# Digital Metal Working

CATT

CAREER AND TECHNICAL TRAINING, LLC

Since 2003, Career and Technical Training, LLC has been providing technology and fabrication lab products in Colorado, Wyoming, Utah and New Mexico.

Located in Windsor, Colorado, our products come with service support, training, and a dedicated representative to assist you.

Let our highly trained team help you evaluate the best resources to fit your space and budget.

We look forward to working with you!

**Call us to schedule a meeting today**

**(970) 686-0379**

# WHAT IS DIGITAL METAL WORKING

Digital Metal Working is an integrated approach to metal working that uses computer technologies to improve machines, processes, and productivity.

At CATT, we provide state-of-the-art metalworking equipment to enhance Career and Technical Education (CTE) programs in schools and educational institutions. Our products empower teachers and students to explore the exciting world of metalworking, equipping them with hands-on skills and practical knowledge essential to today's technical industries.

# COMMON METAL WORKING TECHNIQUES

### Milling

Our milling machines use high-speed rotary cutting tools to precisely remove material from workpieces, enabling students to create intricate features and custom designs. These machines are perfect for teaching students how to produce high-precision components like gears, brackets, and various mechanical parts.

### Turning

With our advanced turning equipment, students can learn to craft cylindrical components like shafts, axles, and engine parts. This equipment helps student understand turning principles and develop skills in producing high-quality cylindrical workpieces with detailed threads and tapers.

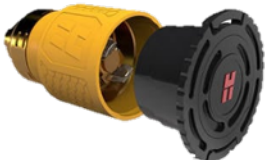
### Laser Cutting

Our laser-cutting technology utilizes high-energy light sources to melt and cut metal accurately. This allows students to create smooth and clean cuts in various metal sheets, fostering creativity and precision in projects such as custom jewelry, interior design installations, and intricate prototypes.

### Waterjet Cutting

Our waterjet cutting systems uses high-pressure water streams, often mixed with abrasive particles, to cut through thick metal sheets and other materials. This technology enables students to perform linear, non-linear, and three-dimensional cuts, making it ideal for projects ranging from automobile parts fabrication to large-scale structural components.

# HYPERTHERM PLASMA CUTTERS



Single-piece Cartridges

Powermax SYNC series is unlike *any* plasma you've seen before. Featuring built-in intelligence and a revolutionary single-piece cartridge consumable, Powermax SYNC simplifies operation, streamlines consumable inventory, lowers operating costs, and maximizes performance.

## Hypertherm Cutting Institute Online Training

- Plasma 101
- Torch and Consumables
- Tutorials and courses on all models
- Curriculum for XPR Operator, XPR Maintenance Basics, Powermax Owner Operator, and Powermax SYNC Product Training

SmartSYNC Torch Technology

## BENEFITS OF POWERMAX SYNC

### Easy to Use

- Easy-to-identify single-piece cartridge consumables are color-coded by process to eliminate parts confusion and simplify consumable inventory management
- Advanced SmartSYNC torches with the Hypertherm cartridge automatically set the correct amperage and operating mode, eliminating setup errors
- Ability to tackle a wide range of jobs with easily interchangeable torch styles and application-specific cartridge consumable for various types of cutting and gouging

### Productivity Gains

- Simplified operation minimizes downtime, troubleshooting, waste, and training time
- Advanced cartridge consumable design provides up to twice the life for hand cutting, and improved quality over life in mechanized setups compared to standard consumables
- SpringStart technology ensures consistent starting and a more reliable torch

### Innovative Smart System

- End-of-life detection lets the operator know when it's time to change the cartridge
- Advanced torch communication for automated process setup
- Time-saving controls directly on the torch allow you to adjust amperage and change the consumable without returning to the power supply
- Access to cartridge data for performance tracking and analyzing usage patterns
- Available cartridge reader accessory pairs with Powermax SYNC smartphone app to analyze performance data such as starts, transfers, and arc-on time

# POWERMAX SYNC SERIES


## Powermax45 SYNC

Features advanced torch communication for automated setup and patented single-piece cartridge for hand cutting, mechanized or robotic cutting, marking, or gouging. Simplified system operation minimizes the time and costs spent on training and troubleshooting.


## Powermax65 SYNC

Next-generation professional-grade air plasma cutter that dramatically simplifies system operation for cutting and gouging up to 20mm (3/4"). It features automated system process set-up via advanced RFID-enabled SmartSYNC torches and a revolutionary single-piece cartridge consumable that provides trackable utilization data.


## Powermax85 SYNC

Professional-grade 25mm (1") plasma cutter provides automated process set-up and a revolutionary cartridge consumable platform for ease of use and optimized performance. Featuring a wide variety of torches and application capabilities for handheld and mechanized cutting and gouging


## Powermax105 SYNC

Professional-grade air plasma cutter recommended for gouging and cutting up to 32mm (1-1/4") , maximizing productivity through reductions in downtime, optimized cut quality performance, and streamlined consumable inventory management.

# CNC PLASMA CUTTERS

A Computer Numerical Controlled (CNC) Plasma Cutter is specifically designed to cut through electrically conductive materials such as sheet metal, mild steel and aluminum. It uses a computer to control and direct an accelerated jet of hot plasma at the material being cut. The key benefit of a plasma cutter is its ability to cut in complex shapes and patterns, including curves, straight edges, spirals, and more. Plasma cutting is a melting process that uses plasma and an outside power source to create an electric arc between the electrode and the metal being cut to melt and eject it from the cut.


20" Models Fit Through Standard 36" Doors

## FabBot CNC Plasma

The FabBot Platform Series Plasma Models come with a Control Computer, CAD/CAM software, Automatic Torch Height (ATH), Hypertherm 45 Plasma System, and Training Tutorials. 110V 20A Machine. 240V 50A Plasma Cutter. The floor space is about 2-feet larger than the work area.

FabBot 48" x 20" CNC Plasma

FabBot 48" x 48" CNC Plasma

FabBot 48" x 96" CNC Plasma


20" Models Fit Through Standard 36" Doors

## Titan CNC Plasma

The Titan Series Plasma Models are solidly built machines made of structural aluminum and come standard with a water table. The floor space is about 2-feet larger than the work area. This is a great model for upstairs workshops or other installations requiring special handling since they are lighter.

TitanP 24" x 20" CNC Plasma

TitanP 48" x 20" CNC Plasma

TitanP 48" x 48" CNC Plasma

TitanP 48" x 96" CNC Plasma

TitanP 60" x 120" CNC Plasma


20" Models Fit Through Standard 36" Doors

## MakerFab CNC Plasma

The MakerFab Series Plasma Models are rugged, heavy-duty machines made of a welded steel frame with an integrated water table. The extra rigidity is great for handling the abuse of students and will last for many years.

PMF 24" x 20" CNC Plasma

PMF 48" x 20" CNC Plasma

PMF 48" x 48" CNC Plasma

PMF 48" x 96" CNC Plasma

PMF 60" x 120" CNC Plasma


## HS CNC Plasma

The HS Series Plasma Models are heavier duty machines made with a larger tubular welded steel frame with an integrated water table. The extra rigidity is durable for handling the rigors of school workshops or full-time commercial use. It's Closed Loop HyBrid Servo Control ensures accuracy at the fastest speeds.

HSPB 48" x 24" CNC Plasma

HSPB 48" x 48" CNC Plasma

HSPB 60" x 120" CNC Plasma

## Plasma Cutter Upgrades and Options

Powermax 45 Pierce 1/2" Steel and Cut up to 7/8" Comes Standard - *Bests Option for Most*

- PowermaxSync 65 Pierce 5/8" Steel and Cut up to 1"
- PowermaxSync 85 Pierce 3/4" Steel and Cut up to 1-1/2"
- PowermaxSync 105 Pierce 7/8"Steel and Cut up to 2"
- High Definition Plasma able to cut 2" thick steel
- 5 Stage Desiccant Drying System
- Wireless Jog Pendant
- Optional Torch Slip Touch Off Detection
- Optional Engraving Head
- Optional HVAC Sofware
- Micro Adjustable Tilt Head
- 6" Pipe Cutter
- Dust Control Computer Security Cabinet

# CNC PLASMA PIPE CUTTER

A CNC Plasma Pipe Cutter is a fabrication tool that can be used to cut through any electrically conductive material. It utilizes plasma flow in a thermal process to cut through material following a tool path pre-programmed in the CNC software. CNC Plasma Pipe Cutters employ a high-velocity stream of ionized gas (plasma) to cut through pipes with precision and speed, allowing them to work fast and provide precise cutting (especially for thick materials)  while producing minimal heat-affected zones, thereby preserving the material's integrity.

## CNC Plasma Pipe Cutter

Capacity 6" Diameter Round Pipe

Cut  pipes or flat materials with CNC Plasma Pipe Cutter.

PMFP 48" x 48" CNC Plasma Pipe Cutter

PMFP 48" x 96" CNC Plasma Pipe Cutter

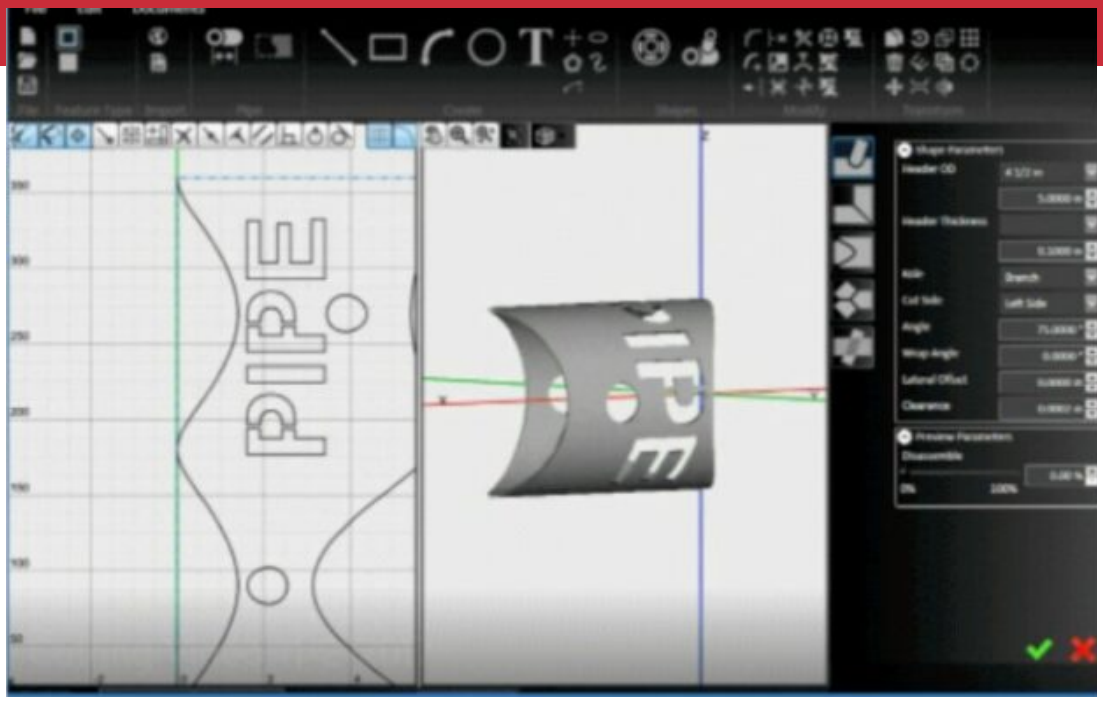
PMFP 60" x 120" CNC Plasma Pipe Cutter

## Upgrades and Options

Optional Manual Angle Adjustment for Bevel Angle Cut

Optional Upgrade for Square Pipe

Optional Upgrade for Computer Controlled Beveling




## Easily Draw Accurate Pipe Features in CAD

- Round pipe, square and rectangular tube support
- Pipe Shape Wizard makes perfect cuts for mating pipes of any diameter with a multitude of joints at any angle and any size including T-joints, end caps, miter joints, Y-joints and through pipes.
- Pipe Sizing Wizard automatically sets OD, and thickness of standard pipe sizes.
- 3D Solid Model of pipe joints includes disassembly to preview what both sides of the joint will look like.
- The Flattened View allows for easy design of custom patterns of any shape including slots and texts.
- Ghost 2D Views show feature wrapping with no interruption.
- Fully rotatable solid model view is available
- Easily import DXF and STL files from other CAD programs

# CONVERT-A-TABLE CNC PLASMA CUTTER/ROUTER

Convert-A-Table easily changes from a CNC Router to a CNC Plasma Cutter. This is an ideal option if you have very limited space and only require the use of one function at a time. The disadvantages, however, are that you only have one machine instead of two and vacuum table systems are not compatible due to the conversion feature of this machine.

The heavy-duty frame  and robust 3-1/4 HP router easily tackle wood projects. Remove the router table and the water table is exposed and available for plasma cutting. No other machine is designed to correctly do both routing and plasma cutting well. The conversion between the two functions takes less than 10 minutes!


20" Models Fit Through Standard 36" Doors

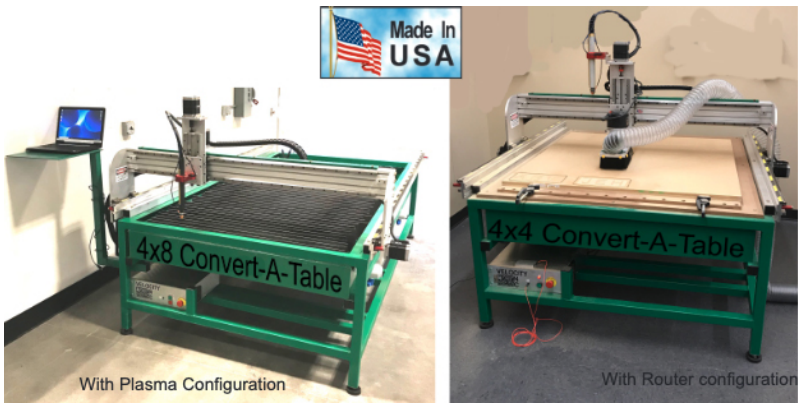
## Convert-A-Table CNC Plasma Cutter/Router Models

110V 30A Machine. 240V 50A Hypertherm 45.

CAT 48" x 20" Convert-A-Table

CAT 48" x 48" Convert-A-Table

CAT 48" x 96" Convert-A-Table




## Includes

- Water Table
- Standard Table
- 3-1/4 HP Router
- Welded Steel Stand
- Dust Hood
- Starter Set of Bits
- Hypertherm 45
- Clamping Table with Deluxe Clamp Set
- Automatic Torch Height
- Break-away System
- CAD/CAM Software
- Control Computer
- Computer Arm



# ECO Series Convert-A-Table

# CNC Plasma Cutter/Router Models

110V 30A Machine. 240V 50A Hypertherm 45.

MCAT 24" x 20" Convert-A-Table

MCAT 48" x 20" Convert-A-Table

MCAT 48" x 48" Convert-A-Table

MCAT 48" x 96" Convert-A-Table

MCAT 60" x 120" Convert-A-Table

## Includes

- Plasma Water Table
- Router Clamping Table
- 3-1/2 HP Router
- Welded Steel Stand
- Dust Hood
- Starter Set of Bits
- Hypertherm 45
- Deluxe Clamp Set
- Automatic Torch Height
- Break-away System
- CAD/CAM Software
- Control Computer
- Computer Arm

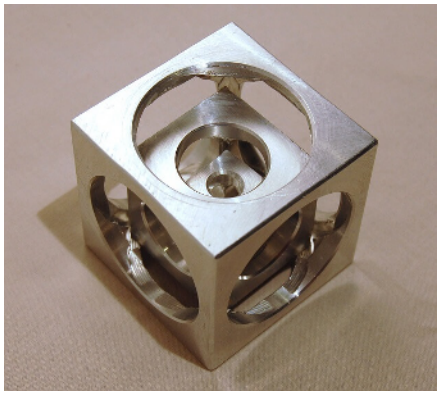
# HEAVY DUTY CNC METAL LATHE

A CNC Metal Lathe is a machine that has a spindle that holds a workpiece. Lathes drive their set of cutting tools over two different axes. These axes are known as X and Z. The process of cutting any workpiece that rotates on the spindle is known as *turning*. As the spindle is rotated, the material is removed and formed through drill bits and cutting tools of different widths and shapes. Eventually the lathe produces a symmetrical product. These machines have the capability to produce many different details on the rotating workpiece through different cuts and shapes. The CNC metal lathe can be programmed to make difficult cuts on very tough materials while also producing high-caliber pieces at high volumes.


## ML246 CNC Metal Lathe

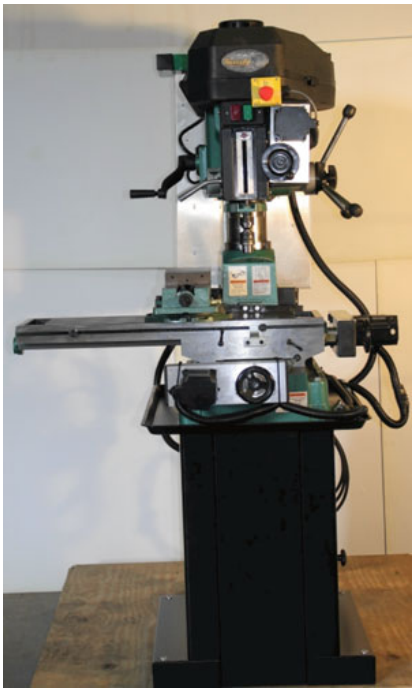
### Features

- 3 HP Spindle
- Travels Z 24" x 20"
- Swing-over Cross Slide 6.3"
- 1200 oz/in Closed Loop Hybrid Servo
- Handheld MPG
- Quick Change Tool Post included without Turret
- 6-inch Lathe Chuck
- Spindle Speed 100 - 3500 RPM
- Spindle Diameter 1.5"
- Industry Standard G-Codes
- Conversational Programming
- Lexan Shield
- *Optional Turret*



# METAL CNC MILL

A Metal CNC Mill works by using a set of rotating cutting tools to create parts from blocks of material in one cycle. Material is removed from a workpiece when the cutting edge of the tool contacts the workpiece as it rotates. During a milling cut, a workpiece is held stationary while the rotating cutter removes material. The exact tool paths, cut depth, XYZ and axis travel, and spindle RPM are all predetermined by the CNC control program.



## Model 1865 CNC Mill

### Features

- Travels X 18"
- Travels Y 6"
- Travels Z 5"
- Quill Travel Max Z Clearance 16"
- Table 9.5"Y x 32"X
- Weight 800-lbs
- Manual or CNC Operation Cuts Steel
- Industry Standard G-Codes on Screen Simulation
- 2 HP 115V Spindle Motor
- Standard R8 Spindle Drill Chuck
- 5/8" X 5 TPI Ballscrew
- 12 Variable Speed
- 110-2580 Oz in Hybrid Servos

### Options

- 1865HS Mill Hybrid Servo Version
- 1865S Economy Stepper Version
- Fixed Position Steel Stand
- Mobile Adjustable Height Stand
- Accessory Kit includes R8 Collet Set Assortment of End Mills, Vise, Hold Down Set

## Economy Table Top Open CNC Lathe or Mill

### ETTMILL85

- Travels X 8.75"
- Travels Y 5"
- Travels Z 6.25"
- Table 2.75" X 13-3/8"

### ETTLATHE48

- Travels X 4.25"
- Center Distance 8"
- Swing-over Bed 3.5"
- Swing-over Carriage 1.88"

# FIBER LASER

A fiber laser uses optical fibers as the active gain medium. By creating a beam inside the fiber, it eliminates the need for a separate optical medium for beam delivery, generating a wavelength and high output power that makes it efficient for cutting, engraving, marking, etching and removing burrs from materials.

## Includes

- Closed-Loop Hybrid Servo control system
- Downdraft Grid Table and ports to exhaust fumes outside or to a filtration system
- Automatic Tcorch Height
- Automatic Voltage Detection
- Fine-marking and standard cutting consumables

## Options

Optional In-Room Filtration System

Optional System to vent fumes outside if there is direct access

Optional Ultra-quiet dry air compression


## Fiber Laser Models

| | |
|---|---|
| CRP2418 | Travels 24"X 18"Y |
| CRP3618 | Travels 36"X 18"Y |
| CRP48X18 | Travels 48"X 18"Y |
| CRP48X24 | Travels 48"X 24"Y |

X18 Models Fit Through Standard 36" Doors

- Cuts steel, aluminum, copper, and brass
- Able to edge cut up to 7/8" steel and 1/2" aluminum
- Depending on operation and material, compressed air, argon, or nitrogen may be used
- Fully-enclosed system
- Runs in a Clean Room
- Cuts steel faster than a WaterJet with lower operational cost

# PROFESSIONAL WATERJET

A professional waterjet cutter uses an ultra-high-pressure pump to generate a pressurized stream of water, which is then passed through an abrasive nozzle. The high-pressure water column can penetrate a variety of materials and cut the parts to be processed.


## HyPrecision Predictive WaterJet

Contact us for other options and sizes.


## AccuJet Models

| | |
|---|---|
| ACCU48x20 WaterJet 50 | Travels 50"X 26"Y |
| ACCU48x48 WaterJet 50 | Travels 50"X 50"Y |
| ACCU48x96 WaterJet 50 | Travels 50"X 98"Y |
| ACCU60X120 WaterJet 50 | Travels 60"X 120"Y |

Optional Tilting Head 4th Axis for angled cuts.

TOOL-LEVEL

# ACCESS CONTROL

## ENHANCING SAFETY, EFFICIENCY, AND RESOURCE MANAGEMENT IN EDUCATIONAL SHOPS


### ACCESS CONTROL AND ACCESS TIMES

- Restricts access to machinery based on user permissions and training levels
- Ensures that only qualified individuals can operate specific equipment, at a specified time, with configurable minimums of signed-in users present

### USAGE PATTERNS AND EQUIPMENT DEMAND

- Monitors which tools and equipment are most frequently accessed
- Aids in prioritizing purchases based on actual usage statistics to ensure investments are made where they are needed most

### USER ACCOUNTABILITY

- Tracks usage and maintains records of individual users' activities
- Fosters a culture of responsibility and accountability
- Supports administrators in identifying re-training needs

### TRAINING AND CERTIFICATION TRACKING

- Integrates with LMS platforms to track user qualifications
- Automatically updates access permissions

### REAL-TIME MONITORING

- Allows for the real-time monitoring of equipment use
- Enables administrators to oversee operations and intervene when necessary