Metalworking Machines

Metalworking Machines - Milling Machines

On this page

What should you know before using a milling machine?

Milling machines can be dangerous if not used properly.

- Read the owner's manual carefully.
- Make sure you understand instructions and are properly trained before operating a milling machine.

Refer to Metalworking Machines - General for general safety tips.

What are some safe work principles to follow when using a milling machine?

- Wear appropriate CSA-certified safety glasses. Wear other personal protective equipment as necessary (such as footwear or hearing protection).
- Check the machine for damage before each use.
- Make sure all machines have a start/stop button within easy reach of the operator.
- Make sure that all machines have an emergency stop button (e-stop).
- Make sure that the work piece and cutter are mounted securely before taking a cut.
- Check that work is mounted squarely.

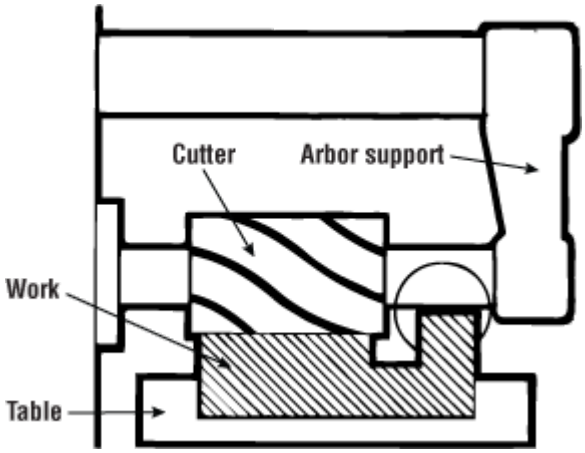
- Mount work in a vise or fixture that is bolted or held magnetically to the table. Use hand tools to make adjustments. Refer to Hand Tools for more information.
- Hold milling cutters with a cloth or wear gloves to avoid being cut when handling them.
- Move the table as far as possible from the cutter while setting up work to avoid injuring your hands.
- Mill the largest surface first.
- Keep hands, brushes and rags away from the revolving milling cutter.
- Use the machine's brake to stop the spindle after the power has been turned off.
- Use a vacuum, brush or rake to remove cuttings only after the cutters have stopped moving.
- Use the correct cutting fluids, and change cutting coolants or compounds as specified by the manufacturer.
- Keep cutters sharpened correctly and in good condition.
- Keep the working surface clear of scraps, tools and materials.
- Remove cutting tools from the spindle when cleaning the machine.
- Keep the floor around the milling machine free of oil and grease.
- Use lifting equipment when appropriate to move heavy work to or from milling machines. Refer to Materials Handling for more information.
- Make sure the power is off before changing the cutters.
- Always stay at the machine when it is in operation.
- Use lifting devices when moving heavy pieces.

Before starting the machine, what should you check?

Before starting, make sure that:

- all guards are in place
- work is properly secured in place.
- bolts used to hold down work clear the tooling.
- tooling and supporting pieces are properly tightened in position.
- table stops are secured properly.
- handles on all feed screws are in neutral.
- the table is free of stock, tools or other loose material.

- the arbor and arbor support are clear of the work.
- the cutter is rotating in the right direction.



What should you consider when setting the cutting speed?

Make sure that the following factors are considered when setting the cutting speed:

- material to be machined
- type of cutter
- finish required
- depth of cut
- rigidity of the machine and work piece

What are some things you should avoid doing?

- Do not wear gloves, rings, watches or loose clothing. Tie back and confine long hair.
- Do not attempt to mount, measure or adjust work until the cutter is completely stopped.
- Do not use an excessively heavy cut or feed as it can cause the cutter to break. The flying pieces could cause serious injury.
- Do not reach over or near a revolving cutter. Keep hands at least 30 cm (12 in.) from a revolving cutter.
- Do not lean or rest your hands on a moving table.
- Do not make any adjustments while the machine is running.
- Do not use paper shims to check the distance from the cutter to the stock.

- Do not move the operating levers without knowing what they control and what action is going to take place.
- Do not leave the machine unattended while it is running.

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