

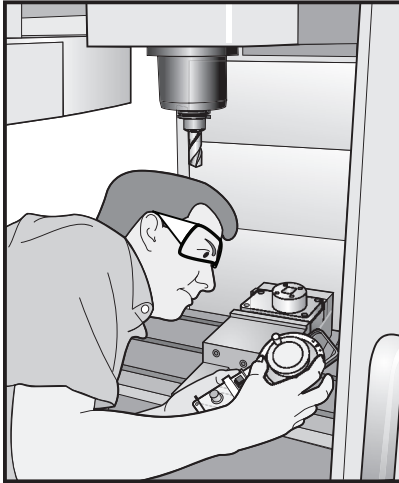


HAAS SAFETY PROCEDURES

Safety

THINK SAFETY!

DON'T GET CAUGHT UP IN YOUR WORK



All milling machines contain hazards from rotating parts, belts and pulleys, high voltage electricity, noise, and compressed air. When using CNC machines and their components, basic safety precautions must always be followed to reduce the risk of personal injury and mechanical damage.

Important — This machine to be operated only by trained personnel in accordance with the Operator's manual, safety decals, safety procedures and instructions for safe machine operation.

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General Product Use Specifications and Limits

Environmental (Indoor use only)*		
	Minimum	Maximum
Operating Temperature	41° F (5° C)	122° F (50° C)
Storage Temperature	-4° F (-20° C)	158° F (70° C)
Ambient Humidity	20% relative, non-condensing	90% relative, non-condensing
Altitude	Sea Level	6000 ft. (1829 m)

Noise		
	Minimum	Maximum**
Emitted from all areas of machine during use at a typical operator's position	70 dB	Greater than 85dB

*Do not operate the machine in explosive atmospheres (explosive vapors and / or particulate matter)

**Take precautions to prevent hearing damage from machine/machining noise. Wear ear protection, alter cutting application (tooling, spindle speed, axis feed, fixturing, programmed path) to reduce noise, and / or restrict access to machine area during cutting.



READ BEFORE OPERATING THIS MACHINE:

- ◆ Only authorized personnel should work on this machine. Untrained personnel present a hazard to themselves and the machine, and improper operation will void the warranty.
- ◆ Check for damaged parts and tools before operating the machine. Any part or tool that is damaged should be properly repaired or replaced by authorized personnel. Do not operate the machine if any component does not appear to be functioning correctly. Contact your shop supervisor.
- ◆ Use appropriate eye and ear protection while operating the machine. ANSI-approved impact safety goggles and OSHA-approved ear protection are recommended to reduce the risks of sight damage and hearing loss.
- ◆ Do not operate the machine unless the doors are closed and the door interlocks are functioning properly. Rotating cutting tools can cause severe injury. When a program is running, the mill table and spindle head can move rapidly at any time in any direction.
- ◆ The Emergency Stop button is the large, circular red switch located on the Control Panel. Pressing the Emergency Stop button will instantly stop all motion of the machine, the servo motors, the tool changer, and the coolant pump. Use the Emergency Stop button only in emergencies to avoid crashing the machine.
- ◆ The electrical panel should be closed and the key and latches on the control cabinet should be secured at all times except during installation and service. At those times, only qualified electricians should have access to the panel. When the main circuit breaker is on, there is high voltage throughout the electrical panel (including the circuit boards and logic circuits) and some components operate at high temperatures. Therefore, extreme caution is required. Once the machine is installed, the control cabinet must be locked and the key available only to qualified service personnel.
- ◆ DO NOT modify or alter this equipment in any way. If modifications are necessary, all such requests must be handled by Haas Automation, Inc. Any modification or alteration of any Haas Milling or Turning Center could lead to personal injury and/or mechanical damage and will void your warranty.
- ◆ Consult your local safety codes and regulations before operating the machine. Contact your dealer anytime safety issues need to be addressed.
- ◆ It is the shop owner's responsibility to make sure that everyone who is involved in installing and operating the machine is thoroughly acquainted with the installation, operation, and safety instructions provided with the machine BEFORE they perform any actual work. The ultimate responsibility for safety rests with the shop owner and the individuals who work with the machine.



- ◆ **This machine is automatically controlled and may start at any time.**
- ◆ **This machine can cause severe bodily injury.**
- ◆ **Do not operate with the doors open.**
- ◆ **Avoid entering the machine enclosure.**
- ◆ **Do not operate without proper training.**
- ◆ **Always wear safety goggles.**
- ◆ **Never place your hand on the tool in the spindle and press ATC FWD, ATC REV, NEXT TOOL, or cause a tool change cycle. The tool changer will move in and crush your hand.**
- ◆ **To avoid tool changer damage, ensure that tools are properly aligned with the spindle drive lugs when loading tools.**
- ◆ **The electrical power must meet the specifications in this manual. Attempting to run the machine from any other source can cause severe damage and will void the warranty.**
- ◆ **DO NOT press POWER UP/RESTART on the control panel until after the installation is complete.**
- ◆ **DO NOT attempt to operate the machine before all of the installation instructions have been completed.**
- ◆ **NEVER service the machine with the power connected.**
- ◆ **Improperly clamped parts machined at high speeds/feeds may be ejected and puncture the safety door. Machining oversized or marginally clamped parts is not safe.**
- ◆ **Windows must be replaced if damaged or severely scratched - Replace damaged windows immediately.**
- ◆ **Do not process toxic or flammable material. Deadly fumes can be present. Consult material manufacturer for safe handling of material by-products before processing.**
- ◆ **The spindle head can drop without notice. Personnel must avoid the area directly under the spindle head.**



◆ **Follow these guidelines while performing jobs on the machine:**

Normal operation - Keep the door closed and guards in place while machine is operating.

Part loading and unloading – An operator opens the door or guard, completes task, closes door or guard before pressing cycle start (starting automatic motion).

Tool loading or unloading – A machinist enters the machining area to load or unload tools. Exit the area completely before automatic movement is commanded (for example, next tool, ATC/Turret FWD/REV).

Machining job set-up – Press emergency stop before adding or removing machine fixtures.

Maintenance / Machine Cleaner– Press emergency stop or power off the machine before entering enclosure.

Do not enter the machining area anytime the machine is in motion; severe injury or death may result.

Unattended Operation

Fully enclosed Haas CNC machines are designed to operate unattended; however, your machining process may not be safe to operate unmonitored.

As it is the shop owner's responsibility to set up the machines safely and use best practice machining techniques, it is also their responsibility to manage the progress of these methods. The machining process must be monitored to prevent damage if a hazardous condition occurs.

For example, if there is the risk of fire due to the material machined, then an appropriate fire suppression system must be installed to reduce the risk of harm to personnel, equipment and the building. A suitable specialist must be contacted to install monitoring tools before machines are allowed to run unattended.

It is especially important to select monitoring equipment that can immediately perform an appropriate action without human intervention to prevent an accident, should a problem be detected



USES AND GUIDELINES FOR PROPER MACHINE OPERATION

All milling machines contain hazards from rotating cutting tools, belts and pulleys, high voltage electricity, noise, and compressed air. When using milling machines and their components, basic safety precautions should always be followed to reduce the risk of personal injury and mechanical damage. **READ ALL APPROPRIATE WARNINGS, CAUTIONS, AND INSTRUCTIONS BEFORE OPERATING THIS MACHINE.**

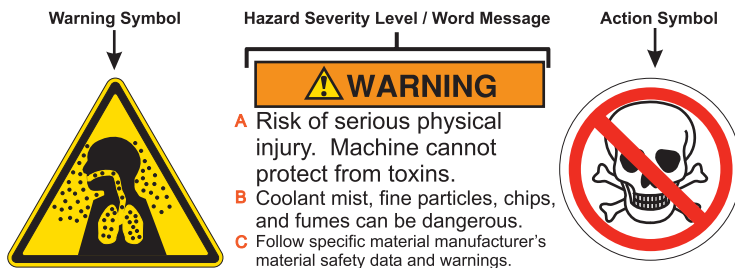
MODIFICATIONS TO THE MACHINE

DO NOT modify or alter this equipment in any way. If modifications are necessary, all such requests must be handled by Haas Automation, Inc. Any modification or alteration of any Haas machining center could lead to personal injury and/or mechanical damage and will void your warranty.

SAFETY DECALS

To help ensure that CNC tool dangers are quickly communicated and understood, hazard symbol decals are placed on Haas Machines in locations where hazards exist. If decals become damaged or worn, or if additional decals are needed to emphasize a particular safety point, contact your dealer or the Haas factory. **Never alter or remove any safety decal or symbol.**

Each hazard is defined and explained on the general safety decal, located at the front of the machine. Particular locations of hazards are marked with warning symbols. Review and understand the four parts of each safety warning, explained below, and familiarize yourself with the symbols on the following pages.



Warning Symbol - Identifies the potential hazard and reinforces the word message.

Word Message - Clarifies or reinforces the intent of the warning symbol.

- A:** Hazard.
- B:** Consequence if warning is ignored.
- C:** Action to prevent injury. Also refer to Action Symbol.

Hazard Severity Level - Color-coded to indicate risk in ignoring a hazard.

- Red + "DANGER" = Hazard WILL cause death or serious injury if ignored.
- Orange + "WARNING" = Hazard COULD cause death or serious injury if ignored.
- Yellow + "CAUTION" = Hazard MAY cause minor to moderate injury if ignored.
- Blue + "NOTICE" = Indicates an action to prevent damage to the machine.
- Green + "INFORMATION" = Details about machine components.

Action Symbol: Indicates actions to prevent injury. Blue circles indicate mandatory actions to avoid harm, red circles with diagonal slashes indicate prohibited actions to avoid harm.



MILL WARNING DECALS

! DANGER			
	<p>Electrocution hazard. Death by electric shock can occur. Turn off and lock out system power before servicing.</p>		
<p>Automatic Machine may start at any time. Injury or death could be caused by untrained operator. Read and understand operator's manual and safety signs before using this machine.</p>			
<p>Risk of serious physical injury. Machine cannot protect from toxins. Coolant mist, fine particles, chips, and fumes can be dangerous. Follow specific material manufacturer's material safety data and warnings.</p>		<p>Risk of serious bodily injury. The enclosure may not stop every type of projectile. Double-check job set up before beginning any machining operations. Always follow safe machining practices. Do not operate with doors or windows open or guards removed.</p>	
<p>Risk of fire and explosion. Machine is not designed to resist or contain blasts or fire. Do not machine explosive or flammable materials or coolants. Refer to specific material manufacturer's material safety data and warnings.</p>			
<p>Severe injury can occur. Moving parts can entangle, trap, and cut. Sharp tools or chips can cut skin easily. Ensure the machine is not in automatic operation before reaching inside.</p>		<p>Risk of bodily injury. Serious cuts, abrasions, and physical injury may result from slips and falls. Avoid using the machine in wet, damp, or poorly lit areas.</p>	
<p>Risk of eye and ear injury. Flying debris into unprotected eyes can cause loss of sight. Noise levels can exceed 70 dBA. Must wear safety glasses and hearing protection when operating or in the area of machine.</p>		<p>Safety windows may become brittle and lose effectiveness when exposed to machine coolants and oils over time. If signs of discoloration, crazing, or cracking are found, replace immediately. Safety windows should be replaced every two years.</p>	
! WARNING			
	<p>Severe injury can occur. Moving parts can entangle and trap. Always secure loose clothing and long hair.</p>		
	<p>Impact hazard. Machine components can crush and cut. Do not handle any part of the machine during automatic operation. Always keep clear of moving parts.</p>		
<p>Risk of serious bodily injury. Follow safe clamping practices. Inadequately clamped parts can be thrown with deadly force. Securely clamp workpieces and fixtures.</p>			
<p>Moving parts can crush. The tool changer will move in and crush your hand. Never place your hand on the spindle and press ATC FWD, ATC REV, NEXT TOOL, or cause a tool change cycle.</p>		<p>©2009 Hais Automation, Inc. 29-0709 Rev E</p>	
<ul style="list-style-type: none"> ● Do not allow untrained personnel to operate this machine. ● Do not alter or modify machine in any way. ● Do not operate this machine with worn or damaged components. ● No user serviceable parts inside. Machine must be repaired or serviced by authorized service technicians only. 			
NOTICE			
	<p>Coolant Tank Maintenance Clean the filter screen weekly. Remove the coolant tank cover and clean out any sediment inside the tank weekly. Do not use plain water, permanent corrosion damage will result. Rust inhibiting coolant is required. Do not use toxic or flammable liquids as a coolant.</p>		



LATHE WARNING DECALS



DANGER



Electrocution hazard.
Death by electric shock can occur.
Turn off and lock out system power before servicing.



Automatic Machine may start at any time.
Injury or death could be caused by untrained operator. Read and understand operator's manual and safety signs before using this machine.



Risk of serious physical injury. Machine cannot protect from toxins. Coolant mist, fine particles, chips, and fumes can be dangerous.
Follow specific material manufacturer's material safety data and warnings.



Risk of serious bodily injury.
The enclosure may not stop every type of projectile. Double-check job set up before beginning any machining operations. Always follow safe machining practices. Do not operate with doors or windows open or guards removed.



Risk of fire and explosion.
Machine is not designed to resist or contain blasts or fire. Do not machine explosive or flammable materials or coolants. Refer to specific material manufacturer's material safety data and warnings.



Risk of bodily injury.
Serious cuts, abrasions, and physical injury may result from slips and falls. Avoid using the machine in wet, damp, or poorly lit areas.



Severe injury can occur.
Moving parts can entangle, trap, and cut. Sharp tools or chips can cut skin easily. Ensure the machine is not in automatic operation before reaching inside.



Risk of eye and ear injury.
Flying debris into unprotected eyes can cause loss of sight. Noise levels can exceed 70 dBA. Must wear safety glasses and hearing protection when operating or in the area of machine.



Safety windows may become brittle and lose effectiveness when exposed to machine coolants and oils over time. If signs of discoloration, crazing, or cracking are found, replace immediately. Safety windows should be replaced every two years.



WARNING



Severe injury can occur.
Moving parts can entangle and trap. Always secure loose clothing and long hair.



Risk of serious bodily injury and impact hazard.
Unsupported bar can whip with deadly results.



Risk of serious bodily injury.
Inadequately clamped parts can be thrown with deadly force. High RPM reduces chuck clamping force. Do not machine using an unsafe setup or exceed rated chuck RPM.



Do not extend barstock past end of drawtube without adequate support. Do not apply excessive machining forces, doing so can dislodge the bar from support. Do not allow the carriage or tool to strike the steady rest or tailstock; the part may come loose. Do not over tighten steady rest.

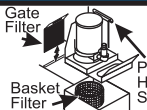


Moving parts can cut.
Sharp tools can cut skin easily. Do not handle any part of the machine during automatic operation. Do not touch rotating work pieces.



- Do not allow untrained personnel to operate this machine.
- Restrict access to open frame lathes.
- Use steady rest or tailstock to support long bars and always follow safe machining practices.
- Do not alter or modify machine in any way.
- Do not operate this machine with worn or damaged components.
- Machine must be repaired or serviced by authorized technicians only.

NOTICE



Clean the filter screen weekly.

Remove the coolant tank cover and clean out any sediment inside the tank weekly.

Do not use plain water, permanent corrosion damage will result. Rust inhibiting coolant is required.

Do not use toxic or flammable liquids as a coolant.

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OTHER SAFETY DECALS

Other decals may be found on your machine, depending on the model and options installed:

! WARNING


Do not open this window while machine is operating
Press Emergency stop or power down the machine before opening.
Machine interior can be slippery and has sharp edges that can cut.




29-0779 Rev D
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! WARNING

Risk of bodily injury.
Door will open and pallets will move automatically.
Moving parts can entangle and crush.



Must keep hands away from chain at all times.
Keep clear while beeper is sounding and door is open.



29-0020 Rev C

! WARNING

Risk of personal injury
The load station must be clear of obstructions to receive a pallet.



Tools left on the load station support will misalign the pallet. Pallets not properly placed may fall on to personnel.
Ensure that the pallet load station is clear and in the home position before a pallet change.



Refer to the APC Section for further explanation.



DECLARATION OF WARNINGS, CAUTIONS, AND NOTES

Throughout this manual, important and critical information is prefaced with the word “Warning”, “Caution” and “Note”

Warnings are used when there is an extreme danger to the operator and/or to the machine. Take all steps necessary to heed the warning given. Do not continue if you cannot follow the warning instructions. An example warning is:

WARNING! Never put hands between tool changer and spindle head.

Cautions are used when there is the potential for minor personal injury or mechanical damage, for example:

CAUTION! Power down the machine before performing any maintenance tasks.

Notes give additional information to the operator about a particular step or procedure. This information should be taken into consideration by the operator as the step is performed to ensure there is no confusion, for example:

NOTE: If machine is equipped with the optional extended Z-clearance table, follow these guidelines:



FCC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.