

MultiCam[®]

CNC Cutting Solutions

Features & Specifications Guide for MultiCam 1000 Series CNC Plasma

Price and Performance Breakthrough!

The MultiCam[®] 1000 Series Plasma machine offers a price/performance breakthrough in CNC plasma design. Over fourteen years of leading-edge design experience has allowed our engineers to meet the difficult design criteria required to produce these machines. The challenge was to build a rigid, reliable platform with excellent cutting performance at an entry-level price. The results speak for themselves.

And because it is a MultiCam, the 1000 Series also comes with the full support of the MultiCam Technology Center network, with over 70 locations world wide. MultiCam sales, service, support, and training are always located nearby.



MultiCam, Inc.
1025 West Royal Lane
DFW Airport, Texas 75261
972.929.4070 • fax 972.929.4071
www.multicam.com • sales@multicam.com

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Innovation. Quality. Performance.

1000 Series Specifications

The MultiCam 1000 Series Plasma offers a wide variety of standard features:

- MultiCam EZ Control™ User-friendly operator interface
- MultiCam EZ Control™ HP4 - 3 axis Motion Control
- 8 Megabytes of memory with unlimited file size transfer capabilities, as well as onboard local storage for mainstay parts
- Standard Ethernet or RS232 direct connections
- Custom engineered all steel plate frame design for high strength and rigidity.
- Powerful precision dual X-axis 2 phase high speed stepper motors
- 25 mm linear ball bearing profile rails for maximum stiffness
- Precise captured motion control in all axis



Standard Working Surface

The standard work surface is constructed using mild steel to form a level, slat table. The slats are 50mm on center which provides maximum support under the heaviest material. The slats are designed for high volume air flow and have a center rib for additional strength. The 1000 Series down draft table comes with a high volume fume extraction plenum and 12" diameter outlet hole at the back of the frame assembly.



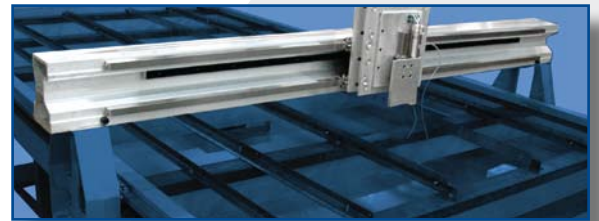
Base Frame

The base frame is constructed from welded mild steel. Fork lift tubes are integral to facilitate machine handling and installation. Linear datum and dowel holes are machined into the main X axis beams to allow accurate linear motion rib location and consistent table height.



Gantry

The Gantry is custom engineered, for maximum stiffness a high quality aluminum extrusion is used. The 10mm wall thickness and an extended aluminum 6 x 8 tube rectangular structure combine to make the gantry extremely rigid. References for the precision linear bearings are extruded in the design to be parallel.



Gantry Supports

Cast aluminum gantry supports are used to house X-axis drive motors and bearings. The supports are machined on a four axis horizontal machining center to ensure that they are parallel and perpendicular. Castings provide extremely stable support for the gantry.



Linear Bearings

- 25 mm ball linear bearing profile rails with stainless spring steel strip cover
- High rigidity and high load capacity for forceHigh torque load capacity
- 4 bearing packs per axis



1000 Series Specifications

Drive Motor System

The 2 phase digital, brushless, synchronous electric motors Multicam has selected for the 1000 Series have undergone extensive testing. The inductance and resistance of the windings are optimized for system smoothness. The integrated digital motor drives have also been optimized to run these motors efficiently.



Drive Transmission Assembly

The transmissions on both X and Y axis, use the same assembly mechanisms. These are based on an aluminum casting and feature steel cable reinforced urethane belt-drives. The output pinions are supported by a dual bearing arbor with wide bearing separation for optimum stiffness.



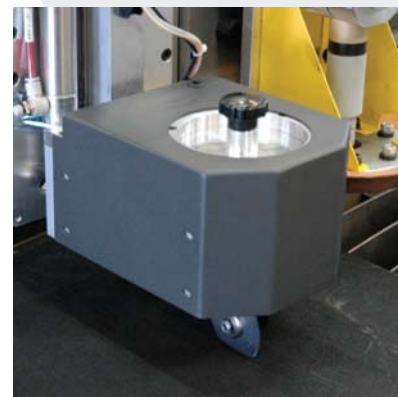
Plasma Torches

The MultiCam 1000 Series Plasma exclusively uses HyperthermPowerMax and Hypertherm HSD torches. PowerMax 1000, 1250 & 1650 torches provide a wide cutting capacity on metals, including aluminum and mild steel. The HSD 130 adds increased capacity and a fuel gas option for cutting stainless steel. Ask your MultiCam representative for additional details and capabilities of the HyperthermPowerMax torches as well as the HPR 130.



EZ Knife Option

Get the most out of your MultiCam 1000 Series Plasma cutter by adding the EZ Knife option for liner duct cutting. EZ Knife supports both rotary and oscillating knife cutters that accommodate glass and closed-cell foam cutting. Combining the power of the MultiCam plasma and EZ Knife will allow metal and duct cutting for HVAC applications to be done with ease and efficiency making the 1000 Series Plasma the ultimate HVAC cutting system.



Adaptive Automatic Torch Height Control

MultiCam engineered one of the most advanced automatic torch height control systems on the market today. The challenge was to make the torch height control extremely responsive when cutting thin metals and very smooth when cutting thick metals.

To achieve the best cut quality possible it is critical to keep the torch-tip to work-distance very consistent. If the torch height control is too responsive on thick metals the cut edge quality will not be smooth. If the torch height control is not responsive enough when cutting thin metals the torch will not be able to adjust quickly enough. The cut height will not be ideal and the torch may even crash into the material.

Competitive torch height control systems are limited as they are independent of the motion control system. They cannot automatically adapt to changes in cut speed and material thickness. The only connection to the motion control system is a signal that disables the torch height controller when the machine drops below 100% of the set cut speed. Because of this limited integration, the torch height controller is forced to use a set of parameters that is somewhere in the middle. This averaging produces just that, an average cut.

Unlike competitive control, the MultiCam Torch Height Control is fully integrated with the EZ Control. The sensitivity of the Torch Height control is automatically adjusted based on the current cutting parameters.

MultiCam EZ Control gives the customer the best of both worlds; very fast response when cutting thin metals, smooth slower adjustments when cutting thick plate. The best part is that all of these adjustments happen automatically for the end user. Height control is an integral function of EZ Control itself; there are fewer parts, which translate into less maintenance cost. MultiCam Adaptive Automatic Torch Height Control is a cut above the rest!



1000 Series Specifications

Auto Reference Voltage

Most systems have the user manually enter in a reference voltage for torch height. The MultiCam system automatically samples the voltage at the beginning of each program and sets this value for you. This gives you a better cut, longer consumable life, and reduces the chance for error. Why is this important? Many parameters can affect the torch height voltage. When cutting faster or slower the book value of the torch height voltage will change. It is nearly impossible for the end user to guess the correct voltage. MultiCam eliminates this guess work by automating the process.

Advanced Kerf Crossing

EZ Control automatically samples the torch height voltage at 500 times per second. The data is fed into a series of algorithms. Most of the algorithms are designed to adjust the smoothness and sensitivity of the torch height control. This is done by averaging the data over varying periods of time. When the voltage drastically changes the controller locks out torch height control.

These drastic changes in voltage are usually caused by cutting back over the kerf. Normally this occurs at the end of the cut when the lead out crosses over the lead in. Systems that do not properly adjust to kerf crossing can dip the torch at the end of the cut or even crash the torch into the material. This can cause the part to be destroyed or not properly cut out. EZ Control Advanced Kerf Crossing detects these changes in voltage and instantaneously locks out the torch height control. Once the voltage stabilizes, torch height control will resume.

- 300 IPM High Speed Z axis
- 2 process surface detection.
- Extremely responsive Ohmic sensor for high speed surface sensing. This keeps from bending material and giving a false material surface.
- Z float sensor. If the Ohmic sensor fails to read the surface, the backup sensor will read the movement in the Z axis when the torch makes contact with the material surface. Smooth and Accurate Arc Voltage Height Control. The voltage is sampled at 500 times per second; the data is averaged and then used to control the torch height level.
- 25 mm Z-axis linear bearing rails for rigid, smooth, accurate motion.

1000 Series Specifications

Standard Features



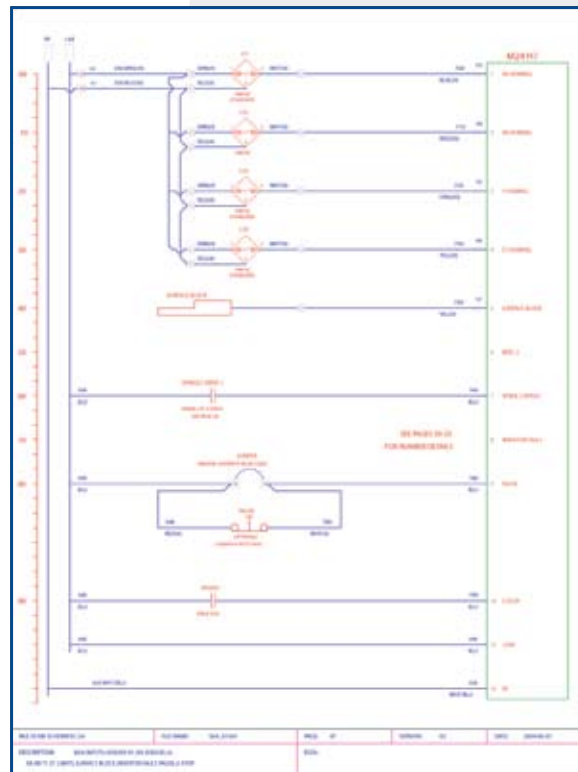
Leveling Feet



Tool Box



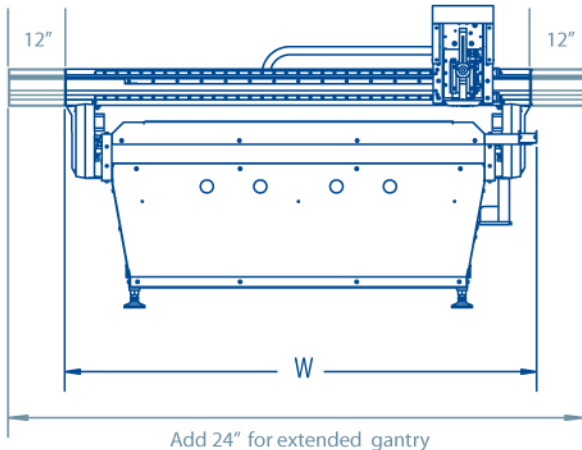
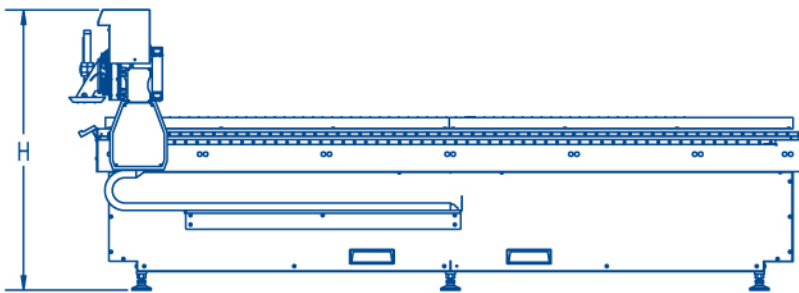
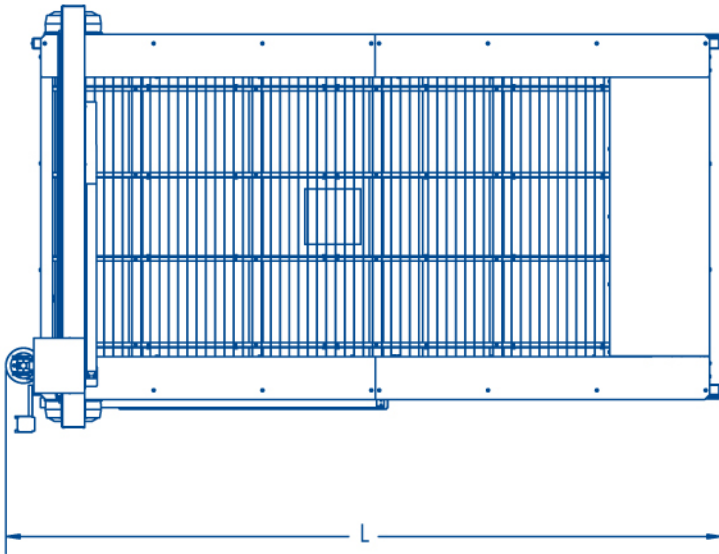
Operation Manual



Electrical Schematics

1000 Series Plasma Specs (inches)

- Z-Axis Clearance: 4.5
- Z-Axis Travel: 6"
- Repeatability: +/- .001"
- Cutting Speed: 800 ipm
- Rapid Traverse: 1000 ipm
- Drive System X and Y axis: Rack and Pinion
- Drive System Z axis: Lead Screw
- Standard Work Surface: Steel slat



Size Chart (inches)

MODEL	L	W	H	WORKING AREA	WEIGHT LBS.
1-103P	155	71	54	50 x 100	2612
1-204P	177	81	54	60 x 120	3157
1-205P	199	81	54	60 x 144	3474
1-304P	177	101	54	84 x 120	3828
1-305P	199	101	54	84 x 144	4193
1-306P	225	101	54	84 x 170	4988

1000 Series Plasma Specs (metric)

- Z-Axis Clearance: 114.3
- Z-Axis Travel: 152.3
- Repeatability: +/- .0254
- Cutting Speed: 800 ipm
- Rapid Traverse: 1000 ipm
- Drive System X and Y axis: Rack and Pinion
- Drive System Z axis: Lead Screw
- Standard Work Surface: Steel slat

Size Chart (metric)

MODEL	L	W	H	WORKING AREA	WEIGHT Kg
1-103P	3937	1803	1371	1270 x 2540	1184
1-204P	4495	2057	1371	1524 x 3048	1431
1-205P	5054	2057	1371	1524 x 3657	1575
1-304P	4495	2565	1371	2133 x 3048	1736
1-305P	5054	2565	1371	2133 x 3657	1901
1-306P	5715	2565	1371	2133 x 4318	2262

*Velocity specifications apply to high power drive systems only.
 Non high power drive cutting speed 450 ipm
 Rapid traverse 600 ipm.

MultiCam®
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