

Occupations and Workplaces

Machinist

On this page

[What does a machinist do?](#)

[What are some health and safety issues for machinists?](#)

[What are some preventive measures for machinists?](#)

[What are some good general safe work practices for machinists?](#)

What does a machinist do?

A machinist is a skilled worker who can set up and use machine tools to modify workpieces typically made of metal. These machine tools allow a machinist to perform operations such as turning, boring, milling, and grinding.

Their main duties include:

- Reading and interpreting technical drawings, charts, and specifications.
- Calculating dimensions and preparing sketches as necessary.
- Setting up and using the right machine tools for the job.
- Taking measurements to ensure accuracy of work (using tools such as micrometers and vernier callipers).
- Lifting and moving workpieces.
- Performing maintenance work on machine tools.
- Performing housekeeping to ensure a tidy workplace.

What are some health and safety issues for machinists?

- Injuries resulting from the operation of [metalworking machines](#), including cuts, crushing, amputations, pinches, burns, and being struck by projectiles.
- [Noise](#) from machine operation or within the machine shop that can result in [auditory effects](#).

- [Vibration](#) that can cause [health effects](#).
 - Exposure to hazardous products, including [metalworking fluids](#), which can result in health effects such as [allergic reactions](#) and [contact dermatitis](#).
 - Respiratory effects from exposure to chemicals, dust, fumes, and other hazards in the air.
 - Pain, injury, or [musculoskeletal disorders](#) from physical overexertion and [manual materials handling](#), including [repetitive manual tasks](#), [prolonged standing](#), heavy lifting, or [working in awkward positions](#).
 - [Extended workdays](#) or [shift work](#) based on demands (such as short turnaround projects).
 - [Stress](#) from meeting work demands and deadlines, ensuring the accuracy of work, etc.
 - [Slips, trips, and falls](#) from clutter, trailing cords, and spills.
 - [Workplace harassment or violence](#).
 - [Heat-related illnesses](#), especially if ventilation is not adequate.
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What are some preventive measures for machinists?

To mitigate these risks, machinists should:

- Ensure that the tools and machines are in good working order before use, including conducting inspections and verifying that regular maintenance has been completed.
- Use proper manual material handling (MMH) [techniques](#) when moving workpieces and other heavy items. If possible, get assistance from other workers or use mechanical aids (please refer to [MMH - Mechanical Aids for Transporting Materials – I](#), [MMH - Mechanical Aids for Transporting Materials - II](#), and [MMH - Mechanical Aids: Levers and Rollers](#) to learn more).
- Take breaks throughout the day, especially when work involves a lot of repetitive motions and awkward postures.
- Rotate tasks, if possible, to avoid using the same body parts repeatedly.
- Follow good [ergonomic practices](#) at all times, including when [working in a standing position](#).
- Ensure that tools and machines are deenergized when taking breaks or after finishing work.
- Follow [lockout/tagout](#) procedures when maintaining or servicing machines.
- Stay hydrated if in a hot environment.

- Make sure that [ventilation](#) is appropriate to reduce the risks of heat stress and hazards in the air.
- Report all hazards and incidents to management.
- Participate in all health and safety training and education, including on topics such as the Workplace Hazardous Materials Information System ([WHMIS](#)), safe work procedures, emergency response, etc.
- Review the [safety data sheet \(SDS\)](#) of any hazardous products in the machine shop.
- Do not wear loose clothing, jewellery, or other things that could get caught in machinery.
- Confine or otherwise avoid having loose long hair that could get caught in machinery.
- Practice good [housekeeping](#) and keep areas clear of clutter and slip hazards.
- Wear [personal protective equipment](#) (PPE) suitable to the task being completed. Refer to the safe work procedures, user manual, or a health and safety professional for guidance on appropriate PPE. PPE should be based on the hazards and may include:
 - Impact-resistant [eye and face protectors](#)
 - [Hearing protectors](#) such as earplugs or earmuffs
 - [Safety footwear](#) that can provide protection from dropped objects, slips, and falls
 - [Gloves](#) with cut and chemical resistance (depends on hazards workers are exposed to) provided that the gloves do not pose a further hazard (such as loss of dexterity or being caught in moving machine parts)
 - [High-visibility apparel](#) to increase visibility, especially when vehicles operate in the machine shop
 - [Headwear](#), if objects could hit the machinist's head from the top or side
 - [Respirator](#)

What are some good general safe work practices for machinists?

- Understand how to use all machines and use them as directed by the manufacturer.
- Follow safe work procedures and comply with all regulations.
- Never operate equipment when the guards are not in place.
- Never bypass safety interlocks.
- Understand the [three rights of workers](#) and exercise the right to refuse work if it is likely to result in harm.

- Report any injury or illness immediately to the supervisor or manager.
 - Report unsafe acts and unsafe conditions to the supervisor or manager.
 - Know where the first aid equipment and first aiders are located and follow first aid procedures.
 - Know the location of muster points and what to do in an emergency.
 - Participate in the [health and safety committee](#) or as a representative.
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Fact sheet first published: 2026-08-21

Fact sheet last revised: 2026-08-21

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