a list of authorised users is available and displayed</p> <p>Ensure operators are supervised by a competent person</p> <p>Ensure supervisors monitor the rate or work to ensure that workers are not operating beyond their capacity to keep up with supply of the product</p> <p>Ensure supervisors assess operators to ensure correct and safest technique is being performed</p> <p>Ensure supervisors rotate operators so they are not fatigued whilst performing the same task</p>
Rate / speed of work - using a band	Cutting or severing fingers - an	Ensure new employees are

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<p>saw is essentially a paced task that is the operator has to keep up with the people supplying the carcass to them.</p>	<p>increased rate of work will lead to injury as the person is unable to keep up with the task.</p>	<p>provided with a reduced rate of work so they can develop their skills on the job before being required to work at the 'normal' rate of work for the room</p>
<b>Personal Protective Equipment</b>		
<p>Wearing gloves whilst using the band saw</p>	<p>When mesh and cotton gloves are worn they can become entangled in moving parts</p>	<p>Ensure mesh and cotton gloves are not worn as it is not a practical form of protection</p> <p>Roughened rubber or similar gloves may add grip when handling some products and provide protection against frozen and cold product</p>
<p>Working on slippery surfaces without adequate footwear</p>	<p>Worker may slip without adequate footwear</p>	<p>Wear appropriate non-slip safety footwear and ensure tread is not worn</p>