THE HAAS JOURNAL ISSUE 13

NEW PRODUCT FOCUS
THE
HAAS
JOURNAL
ISSUE

Now with video and web links

For more product information and demonstrations, simply click on the highlighted video images and web links. To make the video screen larger, select the expand option (  ) on the lower right corner of the video frame.

OPERATE AND PROGRAM A FULLY FUNCTIONING HAAS CNC MACHINE, RIGHT ON YOUR DESKTOP.

WATCH THE HAAS DESKTOP MILL IN ACTION ON PAGE 10

CYCLE START

IN THIS ISSUE: The Haas Journal #3 focuses on exciting new solutions and resources to help keep your shop competitive. One of the many new products gathering interest is the Haas Desktop Mill, with capabilities to cut plastic and machinable wax within the space of a desktop.

From intuitive software templates to simplify machine setup and operation, to Automatic Parts Loaders and Pallet Pools to automate your processes and increase productivity, to a better way to buy high-quality cutting tools and toolholders online – Haas continues to deliver what you’re looking for.
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NEW PRODUCT FOCUS

The Haas Automatic Parts Loader for lathes is a simple and affordable way to automate part production and boost productivity on Haas ST-10 through ST-25 turning centers. It is designed and built exclusively for use on Haas turning centers, and connects directly to the Haas control.

Note: Includes a Remote Jog Handle when ordered with a machine. The APL is compatible with the sub-spindle option, but can only load/unload parts from the lathe main spindle.

The Haas Automatic Parts Loader for mills is a simple way to automate part production on Haas VF-1 through VF-2 vertical machining centers, including SS and YT models. The easy-to-use interface in the Haas control guides you through a simple, step-by-step setup process that "teaches" the APL arm its positions, and has you fully automated in minutes, loading and unloading parts for unattended machining.

HERE'S THE MATH.
Run just 4 extra hours per day with the APL, and you could generate enough output to pay for your investment in as few as 6 months. Looking at it another way, the APL is roughly half the cost of an operator’s wages for a full year!

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• All-inclusive design, with plug-and-play capabilities to Haas small vertical machining centers
• Interfaces directly with the Haas control
• Accommodates parts up to 6” length x 6” width x 10 lb
• Includes light curtain for safe operation
• Made in the USA

EASY SETUP FOR MILLS AND LATHES

We’ve done all the work: It’s built into the machine; it’s controlled by the machine; and there’s no additional setup – or cost. The Haas APL is a simple “operator” that can help you get hours of extra production time after your other operators have gone home, or it can free up your skilled machinists for more complex tasks during the day. And there’s no need for special training or additional software, our simple and intuitive templates built into the Haas control make job setup and programming fast and easy.

• Follow the prompts, and maneuver the APL gripper to the required positions using the remote jog handle.
• A simple button push captures each position, to get you fully automated in minutes.
• No programming or calculations required.

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• Simple, effective, affordable automation
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Easy Setup for Mills and Lathes

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UMC-1500-DUO

The UMC-1500-DUO* is a versatile dual-station vertical machining center that combines the 5-axis capability of our UMC-750 with a stationary T-slot table for 3-axis work. The machine offers double the X-axis travels of the standard UMC-750, and incorporates the design improvements introduced with the latest UMC models.

The right-side station is the standard integrated 2-axis trunnion rotary table from the UMC-750, and the left station is a stationary 32” x 18” (813 mm x 457 mm) T-slot table.

UMC-1500-DUO features:

• Dual-station work environment
• Cycloidal rotary drives
• Lighter operator door
• Front-mounted control pendant

*The Super Speed UMC-1500SS-DUO is also available.

NOTE: Pre-production specifications and dimensions; subject to change without notice.

UMC-1600-H

The UMC-1600-H is a 50-taper Universal Machining Center based on our highly popular EC-1600ZT HMC. We’ve mounted a massive 630 mm rotary table to the machine’s integrated 4th-axis platter to provide 3+2 positioning and full 5-axis motion for machining large parts.

The machine’s 50-taper cutting ability, heavy-duty rotary axes, and large work envelope make it the perfect 5-axis solution for the large parts found in the oil & gas, alternative energy, and other heavy industries.

UMC-1600-H features:

• ±120° of B-axis swing and 360° of C-axis rotation
• 50-taper spindle with a 2-speed gearbox
• Standard side-mount tool changer, 30 + 1 tools
• Includes DWO/TCPC and Wireless Intuitive Probing System
• 78” max part swing on integrated 4th-axis
• Made in the USA

8-Station Pallet Pool, UMC

Our 8-station pallet pool for the UMC-1000/SS is perfect for high-volume production runs, or high-mix/low-volume machining. The pallets can be scheduled individually according to priority and sequencing requirements, allowing high-priority parts to be machined first or staged more often. Completed pallets are returned automatically to the holding location, or can be sequenced to a protected operator station for immediate unloading and re-loading.

Automatic Parts Loader, UMC

Automate your 5-axis production with our Automatic Parts Loader (APL) for the UMC-500. The unit interfaces directly to the machine, and our easy-to-use interface in the Haas control guides you through a simple, step-by-step setup process to get you fully automated in minutes, loading and unloading 5-axis parts for unattended machining.

Engineering Manager Eric Wind talks with Bryan O’Fallon about all the features that have been changed on the newly released UMC-750 and 750SS.

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UMC-750 REBOOT

The industry-leading Haas UMC-750 changed the landscape of the machine tool industry by making 5-axis machining simple, affordable, and accessible to everyone. We recently redesigned the UMC-750 and UMC-750SS to incorporate all the improvements engineered into our larger UMC-1000 and smaller UMC-500 — completing the upgrade of our full line of 5-axis universal machining centers.

The main feature that distinguishes the UMC-1600-H from the EC-1600ZT is the addition of our HRT630 rotary table as the 5th axis. This extra-large HRT Series rotary table is perfect for holding large workpieces or fixtures for 5-axis machining. The high-capacity, heavy-duty table is mounted vertically with a unique casting designed for use in this model, and it features a large through-hole for bar feeding and special fixture-mounting requirements. Chucks and fixtures can easily be bolted to the platter using the precision T-slots. Optional platters and outboard support devices are available.
The UMC-1500-DUO is a versatile dual-station vertical machining center that combines the 5-axis capability of our UMC-750 with a stationary T-slot table for 3-axis work. The machine offers double the X-axis travels of the standard UMC-750, and incorporates the design improvements introduced with the latest UMC models. The right-side station is the standard integrated 2-axis trunnion rotary table from the UMC-750, and the left station is a stationary 32” x 18” (813 mm x 457 mm) T-slot table.

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Automatic Parts Loader, UMC

Automate your 5-axis production with our Automatic Parts Loader (APL) for the UMC-500. The unit interfaces directly to the machine, and our easy-to-use interface in the Haas control guides you through a simple, step-by-step setup process to get you fully automated in minutes, loading and unloading 5-axis parts for unattended machining.

8-Station Pallet Pool, UMC

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5-AXIS . . . 3-AXIS . . . and the X-AXIS travel of nearly a VF-6!

UMC-1500-DUO features:
- Dual-station work environment
- Cycloidal rotary drives
- Lighter operator door
- Front-mounted control pendant
- Easy-access operator convenience features
- Large side-window
- Stiff base casting
- Standard roll-out coolant tank

UMC-1600-H features:
- ±120° of B-axis swing and 360° of C-axis rotation
- 50-taper spindle with a 2-speed gearbox
- Standard side-mount tool changer, 30 + 1 tools
- Includes DWO/TOPC and Wireless Intuitive Probing System
- 78° max part swing on integrated 4th axis
- Made in the USA

The Super Speed UMC-1500GS-DUO is also available.

NOTE: Pre-production specifications and dimensions; subject to change without notice.
The new sub-spindle for ST-30 and ST-35 turning centers – including Y-axis models – increases productivity, improves quality and adds throughput capacity to your machine.

This affordable A2-5 spindle is equipped with a 6.5-inch (165 mm) hydraulic chuck, and will fully synchronize with the main spindle to provide effortless "in-cycle" part pass-off. This allows you to finish-off the "other half" of your part in a single setup – simply load up your raw workpiece, and the next time you open the door, you will have a finished part. Works well with the optional parts catcher for automated operation.

- 4000-rpm
- A2-5 Spindle Nose with 6.5" (165 mm) Chuck
- 1.75" (45 mm) Bar Capacity
- Includes CNC Control Cabinet Cooler
- Servo driven for high-torque throughout the rpm range
- Allows fully synchronized part pass-off
- Made in the USA

The EC-500/50 is designed for high-volume production and unattended operation for larger parts and tombstones, the EC-500/50 offers 50-taper power and a large work envelope with the smaller footprint of a 40-taper pallet-changing machine. It features fast rapids, full 4th-axis pallet indexing, and a rear-exit chip conveyor for efficient chip management.

- Powerful 50-taper spindle for heavy cutting
- Standard 50+1 tool side-mount tool changer
- Built-in pallet changer with 500 mm pallets
- Full 4th-axis indexing
- Made in the USA

The ST-30L is a long-bed version of our very popular ST-30 mid-size turning center. The machine's whopping 60" of Z-axis travel make it perfectly suited for turning the long shafts, rollers, pipes, and tubes found in the industrial printing, alternative energy, and oil & gas industries. To support long parts and prevent vibrations, a steady rest provision and programmable tailstock are available.

- 60" of Z-axis travel
- Steady rest provision and tailstock available
- Large double doors allow loading of long parts, and provide easy operator access
- Made in the USA

The GM-2 is a heavy-duty 3-axis gantry mill designed for large-part machining, such as airframe components, large plates, and long extrusions. The machine’s rigid steel construction provides a very stable cutting platform, and a 1" thick aluminum table is standard. A traveling guard protects the operator from chips and coolant, and keeps the workspace clean.

- Robust 40-taper inline direct-drive spindle
- 75° between columns for large parts
- Rigid-steel construction
- Traveling guard for chip and coolant containment
- 1" thick aluminum table
- Made in the USA

The ST-30/35/Y with optional Sub-Spindle provides increased productivity and throughput for your machine.

This new model features a 6.5-inch hydraulic chuck with built-in synchronization, allowing effortless "in-cycle" part pass-off. The spindle is equipped with a powerful 4000-rpm A2-5 spindle, providing high-torque throughout the rpm range.

- 4000-rpm
- A2-5 Spindle Nose with 6.5" (165 mm) Chuck
- 1.75" (45 mm) Bar Capacity
- Includes CNC Control Cabinet Cooler
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- 1” thick aluminum table
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EC-500/50

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- Powerful 50-taper spindle for heavy cutting
- Standard 50+1 tool side-mount tool changer
- Built-in pallet changer with 500 mm pallets
- Full 4th-axis indexing
- Made in the USA
The VC-400 combines the versatility of a small VF Series vertical machining center with the pallet-changing ability of our EC-400 HMC. The fully integrated pallet changer allows you to set up jobs on one pallet, while you’re running parts on the other pallet. For additional productivity overnight, simply load up both pallets and push Cycle Start before heading home.

- Pallet-changing VMC
- 30+1 Side-Mount Tool Changer
- Large work envelope
- T-slotted tables

Our 6-station pallet pool for the VC-400 is perfect for high-volume production runs, or high-mix/low-volume machining. The pallets (22” x 14.5” with T-slots) can be scheduled individually according to priority and sequencing requirements, allowing high-priority parts to be machined first or staged more often.

**NEW PRODUCT FOCUS**

### VR SERIES RE-INTEroduced

**VR-8, 9 & 11**

Haas VR Series VMCs are the perfect solutions when your 5-axis parts are too large to rotate using traditional rotary tables and trunnions. Each VR Series machine features a large T-slot table that easily supports large workpieces and fixtures, and a powerful 2-axis gimbaled spindle head that provides access to nearly any angle on the part for complex shapes, undercuts, and 5-side machining.

- 5-axis simultaneous machining
- Powerful integral-motor spindle
- Dual-axis spindle head
- HSK-A63 taper
- Includes Wireless Intuitive Probing System
- Made in the USA

The Haas VR Series machines combine an upgraded version of the integrated gimbal spindle used on our GM-2-5AX with our extremely popular VF Series VMCs. The result is a very versatile full 5-axis machine tool.

These are very different machine tools, compared to our previous versions of the VR Series machines. The main technical difference is the rotary axis configuration. The previous generation VR Series machines used an A-axis mounted on a B-axis to support the spindle. The new versions use a B-axis mounted on a C-axis. This means that G-code programs developed for the discontinued VR machines are not compatible with the new versions, and post-processors will have to be modified to reflect the different axis configuration.

**NEW PRODUCT FOCUS**

### VC-400

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**NEW PRODUCT FOCUS**

### VS-3

For large travels and heavy-duty cutting capacity in a vertical machine, Haas offers the VS-3. The VS-3 is a large-frame, bed-style vertical machining center featuring a powerful 50-taper geared-head spindle, and a 30+1 side-mount tool changer.

The fully supported X-axis travel easily supports parts up to 10,000 lb.

- 150” x 50” x 50” (3810 x 1270 x 1270 mm) travels
- 10,000 lb part capacity
- 50-taper geared-head spindle
**NEW PRODUCT FOCUS**

**VR SERIES RE-INTRODUCED** **VR-8, 9 & 11**

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- Powerful integral-motor spindle
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- Pallet-changing VMC
- 30+1 Side-Mount Tool Changer
- Large work envelope
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**VC-400 PAILLET POOL**

Our 6-station pallet pool for the VC-400 is perfect for high-volume production runs, or high-mix/low-volume machining. The pallets (22” x 14.5” with T-slots) can be scheduled individually according to priority and sequencing requirements, allowing high-priority parts to be machined first or staged more often.

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- 150” x 50” x 50” (3810 x 1270 x 1270 mm) travels
- 10,000 lb part capacity
- 50-taper geared-head spindle

While the high-speed spindle is best suited for aluminum, composites, and other non-ferrous materials, the increased power allows cutting a variety of steels. Balanced material removal rates can be achieved with modern high-efficiency milling techniques. The VS-3’s 20,000-rpm speeds are perfect for heavy-duty cutting, whether you’re finishing or roughing.

The VS Series mills are all 5-axis “gimbal head” machines, where both rotary axes are mounted on the Z-axis, and the spindle/tooling head assembly rotates, while the workpiece is stationary on the machine table. This allows the cutting tool to point at any angle within the rotary-axis travel limits.

The VR Series mills feature a 20,000-rpm HSK-A63 integral-motor spindle. This upgraded spindle features 50% more power and 40% more torque than the HSK-F63 spindle in our GM-2-5AX. More power means more aggressive material removal is possible. This spindle is not just for finishing!

**NEW PRODUCT FOCUS**
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The Haas Desktop Mill is the ultimate training machine for schools and technical colleges. Powered by a full-function Haas CNC control housed in our portable simulator enclosure, the Desktop Mill is perfect for teaching the basic principles of programming and operating a CNC mill.

NEW PRODUCT FOCUS

TRT210

Our redesigned TRT210 tilting rotary table not only puts 5-axis capabilities well within reach of the average job shop, but its new smaller size also provides greater mounting flexibility than its predecessor. We’ve completely redesigned the TRT210 to create a much more compact and versatile 5-axis solution for mid-size mills. The new unit easily fits on one end of a machine’s table, leaving the remainder open for additional fixtures or vises.

Requires a Haas mill with 4th- and 5th-axis drives for true 4th- and 5th-axis operation. Requires software version NGC 100.18.000.1030 or later to work with DWO/TCPC option. Consult your local HFO for use on machines with a Classic Haas control.

• Add 4- and 5-axis capabilities to your machine
• Compact size fits easily into mid-size mills
• Easy plug-and-play connection to Haas machines
• Industry-leading performance and capabilities
• Made in the USA

HRT210SS

Our HRT210SS Super Speed rotary table uses a heavy-duty cycloidal drive system to provide a maximum indexing speed of 490° per second – nearly five times the speed of our standard HRT210. The unit’s compact size and high speed make it the perfect complement to our VF-2SS and other high-speed Haas machines.

Requires a Haas mill with 4th-axis drive and NGC control with software version 100.17.000.2010 or higher for full 4th-axis operation.

• Add 4-axis capabilities to your machine
• High-speed 490°/sec indexing
• Heavy-duty cycloidal drive system
• Easy plug-and-play connection to Haas machines
• Industry-leading performance and capabilities
• Made in the USA

Haas Automation, Inc. / www.HaasCNC.com / Made with Pride in the USA
NEW PRODUCT FOCUS

DESKTOP MILL

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- Easy plug-and-play connection to Haas machines
- Industry-leading performance and capabilities
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**NEW PRODUCT FOCUS**

**PROGRESSIVE PULSING SYSTEM**

Precise lubrication for drilling and tapping

The Haas PulseJet System is a programmable tap/drill oiling system that provides precise, controllable lubrication directly to the cutting tool for drilling, tapping, and other operations requiring targeted lubrication. PulseJet attaches to the Haas Programmable Coolant Nozzle, and is controlled by M-code. NOTE: Requires the Programmable Coolant Nozzle option.

- M-code activated compressed air
- Control pneumatic devices automatically
- Programmed directly from the Haas Control
- Mounts easily to the machine’s table

**NEW PRODUCT FOCUS**

**HYDRAULIC WORKHOLDING**

To simplify and automate workholding on our UMC Series machines, we’re introducing a line of self-centering hydraulic vises with interchangeable jaws. We’ll have 6”, 8”, and 10” versions available, to fit the UMC-500, UMC-750, and UMC-1000, respectively. The vises are powered by our Hydraulic Vise Ready option, which includes the HPU, rotary union, and hydraulic lines.

- Available in 6”, 8”, and 10” versions
- Programmed directly from the Haas control
- Replacement steel and aluminum jaws available

**NEW PRODUCT FOCUS**

**120-POCKET TOOL CHANGER**

This 120-tool chain-style tool changer provides plenty of locations for back-up tooling, or setting up tools for multiple jobs. It is the perfect choice for high-volume production and long part runs, or high-mix, low-volume machining.

The hydraulically actuated tool change mechanism minimizes non-cutting time, and the servo-driven chain allows direct positioning to any tool in the carousel to reduce cycle times. With adjacent pockets empty, the tool changer allows oversize tooling up to 10” (254 mm) diameter, and weighing up to 35 lb (16 kg).

- Servo-driven chain-style tool changer
- Hydraulically actuated tool change mechanism
- Dedicated area for manually loading/unloading tools
- Pocket Tool Table in the control allows complete control over the tool changer
- Identify tools as LARGE to leave adjacent pockets empty
- Identify tools as HEAVY to slow tool changer motion
NEW PRODUCT FOCUS

**PROGRAMMABLE AIR**

Operate pneumatic devices directly from the Haas control

Our Programmable Air option allows you to operate pneumatic devices on your machine directly from the Haas control, via M-code.

- M-code activated compressed air
- Control pneumatic devices automatically
- Programmed directly from the Haas Control
- Mounts easily to the machine’s table

NEW PRODUCT FOCUS

**HYDRAULIC WORKHOLDING**

To simplify and automate workholding on our UMC Series machines, we’re introducing a line of self-centering hydraulic vises with interchangeable jaws. We’ll have 6”, 8”, and 10” versions available, to fit the UMC-500, UMC-750, and UMC-1000, respectively. The vises are powered by our Hydraulic Vise Ready option, which includes the HPU, rotary union, and hydraulic lines.

- Available in 6”, 8”, and 10” versions
- Programmed directly from the Haas control
- Replacement steel and aluminum jaws available

**PULSE JET SYSTEM**

Precision lubrication for drilling and tapping

The Haas PulseJet System is a programmable tap/drill oiling system that provides precise, controllable lubrication directly to the cutting tool for drilling, tapping, and other operations requiring targeted lubrication. PulseJet attaches to the Haas Programmable Coolant Nozzle, and is controlled by M-code. NOTE: Requires the Programmable Coolant Nozzle option.

- Precise lubrication for drilling, tapping, and milling
- Eliminates the need for peck drilling/tapping, for most applications
- Fully integrated with the Haas control
- Store nozzle positions in the tool offset table
- Nozzle positions can be adjusted on-the-fly
- Features 34 programmable positions
- Use in conjunction with the Auto Air Gun to blow off chips between holes (highly recommended)

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Haas Product Developer, Marcus Imes introduces the Haas PulseJet system. A new way to accurately deliver precise doses of lubricating oil to your cutting tools.
SOFTWARE PUSH UPDATES

With the release of the new Automatic Software Updates feature, your NGC control can always have the most up-to-date software and features! Automatic Updates will allow software to be sent from the factory servers straight to a machine for the end user to upgrade, eliminating the need for a local HFO service technician to make an in-person visit. Removing this non-value-added task from the HFOs will free up service techs to do more pressing repairs, and keep your machines up and running. Customers will also benefit by being able to access our latest software features and improvements immediately, and we all like things NOW! Alternatively, Automatic Updates may be disabled to freeze the software version, then re-enabled when the user wants to update.

NGC Control Software Updates:
- Allows NGC software updates over WiFi or Ethernet
- Customers can access the latest features and improvements immediately
- HFOs no longer have to send a service tech to update software
- User can select Manual or Automatic updates

HSK-A63 SPINDLE

The Haas-designed 12,000- and 15,000-rpm HSK-A63 spindles provide high rigidity and high stability for high-speed, extended-reach machining applications. The HSK (Hohl Shaft Kegel, or hollow-shank taper) tooling provides dual contact between the taper and the spindle face, providing a very rigid connection that offers excellent axial and radial accuracy, especially at high spindle speeds.

- Dual-contact taper for high rigidity and high accuracy
- More rigid toolholders for long-reach tools
- 12,000-rpm and 15,000-rpm versions available
- Increased performance for 3D profiling
- Increased performance when using small cutting tools
- Requires balanced toolholders with G2.5 rating above 10,000 rpm

HaasDrop is a fast and convenient method for sending images, videos, and even program files from a mobile device directly to a Haas NextGen Control. Simply download the free app for Android and iOS devices, and start transferring files directly to the Haas control.

- HaasDrop creates a peer-to-peer connection between the mobile device and the machine control using WiFi
- Select the files from your device and “drop” them to the My Media folder on the control
- Call up the images from within a CNC program using our Media Player M-code (M130), to provide setup information or instructions to the operator
- Editor features include simple, one-step functions to insert media filenames and M130 commands into your programs, without having to type them in

Watch how to send pictures and videos to your Haas Control easily with HaasDrop
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To learn more and register to Virtual Demo Day Live, click now.
NEW PRODUCT FOCUS

HIGH-FLOW FLOOD PUMP

The number one cause of premature tool failure is re-cutting chips. Our High-Pressure Flood Pump solves this problem by delivering up to 45% more coolant to the cutting zone – at higher pressure – to flush out chips and swarf. High-volume, high-pressure coolant is delivered through our multi-nozzle flood coolant ring to maximize efficiency.

- Fixed displacement gear pump provides up to 14 gpm (53 liters/minute) of coolant flow
- Provides up to 60 psi (4 bar) of coolant pressure at the spindle to blast chips from the cutting zone
- Prevents premature tool failure and increases tool life by improving coolant flow

Variable Flow Coolant Pump

Our Variable Flow Coolant Pump uses a variable frequency drive to control the speed of our standard centrifugal coolant pump during operation. This allows control of coolant flow and pressure directly from the program, via M code and P values.

- Adjustable for low, standard, and high flow
- Controlled by M code, using P values
- Unaffected by the incoming power frequency

WHERE DO WE START? THERE ARE A THOUSAND WAYS TO ANSWER THAT QUESTION. BUT FOR THE SAKE OF SPACE (AND TIME), LET’S FOCUS ON JUST A FEW:

HAASCNC.COM/WHYHAAS
WE CAN CUT THAT. CHECK OUT THE FACTORY. HOW DO I PROGRAM. HOW DO I TROUBLESHOOT MY SOLENOID. WE HAVE PARTS. BUILD & PRICE.
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**HAASCNC.COM/WHYHAAS**

We can cut that. Check out the factory. How do I program. How do I troubleshoot my solenoid. We have parts. Build & price.
**Connection Overview**

With the Haas Robot Interface, the 6-axis robot is set up directly through the Haas control, which guides the operator through the steps necessary to quickly program the robot’s motions, using the Haas Touchscreen Remote Jog Handle. Answering simple questions, the operator enters basic information by either positioning the part grippers and pushing a single button to record the position, or by entering basic numeric values. The motions are recorded and values are calculated automatically by the control, and the robot is ready for automatic parts loading.

A part management table can be created by setting up a grid pattern template of equally spaced rows and columns. The robot APL grippers can be configured for various part shapes – such as round, hex, and square bars – and adjusted or modified. The robot APL operates in the background during normal machining operations, returning parts to the storage table and retrieving new raw pieces while parts are being machined. The result is near-continuous unattended machining. An available double-sided rotating gripper saves time by removing a finished part from the machine and replacing it with a raw piece.

**NEW PRODUCT FOCUS**

- Increases the productivity of your Haas machine
- All-inclusive interface design, with plug-and-play capabilities that simplify integration with aftermarket robotic loaders
- No need for additional M-code outputs, or the complex PLC connections used by 3rd-party integrators.

**Haas Machine + Haas Robot Interface + Robot = Quick Setup and Non-Complicated Automation.**

**Watch Haas Automation Product Specialist Corey Sullivan do a quick run-through, showing the intuitive Haas Robot Interface being used to connect a 6-axis robot to an ST-10Y.**
**NEW PRODUCT FOCUS**

**HAAS ROBOT INTERFACE**

Simple, direct integration to third-party robots

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**Easy-to-Use Robot Interface**

Our easy-to-use Haas Robot Interface uses simple, step-by-step instructions to help the operator “teach” a 6-axis robot the correct positions for picking up, loading, and unloading parts.

The robot’s motion is operated directly from the Haas Touchscreen Remote Jog Handle, allowing for seamless integration. Step-by-step instructions, graphics and animations help guide the operator through the setup process, for example:

- **Teach the path the robot arm will follow to the staging position and record it.**
- **Set the part template pattern** – number of rows and columns.
- **Select how the part is being handled by grippers.**
- **Set the first part pick-up position.**
- **Set the load and unload positions at the workholding.**
- **Set the drop-off position for the first completed part, and you’re done.**
- **Press Cycle Start, and the robot will load the first part, and execute the part program in Memory.**

**Simple to Operate in APL Mode**

APL Mode seamlessly combines the part program selected in Memory [MEM] with a designated robot setup template to automate part production and boost productivity.

A new M-code was developed for use with Auto Part Loaders (APL) and robots. M299 is typically used at the end of a part program. When the program is started by pressing [CYCLE START] in Memory mode, the M299 acts exactly like an M30 (Program End and Reset). But if the program is started while “APL Mode” is active, then the M299 will command the robot APL to load the first part from the table, and then run the active program in Memory.

Simply replace your M30 with an M299 at the end of your part program. Then, from the Run Job tab, press [INSERT] to select the designated APL setup template (Job) and turn on APL Mode; an “APL Mode” watermark will appear over your program, and you’re ready to go.

- **Press Cycle Start, and the robot will load the first part, and execute the part program in Memory.**
- **While the part is being machined, the robot will drop off the completed part, and then pick up new raw stock and stage it at the designated load position.**
- **With the Haas Robot Interface, you have the ability to flip a part around for double-sided part operation.**
- **Or use the sub-spindle (if equipped) to machine the second side, and have the robot pick up the part from the sub-spindle.**
- **The operator can monitor table status, the number of parts completed, which number part is inside the machine, and which part is next – all from Run Job page. The cycle continues until all parts on the table are completed, or a specified number of parts is reached.**
- **Single Point – always picks up in the same recorded position, and drops off at another recorded position, allowing for conveyor-fed parts.**

**Robot Cage Guarding**

- You must install a permanent structure to keep personnel out of the robot cell. This structure is very important.
- You must install physical and electronic locks on the structure entrance.

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- **Symmetric Dual Table – picks up from 1 table and drops off at a symmetrical table with the same grid pattern.”

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The Haas Visual Programming System (VPS) lets you quickly create G-code programs for both basic and complex part features – like Y-axis milling and drilling, probing, broaching, and more – using graphical templates and a form-like interface.

Simply define the feature in the template, and VPS then outputs working G-code at the touch of a button. VPS also includes a custom template generator, so you can create templates for your own part features or frequently used programs.

VISUAL PROGRAMMING SYSTEM

Our Visual Programming System gives you an easy way to write programs on-the-fly at your machine’s control, using the geometry and features of your part.
**TAKE CONTROL**

The control is at the center of your Haas experience.

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Take a quick video tour of how you program using VPS.

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Haas Automation’s control continues to prove itself as the machine tool industry’s most user-friendly CNC. The Haas control is fast, smart, and powerful, with a simple user interface and consistent, intuitive navigation. For us, operator ease-of-use is always paramount, and our latest machines are packed with powerful features that simplify job setup and operation to make your shop more productive.

**Standard Features**
- Dedicated Keypad
- Ethernet Interface
- One-Button Features
- M130 Media Player
- 1 GB Memory
- Build-In USB Port
- 15” Color LCD Screen
- Wifi Connectivity
- Advanced Tool Management
- Multi-Function Jog Handle
- HaasConnect Monitoring
- Power-Failure Detection
- Made In The USA

**Pallet Schedule Table**

The Pallet Schedule Table simplifies your lights-out manufacturing by providing powerful yet simple tools for scheduling pallets, assigning pallet priorities, and defining which program runs when each pallet is loaded. Whether you load every pallet with the same component for high-volume manufacturing, or put a different component on each pallet for high-mix/low-volume production, the pallet schedule table easily handles the task.

**Machine Rotary ZeroPoint (MRZP)**

The Haas control can store the locations of the rotary axis centers of rotation (MRZP) for use with the Dynamic Work Offsets and Tool Center Point Control (DWO/TCPC) functions. The DWO/TCPC option greatly simplifies rotary setup by allowing you to set a simple XYZ work offset position on the workpiece, rather than having the center of rotation be the work zero position. This allows the same G-code program to be used, regardless of the workpiece location with respect to the centers of rotation.

**HaasDrop**

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**Rotary Setup**

The Rotary Settings page allows you to quickly select which rotary model is connected as the 4th and 5th axes on the machine. You designate each rotary axis as A, B, or C, based on its physical orientation to the linear axes, and then load the correct parameters for that model. This is also where you activate the Dynamic Work Offsets/Tool Center Point Control option, if purchased.
UNLOCK ALL OF YOUR MACHINE’S POTENTIAL

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- **WIFI CONNECTIVITY**
- **ADVANCED TOOL MANAGEMENT**
- **MULTI-FUNCTION JOG HANDLE**
- **HAASCONNECT MONITORING**
- **POWER-FAILURE DETECTION**
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THE HAAS CONTROL

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Haas EDU Models are specially priced CNC machines exclusively for schools and educators. Available models:

- Mini Mill-EDU
- TL-1-EDU

EDURENATION BENEFITS

- Educational pricing and discounts
- Solutions that include free simulators and extended warranties
- MORE THAN 3450 educational institutions WORLDWIDE
- Industrial Partner discounts and support
- Local Haas Factory Outlet (HFO) service and support

HTEC SUPPORT

Recognizing the need for fully trained CNC instructors in Advanced Manufacturing programs, Haas Automation and the HTEC Network have developed and support four Teacher Training Programs across the United States, and several others across Europe.

HTEC CNC Teacher Training Centers are dedicated to providing the highest quality teacher training available for Haas CNC machines and related technologies. They offer teacher training at all levels, to help HTEC educators take their programs to the next level!
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DEVELOPED WITH SCHOOLS IN MIND

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3450 EDUCATION CENTERS

+100,000 HTEC STUDENTS

Haas Automation, Inc. / www.HaasCNC.com / Made with Pride in the USA
What is Haas Tooling?

Behind every great machinist is great tooling. At Haas, we pride ourselves on making sure our customers get high-quality products at great prices. Now, we bring the same precision and quality that Haas machines are known for to the online tooling marketplace. These tools have been tested and proven on Haas machines in our factory by our expert-level machinists and application engineers.
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Behind every great machinist is great tooling. At Haas, we pride ourselves on making sure our customers get high-quality products at great prices. Now, we bring the same precision and quality that Haas machines are known for to the online tooling marketplace. These tools have been tested and proven on Haas machines in our factory by our expert-level machinists and application engineers.
DIRECT. EASY.

We have created a direct and easy channel for buying high-quality cutting tools at great prices. These are the same tools we use here in our own state-of-the-art machine shop, and we have video and cutting data for every tool. Just click on the tool you’re interested in to see a video of the tool cutting, including feeds and speeds, depth of cut, and all the data you need to hit the ground running when your tools arrive.

High-quality cutting tools and toolholders at great prices, online.

THE HAAS BENEFITS

Not only will you find the Haas cutting tools and toolholders you want, with the complete cutting data for making the right selection, you’ll also have quick access to a library of relevant resources to help optimize your processes.

Haas YouTube

Take a quick introductory tour of Haas Tooling!

You’ll see a powerful new control technology to simplify your part programming and speed up your setup process.

Cutting Data Videos

Access Tip-of-the-Day videos, machining demos, and more, through the Haas YouTube channel. Mark and the rest of the Haas video team will keep you entertained, as they provide useful information to help you have the best shop possible.

Quality

All Haas tooling is engineered to run efficiently and reliably on your Haas machines. Plus, you’ll have unlimited access to our extensive online resources – from troubleshooting guides to how-to procedures to applications tips – to keep your Haas tooling in tip-top shape, and running smoothly.

New Technology

We’ve created powerful new control technology to simplify your part programming and speed up your setup process. All the cutting data from our extensive tool testing is in the Haas control. Simply select the desired Haas tooling from the menu in our easy-to-use VPS templates to automatically populate the recommended speeds and feeds for your program, based on material type.

Haas Tested

Each Haas cutting tool has been rigorously tested on Haas machines in our own machine shop, to ensure they meet our high standards, and always deliver the performance, quality, and value that our customers demand – and deserve.

Haas Proven

These are the same high-quality tools we use in our own state-of-the-art machine shop every day to produce high-precision machined castings and components. We developed the Haas tooling line so that our customers can enjoy the same quality, precision, and value in their shop.

We've cut tested every one of the tools we sell, and we have the video and cutting data to prove it. Simply click on the tool you’re interested in to see a video of the tool cutting, including feeds and speeds, depth of cut, and all the data you need to start using your new Haas tools right away.

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We’ve said it before and we’ll say it again:
HaasCNC.com is more than a website. With new resources like MyHaas and Haas Certification, Haas is offering unmatched online training and support to machinists, as well as shop owners.

**Manage Your Fleet All in One Convenient Place.**

MyHaas is your “One-Stop” resource for Managing Your Machines, reaching Machine Specific Resources, Saving Quotes, Ordering Parts, setting up HaasConnect, and even signing up for Haas Certification.

Just click to create your free account today.
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Check out the video to see all the advantages of MyHaas.

Manage Your Machines
Customize your dashboard to manage and group all Haas machines in your fleet (both NGC and Classic).

Machine Activities
Up-to-the-minute event tracking for a single machine, or your entire fleet – all in one window.

Quotes
Save unlimited quotes online. Once signed in, you can create, save, manage, and share Build-&-Price quotes – without having to re-enter contact information.

MyHaas Machine Details Page
View detailed information about your machines, including serial numbers, build dates, warranty start/end dates, product details, and machine option details.
1. CREATE AN ACCOUNT
Create your free MyHaas account. This account provides a single login for the Haas CNC Certification Program at Learn.HaasCNC.com, as well as for MyHaas, HaasConnect, and Parts.HaasCNC.com.

2. WATCH CHAPTER LESSONS
The Haas certification coursework consists of 12 chapters, with the content presented in video format. Watch each video at your own pace, and rewind as needed. We want to ensure you get the most from your Haas certification.

3. PASS ONLINE QUIZZES
Each video is followed by a short quiz to ensure you have a full understanding of the concepts presented in the video. You must score 100% on each quiz to gain access to the next video.

4. IN-PERSON, HANDS-ON FINAL EXAM AT YOUR LOCAL HFO
Once you have completed all of the videos and quizzes, you may schedule an in-person exam at your local HFO. During this hands-on exam, you will be asked to demonstrate some of the concepts presented in the videos. Students who pass the hands-on exam will receive a certificate acknowledging completion of the Haas CNC Certification Program.

Stand out in the industry as a qualified CNC operator, or ensure your team has the skills they need to properly and safely operate a CNC machine – by becoming Haas Certified. Our online CNC Certification Program provides you – or your employees – with the knowledge and skills necessary for basic CNC machine operation.

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Haas Certified Benefits:
• Stand Out in the Industry
• Prove Your CNC Knowledge
• Professional Credibility
• Easily Accessible
• Standardized Training
• Up-To-Date Information

Watch how the program works

All students who pass the final HFO exam will receive a Haas Certificate of Completion.

BECOME A CERTIFIED MILL OPERATOR

Structured just like our mill operator course, this certification offers an introduction to basic CNC lathe operation, proper machine safety, and fundamental machining processes. In the 12-chapter coursework, we cover lessons such as:

Basic machine start up
Run a simple part program
Basic machine safety
Basic reading of blueprints and shop routers
Intro to cutting tools and workpiece materials

Create a free account. Watch lessons. Pass online quizzes. Take the hands-on final exam. It’s that simple! Start your journey to becoming Haas certified today at haascnc.com/myhaas/haas_certification

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AN ARRAY OF 5-AXIS SIZES TO REDUCE YOUR SETUPS AND INCREASE ACCURACY

Automation is about eliminating operations and simplifying processes, and the fastest way to eliminate operations on your 3-axis mill is to add a Haas single- or dual-axis rotary table. You can reduce or totally eliminate multiple setups, and easily handle multi-sided parts.

From bolt-on solutions to machining centers, you get an incredible range of 5-axis travels for cutting complex parts.

5-AXIS SIMPLIFIED.

We’ve demystified the selection process into just 5 steps to help you choose the right rotary, mill, and program. Find your 5-axis solution at haascnc.com/5-Axis-Simplified.
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S.A.E dimensions / Not to scale
WHY FINANCE?

3 EASY STEPS TO FINANCING A MACHINE

1. Select the machine and options.
2. Fill out the easy online credit application.
3. Select the rate and terms you need, based on your situation.*

- **Preserve** capital / Preserve cash flow
- **Match** monthly payments to revenue generated by the machine
- **Flexible** payment terms, based on your needs and credit

You can buy BOTH the TM-1P and the TL-1 for just **$983 A MONTH!**

**TM-1P**
Starting at **$34,995**

**TL-1**
Starting at **$28,995**

For more details, contact your local HFO.

Explore our available financing solutions at haascnc.com/Community/Events/Financing.

*Longer terms and smaller down payments yield higher rates.
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COMPLETE MACHINE SHOP

DON’T LET THE SMALL FOOTPRINTS FOOL YOU . . . These are big-boy machine tools, not desktop or hobby machines.

You can buy BOTH the TM-1P and the TL-1 for just $983 A MONTH!

TM-1P Starting at $34,995
TL-1 Starting at $28,995

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**Horizontal Mills • Lathes • Rotaries**

**EC Series**
- EC-450: 22" x 25" x 20" (xyz) 559 x 635 x 508 mm
- EC-530: 30" x 25" x 28" (xyz) 762 x 635 x 711 mm
- EC-630: 35" x 25" x 28" (xyz) 889 x 635 x 711 mm
- EC-1000: 67" x 90" x 36" (xyz) 1701 x 2286 x 914 mm

**ST Series**
- ST-10: 14" x 16" (max cap) 356 x 406 mm
- ST-15: 15" x 20" (max cap) 381 x 508 mm
- ST-20: 16" x 22.5" (max cap) 406 x 569 mm
- ST-30: 21" x 26" (max cap) 533 x 660 mm
- ST-35: 21" x 26" (max cap) 533 x 660 mm

**Large-Through-Bore**
- ST-40: 25.5" x 44" (max cap) 648 x 1118 mm
- ST-40L: 25.5" x 80" (max cap) 648 x 2032 mm
- ST-45: 30" x 44" (max cap) 762 x 1118 mm
- ST-45L: 30" x 80" (max cap) 762 x 2032 mm
- ST-50: 30" x 90" (max cap) 762 x 2032 mm

**Large Rotary**
- HRT450: 25.5" x 80" (max cap) 648 x 2032 mm
- HRT630: 25.5" x 80" (max cap) 648 x 2032 mm
- HRT800: 25.5" x 80" (max cap) 648 x 2032 mm

**Small Rotary**
- HRT50: 25.5" x 80" (max cap) 648 x 2032 mm

**Medium Rotary**
- HRT100: 12" x 16" (max cap) 305 x 406 mm
- HRT150: 12" x 16" (max cap) 305 x 406 mm

**Trunnion**
- TR160: 25.5" x 80" (max cap) 648 x 2032 mm

**Single Spindle**
- HRT100: 12" x 16" (max cap) 305 x 406 mm
- HRT150: 12" x 16" (max cap) 305 x 406 mm
- HRT210: 12" x 16" (max cap) 305 x 406 mm
- HRT310: 12" x 16" (max cap) 305 x 406 mm

**Multiple Spindle**
- HRT450: 25.5" x 80" (max cap) 648 x 2032 mm
- HRT630: 25.5" x 80" (max cap) 648 x 2032 mm

**Large Rotary**
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- HRT630: 25.5" x 80" (max cap) 648 x 2032 mm

**New Long-Bed Models**
- ST-11L: 14" x 30.5" (max cap) 356 x 826 mm
- ST-11Y: 14" x 30.5" (max cap) 356 x 826 mm
- ST-15L: 15" x 30.5" (max cap) 381 x 826 mm
- ST-15Y: 15" x 30.5" (max cap) 381 x 826 mm
- ST-20L: 15" x 40" (max cap) 381 x 1016 mm
- ST-20Y: 15" x 40" (max cap) 381 x 1016 mm
- ST-30L: 21" x 50" (max cap) 533 x 1270 mm
- ST-30Y: 21" x 50" (max cap) 533 x 1270 mm

**Dual Spindle**
- DS-30Y: 16" x 22" (max cap) 406 x 559 mm

**What Machine Will You Design?**
- Your Next Haas Is Waiting at [HaasCNC.com/Build & Price](http://www.HaasCNC.com)

**DESIGNED FOR MAXIMUM PRODUCTIVITY**

**HORIZONTAL MILLS**

**LATHES FROM TOOLROOM TO OIL FIELD**

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**Dual Spindle**
- DS-30Y: 16" x 22" (max cap) 406 x 559 mm

*Sub-spindle and APL available.*

**WHAT MACHINE WILL YOU DESIGN? YOUR NEXT HAAS IS WAITING AT HAASCNC.COM/BUILD & PRICE**
**HORIZONTAL MILLS**

**RIGID & POWERFUL**

DESIGNED FOR MAXIMUM PRODUCTIVITY

**Small Rotary**
- HRT1110
- HRT1112

**Medium Rotary**
- HRT1210
- HRT1215
- HRT1220

**Large Rotary**
- HRT1510
- HRT1520

**Trunnion**
- TR160
- TR160-2

**Single Spindle**
- HRT111
- HRT112

**Multiple Spindle**
- HRT113
- HRT114

**Tilting Rotary**
- HRT1212
- HRT1215

**Tilting Indexer**
- TIC2
- TIC3

**Dual-Spindle**
- DS30Y

**EC Series**

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**ST Series**

**Standard**

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**Large-Through-Bore**

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<th>Z</th>
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<tr>
<td>ST-40L</td>
<td>30.5&quot;</td>
<td>44&quot;</td>
<td>44&quot;</td>
<td>648 x 1118 mm</td>
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**NEW Long-Bed Models**

<table>
<thead>
<tr>
<th>Model</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
<th>XCAP</th>
<th>YCAP</th>
<th>ZCAP</th>
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</thead>
<tbody>
<tr>
<td>ST-15L</td>
<td>15&quot;</td>
<td>22.5&quot;</td>
<td>22.5&quot;</td>
<td>356 x 406 mm</td>
<td>356 x 406 mm</td>
<td>356 x 406 mm</td>
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<tr>
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<td>15&quot;</td>
<td>22.5&quot;</td>
<td>22.5&quot;</td>
<td>356 x 406 mm</td>
<td>356 x 406 mm</td>
<td>356 x 406 mm</td>
</tr>
<tr>
<td>ST-20L</td>
<td>16&quot;</td>
<td>20&quot;</td>
<td>20&quot;</td>
<td>356 x 406 mm</td>
<td>356 x 406 mm</td>
<td>356 x 406 mm</td>
</tr>
<tr>
<td>ST-20YL</td>
<td>16&quot;</td>
<td>20&quot;</td>
<td>20&quot;</td>
<td>356 x 406 mm</td>
<td>356 x 406 mm</td>
<td>356 x 406 mm</td>
</tr>
<tr>
<td>ST-25L</td>
<td>17&quot;</td>
<td>25&quot;</td>
<td>25&quot;</td>
<td>356 x 406 mm</td>
<td>356 x 406 mm</td>
<td>356 x 406 mm</td>
</tr>
<tr>
<td>ST-25YL</td>
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<td>25&quot;</td>
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<td>356 x 406 mm</td>
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**Chucker Lathe**

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<th>Z</th>
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<th>YCAP</th>
<th>ZCAP</th>
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<tr>
<td>CL-1</td>
<td>4&quot;</td>
<td>8&quot;</td>
<td>8&quot;</td>
<td>25.4 x 203 mm</td>
<td>25.4 x 203 mm</td>
<td>25.4 x 203 mm</td>
</tr>
</tbody>
</table>
LOW RISK

WITH HAAS, YOU KNOW YOU GET:

- You know you can get a great machine for the price
- You know you can get service and support
- You know you get direct access to all of Haas’ product and application knowledge, via their online resources and instructional videos
- You know you can find an operator, as there are more than 200k Haas machines in the field, and our support for manufacturing education is second to none
- You know Haas machines have the highest resale value
- You know Haas has long-standing relationships and presence in the machining communities

WHAT’S THE RISK WITH OTHER MACHINES?

YOU KNOW HAAS IS REAL VALUE.