HORIZONTAL METAL BAND SAWS
MANUAL AND SEMI-AUTOMATIC

Equipment Identification:

Completed by: Date:

MACHINE ACTION TOOL

The purpose of this technical sheet is to provide information on the main risk factors associated with horizontal band saws and to propose different ways to control them.

SAWING STATION

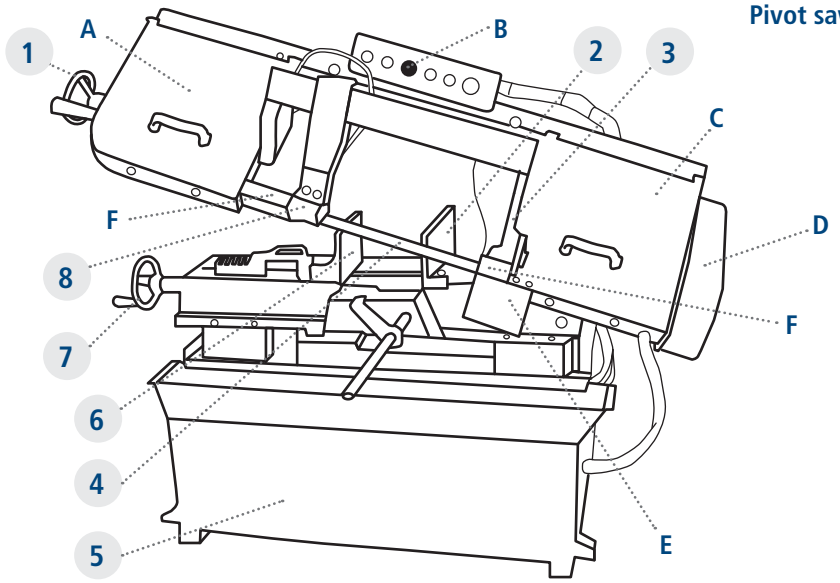
Saw station components

1. Blade tension handwheel
2. Fixed part of the vice
3. Right blade guide
4. Blade
5. Frame
6. Movable part of the vice
7. Vice clamping handwheel
8. Left blade guide
9. Control panel
10. Mechanized vice
11. Chip conveyor

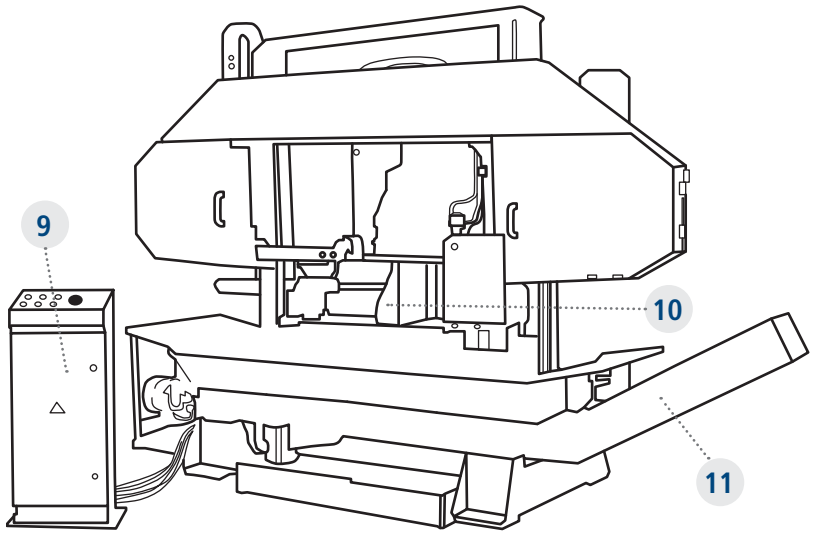
Safety features

- A Left guard preventing access to the wheel and the unused part of the blade
- B Emergency stop button
- C Right guard preventing access to the wheel and the unused part of the blade
- D Protector to prevent access to the transmission elements
- E Swarf brush protector
- F Protective guard for the unused part of the blade

Pivot saw



Miter saw



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Joint Association for Occupational Health and Safety in the Metal, Electrical, Clothing, and Printing Industries

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HOW TO USE THIS DOCUMENT?

In the manner of an audit:

- Systematically review potential risk factors and identify those that are present.
- For each of the identified risk factors, review the proposed prevention measures to select those that seem most appropriate.

For training purposes:

- Target the instructions within the set of prevention measures.
- Provide the necessary means to comply with the instructions.
- Pass on instructions to workers and ensure their implementation.

CAUTION

This document focuses only on mechanical and electrical risk factors. However, there may be other risk factors when using this machine, including those of a chemical, biological or ergonomic nature.

DESCRIPTION

The horizontal band saw cuts metal by running a toothed blade that forms a continuous band. It can be tilted head, swivel, or with columns. The material to be cut is fixed manually or by means of a mechanized system and it is the head of the saw that swivels or descends into the material.

INJURIES

The most frequent injuries with this machine are crushing, pinching, cuts, fractures, amputations, electrification and burns.

RISK FACTORS

#	MECHANICAL	PRESENT? (Yes / No)
1	Access to the moving blade near the point of operation	
2	Access to moving parts (flywheels, unused part of the blade, drive belts, etc.)	
3	Access to mechanized movements not controlled by the operator (blade feed into the material - *except gravity descent* - clamping of the workpiece, feeding of the material, collection and evacuation of chips) - semi-automatic saws	
4	Accidental starting of the saw during blade change, maintenance, or repair	
5	Access to the cutting edges of a workpiece or saw blade when not in use	
6	Sawdust projection	
7	Projection of fragments due to blade breakage	
8	Falling object	
9	Falling, slipping	

#	ELECTRIC	
10	Contact with elements usually or accidentally energized	

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1 ACCESS TO THE MOVING BLADE NEAR THE POINT OF OPERATION

PREVENTIVE MEASURES	Applied ☑	Not applicable n/a	NOTES (responsible / schedule / priority)
TECHNICAL MEASURES			
Install a guard on the exposed part of the blade so that it is: • Adjustable on one side according to the dimensions of the material to be sawn • Interdependent of the blade guide • Easily maneuverable.	☐		
Install a brake (mechanical, electrical) to stop the blade movement quickly.	☐		
Install an easily accessible and clearly identified emergency stop button. The emergency stop must cut off the power to the saw and must also activate the brake, if the machine is equipped with one.	☐		
Install fixed, adjustable, or movable interlocked guards in front of the blade cleaning brushes.	☐		
INSTRUCTIONS FOR THE USER			
Adjust the blade guide and guard assembly as close as possible to the workpiece (1 to 4 mm). Only the point of operation must be accessible.	☐		
When manually clamping, make sure the saw is retracted to the highest position and that the blade is not moving. *Note that all horizontal saws must have a workpiece clamping device (manual or mechanized).*	☐		
Use a brush to remove sawdust. Do not use hands.	☐		
Close the blade guide assembly as far as possible at the end of the job to cover the entire blade.	☐		
Wear close-fitting clothing.	☐		
Never leave the saw running unattended.	☐		
Never adjust the lubricant nozzles while the blade is moving.	☐		

2 ACCESS TO MOVING PARTS (FLYWHEELS, UNUSED PART OF THE BLADE, DRIVE BELTS, ETC.)

PREVENTIVE MEASURES	Applied ☑	Not applicable n/a	NOTES (responsible / schedule / priority)
TECHNICAL MEASURES			
Install fixed and/or movable guards with an interlocking device so that moving parts are inaccessible.	☐		

3 ACCESS TO MECHANIZED MOVEMENTS NOT CONTROLLED BY THE OPERATOR (BLADE FEED INTO WORKPIECE - EXCEPT GRAVITY DESCENT - CLAMPING OF THE WORKPIECE, FEEDING OF THE MATERIAL, COLLECTION AND EVACUATION OF CHIPS) - SEMI-AUTOMATIC SAWS

PREVENTIVE MEASURES	Applied ☑	Not applicable n/a	NOTES (responsible / schedule / priority)
TECHNICAL MEASURES			
Install a key-operated selector switch to choose between a production mode and a set-up mode. • In setup mode, only essential movements should be allowed and maintained via a hold-to-run control (blade feed into the workpiece, clamping of the material, chip removal). • In production mode, the cycle must not start until the material is clamped.	☐		
Install guards in front of moving components (for clamping, collection and chip removal systems). Guards shall be fixed or movable with an interlock device that: • Causes the automatic movement to stop when the guard is open while the machine is in production mode • Allows movement via a hold-to-run control when the machine is in the set-up mode. **Note: For the workpiece clamping device, when a guard cannot be installed, the stroke should be limited to less than 6 mm or limited to a speed of 10 mm/sec.**	☐		
INSTRUCTIONS FOR THE USER			
Install a warning sign indicating the chip discharge area.	☐		

4 ACCIDENTAL STARTING OF THE SAW DURING BLADE CHANGE, MAINTENANCE OR REPAIR

PREVENTIVE MEASURES	Applied ☑	Not applicable n/a	NOTES (responsible / schedule / priority)
TECHNICAL MEASURES			
Install fixed and/or movable guards with an interlocking device so that moving parts are inaccessible. The interlocking device: • Must stop the movement of the saw **AND** • Must override the start command when the guard is open **AND** • Must not cause the saw to restart when the guard is closed **AND** • Must not be easily by-passed.	☐		
INSTRUCTIONS FOR THE USER			
Apply the lockout procedure (LOTO) specific to the equipment during maintenance or repair: • Isolate energy sources (electrical, hydraulic, pneumatic...) • Lock out the isolation devices • Dissipate residual energy (wait for the equipment to stop completely) • Make sure that no start-up is possible. **Note: When changing blades, LOTO must be apply on machine if the guard is not interlocked.**	☐		

5 ACCESS TO THE CUTTING EDGES OF A WORKPIECE OR SAW BLADE WHEN NOT IN USE

PREVENTIVE MEASURES	Applied ☑	Not applicable n/a	NOTES (responsible / schedule / priority)
INSTRUCTIONS FOR THE USER			
Handle the blade and parts with cut-resistant gloves. Do not wear gloves while sawing.	☐		

6 SAWDUST PROJECTION

PREVENTIVE MEASURES	Applied ☑	Not applicable n/a	NOTES (responsible / schedule / priority)
TECHNICAL MEASURES			
Install a dust collection system.	☐		
INSTRUCTIONS FOR THE USER			
Use an industrial vacuum cleaner to clean the machine rather than compressed air gun.	☐		
Remove the sawdust with a brush. Never blow with your mouth towards the sawdust to remove them.	☐		
Wear CSA approved safety glasses with side shields.	☐		
Wear tight-fitting long-sleeved clothing.	☐		

Remarks

7 PROJECTION OF FRAGMENTS DUE TO BLADE BREAKAGE

PREVENTIVE MEASURES	Applied ☑	Not applicable n/a	NOTES (responsible / schedule / priority)
INSTRUCTIONS FOR THE USER			
Refer to the selector panel on the saw to choose the proper blade tooth pitch, speed and the feed rate through the material.	☐		
Adjust the tension of the blade according to the width of the blade, as indicated by the scale on the tension indicator.	☐		
Check the condition of the blade.	☐		
Check the orientation of the teeth.	☐		
Adjust the blade guide and guard assembly as close as possible to the workpiece (1 to 4 mm). Only the point of operation must be accessible.	☐		
Perform a "no load" test following a blade change.	☐		
Stop the saw in case of unusual noise.	☐		
Clean the swarf brushes to keep the blade clean.	☐		
Regularly check the condition of the packings (rubber tire) on the blade wheels.	☐		
Lubricate the blade (wax, cutting fluid).	☐		
Wear CSA approved safety glasses with side shields.	☐		

8 FALLING OBJECT

PREVENTIVE MEASURES	Applied ☑	Not applicable n/a	NOTES (responsible / schedule / priority)
TECHNICAL MEASURES			
Anchor the saw frame securely to the floor.	☐		
INSTRUCTIONS FOR THE USER			
Check that there is no object in the work zone that could potentially fall.	☐		
Wear CSA approved safety shoes with steel toe caps.	☐		

9 FALLING, SLIPPING

PREVENTIVE MEASURES	Applied ☑	Not applicable n/a	NOTES (responsible / schedule / priority)
TECHNICAL MEASURES			
Repair and clean the floor: uneven surface, holes, slippery floor, presence of sawdust, lubricant, etc.	☐		
INSTRUCTIONS FOR THE USER			
Replace the cutting fluid with a specially designed wax.	☐		

Remarks

10 CONTACT WITH ELEMENTS USUALLY OR ACCIDENTALLY ENERGIZED

PREVENTIVE MEASURES	Applied ☑	Not applicable n/a	NOTES (responsible / schedule / priority)
TECHNICAL MEASURES			
Install and identify a circuit breaker or outlet near the saw.		☐	
INSTRUCTIONS FOR THE USER			
Apply the lockout procedure specific to the equipment during maintenance or repair: • Isolate energy sources • Dissipate residual energy (wait for the equipment to stop completely) • Lock out the isolation devices • Make sure that no start-up is possible.		☐	
Check the insulation of the power cables and the grounding of the electrical circuit of the saw.		☐	

Remarks

NEED ASSISTANCE?

Do not hesitate to consult your MultiPrevention consultants if you have any questions about this sheet or about occupational health and safety.

REFERENCES

The proposed preventive measures come in part from the Regulation respecting occupational health and safety (RROHS, S-2.1, r.13), the Quebec Act respecting occupational health and safety (AOHS, S-2.1) and the European standard EN 13898: *Machine tools - Safety - Cold sawing machines*, Brussels, 2010, 58 p.

MULTI PRÉVENTION ASP

2405, boul. Fernand-Lafontaine, bureau 150
Longueuil (Québec) J4N 1N7
Tél. : 450 • 442 • 7763

979, av. de Bourgogne, bureau 570
Québec (Québec) G1W 2L4
Tél. : 418 • 652 • 7682

www.multiprevention.org
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