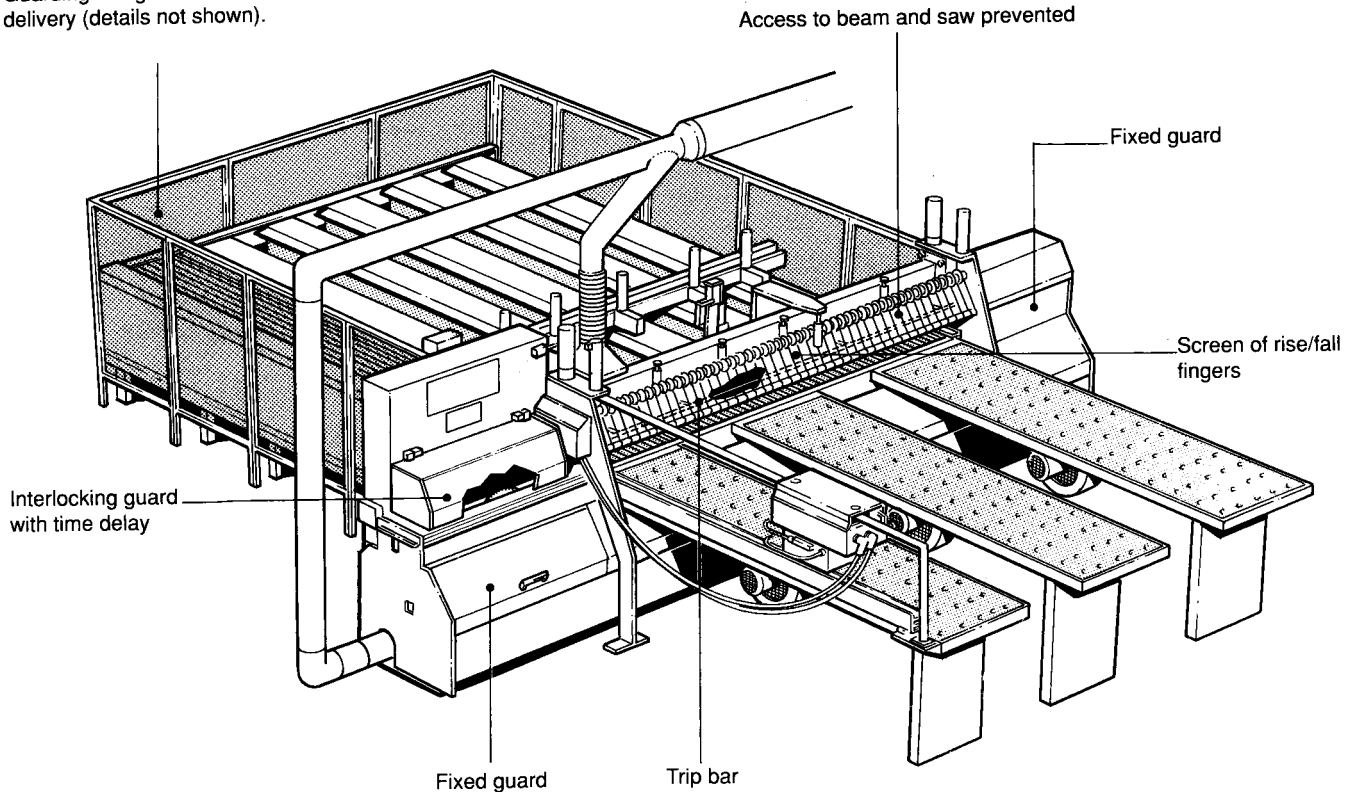




Beam panel saws

Woodworking Sheet No 3

Guarding designed so as to accommodate board delivery (details not shown).



Introduction

This information sheet is one of a series prepared by HSE's Woodworking National Interest Group in agreement with the Woodworking Machinery Suppliers Association. Beam panel saws are travelling rise and fall cross-cut saws used to cut panel boards and similar sheet materials.

The panels are normally clamped to the machine table by a power-operated beam and are cut by a travelling circular saw blade which projects from a slot in the table and retracts automatically returning to the starting position at the end of the cut. A scoring saw usually precedes the travelling saw blade. Beam panel saws may be independently operated or may be incorporated into a production line with other types of panel-finishing machinery. The boards may be hand fed or fed automatically by pusher mechanisms or other panel-handling equipment.

Dangers

Individual manufacturers' beam panel saws have their own characteristics which should be considered when identifying the hazards and assessing the risks but at all machines the following hazards must be considered:

- being trapped between the beam and panels or table;
- being cut by the saw blade, for example during its free travel between packs of material, as it rises from its parked position beneath the saw table or when in the end housings before rotation has ceased;
- being trapped by the panel feed mechanism including traps between the pusher mechanisms and fixed parts of the machine; and
- being trapped at various prime movers, transmission machinery and other dangerous parts.

Guarding

Guards should prevent anyone from coming into contact with any dangerous part of a beam panel saw when it is moving or in use. Fixed guards are simple, provide the highest standard of protection and should be used as far as possible where frequent access to a danger area is not required during normal operation or for cleaning or setting. Guidance on fixed guards, on the permissible size of openings in them and on other safeguards is given in BS EN 294: 1992.¹

Saw blade and clamp

Access to the blade and clamp must be effectively prevented whenever they are moving or in use.

Saw housings

Fixed guards should be used to prevent access to the saw when in the saw housings. If hinged covers are provided they should either be secured so that the operator cannot gain access or they should be interlocking. Interlocking covers should be fitted with a device to prevent access during the run-down of the saw blade. On some machines braked motors are fitted and a run-down device may not be necessary.

Cutting area

Where it is not feasible to fit effective fixed or interlocking guards, alternative safeguards should be implemented.

A trip bar and screen of rise and fall blocks or fingers should be positioned along the front edge of the beam (and also at the rear edge if access is possible and has not been prevented by fixed or interlocking guards).

The trip bar should be rigid (not a wire or rope), positioned at least 150 mm in front of the beam face and set as low as practicable but not more than 5 mm above the bottom edge of the beam. It should operate under fairly light pressure and should be fitted with two positively operated fail-safe limit switches (or other appropriate devices) one at each end. When tripped they should stop and reverse the motion of the beam and cause the saw blade to retract beneath the table. The limit switches should be arranged to trip as soon as the bar is displaced.

The screen of rise and fall blocks or fingers should be positioned as close as possible to the front face of the beam. It should be linked to the cycle of the machine so that it is fully lowered and prevents access to the cutting path of the saw before the beam descends. The width of each block or finger should be no more than 50 mm to reduce the gap at either end of the pack of material. The fingers should be sufficiently rigid to prevent access and robust enough to withstand normal service.

Where necessary, fixed guards should be provided to prevent access to the beam and saw at either end of the trip bar and rise and fall screen and over the top of the trip bar and screen to the leading edge of the beam.

Panel-handling equipment

Where there is a foreseeable risk of injury, access to pusher mechanisms and other panel-handling equipment should be prevented by enclosing this area with a fence at least 1.8 m high or any other equally effective method of affording the same degree of protection. Any access doors to the enclosure should be interlocking.

Photo-electric guarding

Safeguarding the dangerous parts of beam panel saws may in certain circumstances be achieved by the

provision of a photo-electric guarding system. Such a system should conform to BS IEC 61496-2: 1997.

Maintenance and safe system of work

Beam panel saws and their safety devices etc should be subject to a proper system of inspection and maintenance. The safety devices should be checked by a suitably trained person at the beginning of each shift and should also be inspected at appropriate intervals taking into account the use of the machine and the manufacturer's or supplier's recommendations.

People working at beam panel saws should be adequately trained in a safe method of work. If anyone has to enter a potentially hazardous area (eg the pusher feed area for maintenance or adjustments or removal of offcuts) the machine should be efficiently isolated. Such people should be instructed and trained in a safe system of work.

References and further reading

- 1 BS EN 294: 1992 *Safety of machinery. Safety distances to prevent danger zones being reached by the upper limbs*
- 2 BS IEC 61496-2: 1997 *Safety of machinery. Electro-sensitive protective equipment. Particular requirements for equipment using active opto-electronic protective devices (AOPDs)*
- 3 BS EN 1870-2: 1999 *Safety of woodworking machines. Circular sawing machines. Part 2: Horizontal beam panel saws and vertical panel saws*
- 4 *Application of electro-sensitive protective equipment using light curtains and light beam devices to machinery* HSG180 HSE Books 1999 ISBN 0 7176 1550 2

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This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

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