

### 24 Tool, Auto Tool Changer



Equipped with a 24 pocket Automatic Swing Arm Tool Changer the A560 holds enough tools for both cylinder head and block work. Tool changes are fully automatic, taking just a few seconds. Tool changer is located up and out of the way of the work envelope of the machine and does not take up any work space.

### 20,000 RPM Spindle w/Chiller



High Torque 27HP, 40 taper spindle delivers much more low end than the other guys. The A560 can easily machine a large variety of materials providing superior surface finishes while delivering the low end torque necessary for drilling, tapping & roughing out material. 100% duty cycle spindle operation.

### Auto Tool Length Measurement



Eliminates operator error and increases accuracy. Automatic Tool Length measurement, takes the guess work and labor out of setting up tools. Menu driven, push button measurement only takes a few seconds for each tool. More accurate and much faster than setting tools by hand.

### Cylinder Head Surfacing



Achieve low RA's with CENTROID's own surfacing tooling. Designed and manufactured in-house specifically for cylinder head and block surfacing. T-Slot table accepts cylinder heads for surfacing.

### T-Slot Table



Bolt-on T-slot table to hold any part. Converts machine into a general machining center. Allows you to quickly switch from heads or blocks to general machining. T-Slot table accepts: parts, vises, custom fixtures, & cylinder heads with standard hardware.

### All-around Machining Center



Create all kinds of parts: Manifolds, injector rails, impellers, spacers, adapters, covers, suspension parts, exhaust parts, throttle body and carburetor parts, make anything you can imagine.

### Additional Features & Capabilities

- Machine entire heads from billet
- Manifold digitizing and porting
- Rigid & Compression tapping
- Threadmilling
- Compound angle drilling and tapping
- Valve spring pockets
- Clean up oil returns, install screens
- Rocker arm stud conversion
- Block lightening
- 3D Digitizing and Surfacing
- Design ports by model or 100% digitally
- Auto part alignment to program
- Auto rough and finish passes
- State-of-the-art Linear Rail machine design
- 1300 inch per minute rapids
- Extra heavy rigid machine frame design
- Precision mode machining
- Remote support via internet

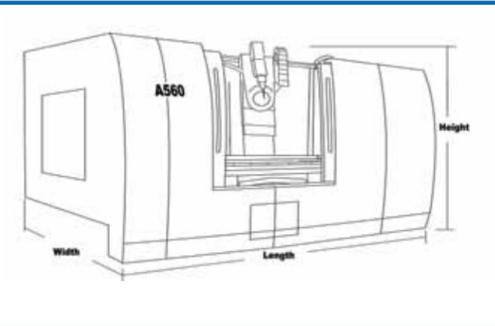
### Included Software:

In addition to **Mastercam** Multi-Axis with Port Expert, Verify and 1st year Mastercam maintenance, the CENTROID CNC control includes: Windows 7, "Intercon" conversational part making software, CENTROID's digitizing and probing cycles, graphical part program preview, automatic tool measurement, cutter radius compensation, unlimited file size, advanced block lookahead, sub programs and macros, part scaling and mirroring, rigid tapping, compression tapping, multiple work coordinate systems, coordinate system rotation, programmable spindle speed, menu driven setup menus and extensive canned cycles including boring, pocketing, drilling & tapping cycles and threadmilling. The Block option includes all of the above plus: CENTROID's "True Block" Conversational Engine Block CNC Blueprinting and Machining software includes but not limited to: Automatic dimension probing before and after machining. Pre-programmed block operations with fill in the blank menus for common block operations. Boring, Surfacing, Four Bolt Main conversions, Chamfering, O-ring, Lifter boring. Remote diagnostics is also included and all software upgradable via the internet or USB.



### Machine Specifications:

	A560	A560 XL
Table Size:	20" x 49.5" (508mm x 1257mm)	23.6" x 66.9" (600mm x 1700mm)
Longitudinal travel (X):	42" (1067mm)	58" (1473mm)
Cross travel (Y):	24" (607mm)	26" (660mm)
Vertical travel (Z):	26" (660mm)	36" (914mm)
A axis:	360 degree rotation	360 degree rotation
B axis:	+/- 60 degrees of tilt	+/- 60 degrees of tilt
Maximum table load:	2200lbs (1000kg)	2200lbs (1000kg)
Spindle power:	27HP/ 20kW	27HP/ 20kW
Spindle taper:	CAT40	CAT40
Spindle speed:	20,000 RPM	20,000 RPM
ATC	24 Position Swing Arm tool changer	24 Position Swing Arm tool changer
Rapid feed rates (X,Y,Z):	X,Y 1000 IPM, Z 800 IPM	X,Y 1000 IPM, Z 800 IPM
Accuracy:	0.0005" (0.0127mm)	0.0005" (0.0127mm)
Repeatability:	0.0002" (0.0060mm)	0.0002" (0.0060mm)
Axis drive motors (X,Y,Z,A,B):	X,Y 2.9kW, Z 4.5kW, B 3kW, A 1kW AC Brushless	X,Y 2.9kW, Z 4.5kW, B 3kW, A 1kW AC Brushless
Enclosure	Full Enclosure with Chip Auger	Full Enclosure with Chip Auger
Guide ways	Heavy Duty Linear guideways	Heavy Duty Linear guideways
Coolant pump:	45 PSI, 12 gal/min 50 Gallon Capacity	45 PSI, 12 gal/min 110 Gallon Capacity
Auto lubrication pump:	150W .13 liters/min	150W .13 liters/min
Coolant separator	Disc type Oil/Coolant separator	Disc type Oil/Coolant separator
Way Covers	Telescoping metal way covers	Telescoping metal way covers
Power requirement:	43kVA, 50-60Hz, 208-240v, 3 Phase, 100 amps	43kVA, 50-60Hz, 208-240v, 3 Phase, 100 amps
Air requirement:	90-100 PSI, 6.2-6.8 Bar	90-100 PSI, 6.2-6.8 Bar



	A560	A560 XL
<b>Machine Footprint:</b>		
Length:	121" (3073 mm)	179" (4546 mm)
Width:	97" (2463 mm)	89" (2260 mm)
Max Height:	116" (2946 mm)	126" (3200 mm)
<b>Shipping Footprint:</b>		
Length:	121" (3073 mm)	163" (4115 mm)
Width:	97" (2463 mm)	90" (2286 mm)
Height:	109" (2768 mm)	112" (2845 mm)
<b>Weight:</b>		
Machine:	14,000 lbs (6350 Kg)	16,000 lbs (7273 Kg)

### Full Service Training and Warranty:

- Customized one-on-one training, tailored to each customers specific needs.
- One year standard warranty on parts, labor, and technical support. Machine in-shop setup included.
- Personalized service and support. Support available outside M-F 9-5
- One number to call for every component in the system. Direct support phone numbers.
- Internet enabled with on machine remote access trouble shooting & programming assistance.



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**CENTROID™**

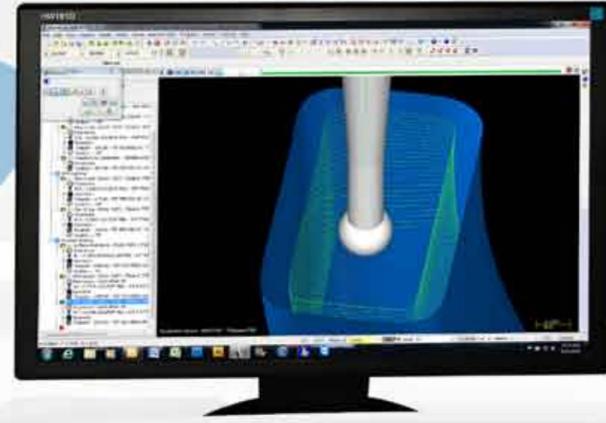
**A560**  
5-Axis Engine Shop CNC



**Heads, Blocks and Parts  
Same Machine, Same Fixture**

### ① Digitize

With up to +/- 60° of tilt, the A560 easily reaches into the most extreme port designs. Heads are digitized in 5-Axis right on the machine – no need to purchase additional equipment to digitize your race-winning designs.



### ② Create

The digitized data is exported to Mastercam where surfaces are created and edited. 5-axis toolpaths are created on your desktop PC or Laptop, no need to tie up the machine to program a cylinder head. The machine can be running a job while you are programming the next head in the comfort of your office, home, remotely etc.

### ③ CNC Port

The CNC programs are copied into the CENTROID CNC control via USB, Ethernet or Wifi. A new casting is loaded into the machine and the porting begins. The A560 machines exact copies of your ports for the ultimate in consistency and power gains.

#### Turnkey System Includes

- ✓ 5-Axis machining center
- ✓ M400 5-Axis CNC control
- ✓ Patented articulating head design
- ✓ **Mastercam** CAD/CAM software
- ✓ Personalized CNC porting training
- ✓ Digitizing probe & software
- ✓ Carbide lollipop porting tool
- ✓ Auto tool length setter
- ✓ Cylinder head fixture plate
- ✓ 27Hp / 20,000RPM spindle
- ✓ CAT40 tool holders
- ✓ MPG electronic handwheel
- ✓ Industry's best warranty & support

24-tool automatic tool changer

Extra long fixture accommodates 6-cylinder diesel heads

40 taper, 27Hp, High Torque 20,000 RPM spindle w/drilling and rigid tapping

Super rigid patent-pending ballscrew-driven articulating head for heavy duty machining

Big work envelope!  
Machine cast iron or aluminum castings  
Machine steel or aluminum billet heads  
Machine composites & plastics

Fully enclosed cabinet with flood coolant wash down & chip auger

Extra wide door opening for easier loading/unloading of large parts

250 mm rotary table and heavy duty tailstock w/ brake for superior rigidity over other fixtures

Custom cylinder head fixture plate

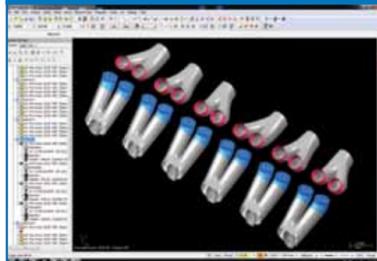
Air blast and coolant wash down hose

Windows 7, Touch screen, High-end CNC computer w/ multi core CPU,SSD,Wifi,USB 3.0 & Remote support

MPG electronic handwheel

Heavy duty cast iron frame with linear guideways provides superior accuracy and rigidity. The A560 weighs in at 14,000 lbs and the A560 XL weighs in at 16,000 lbs!

#### Mastercam CAD/CAM software w/"Port Expert"



Mastercam's new "Port Expert" toolpath has special features designed specifically for cylinder head porting that simplify the process and create toolpaths with reduced run-time and superior surface finish. Mastercam allows you to quickly create accurate reproductions of your intake, exhaust and combustion chambers, or design ports from scratch based on the stock castings. Easily view, copy, analyze and modify intake ports, exhaust ports, and combustion chambers. And you have the full power of the world's #1 selling CAD/CAM package for other machining needs including custom engraving and general part machining.

#### Combustion Chambers



Machine perfect combustion chambers every time. By combining CENTROID's smooth motion control and built-in digitizing software with Mastercam's advanced toolpaths, you can easily reproduce your hand-ported designs with results superior to other methods and machines.

#### Starter Tooling Package



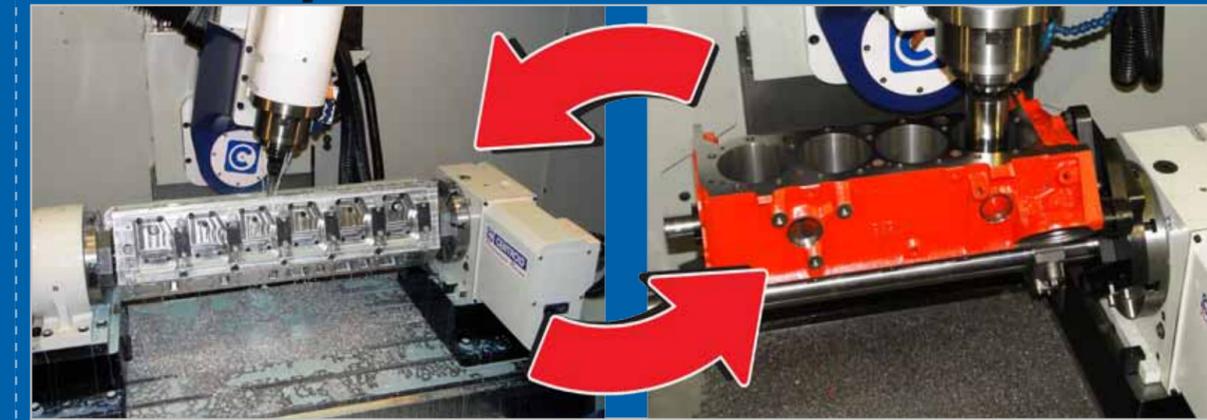
The comprehensive tooling package includes everything you'll need to go straight into production including a "MPG" jogging handwheel, 3D mouse, digitizing probe, automatic tool length setter, a custom cylinder head fixture plate, combustion chamber ball end mill and a carbide lollipop cutter specially designed by CENTROID to provide optimal chip removal and a superior surface finish.

#### User-Friendly 5-Axis CNC



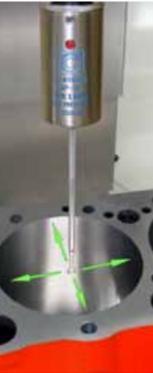
Simple to operate, the CENTROID CNC control is designed with the operator in mind. Graphically assisted part and tool setups along with straightforward menus and an easy to read display ensures every operator will be machining quality cylinder heads in no time. Windows 7 OS, touch screen, remote assistance, internet ready, the control software is easily updated giving you access to the latest CNC technology for years to come. Made in the USA.

## Block Option: Port Block, Same Machine, Same Fixture



CNC machine both cylinder heads and blocks with the A560 Port Block.

Zero swap over time with no fixtures to remove, realign or re-indicate. Equipped with automatic block cnc blueprinting, the machine locates existing dimensions and allows you to adjust and modify for machining exactly where you want the feature to be located. Control size, angle and location of a feature accurately with the push of a button. Built-in block blueprint database, modify, save or create your own custom block programs.



Cylinder Boring



Deck Surfacing



Threadmilling



Head Stud Conversion



Stroker Clearance

Additional capabilities: Lifter Boring, Chamfering, O-ring groove, Spot facing, Engraving, Rigid Tapping, Threadmilling, Drilling, Four Bolt Main Conversions, Pocketing, Block Sleeving and general machining. See video of all these operations and more on our website.



#### Personalized Training



Our skilled technicians teach you how to reproduce your race winning designs with ease. The comprehensive personalized one-on-one training is tailored to your specific application.