MultiCam®

CNC Cutting Solutions

Features & Specifications Guide for MultiCam 1000 Series Bridge & Rail CNC Plasma

Modular, Versatile... ...Cost Effective!

We challenged our engineers to build a rigid, reliable platform with excellent cutting performance at an entry-level price. The results speak for themselves. The MultiCam 1000 Series Bridge & Rail Plasma is equipped with standard features normally found on more expensive CNC plasma cutting machines. Features include dual X axis drives, engineered structural steel frame and gantry, state-of-the-art Hypertherm plasma units, as well as the legendary ease-of-use of the MultiCam EZ Control. The 1000 Series Bridge and Rail is designed for the customer that desires modularity, versatility and a wide range of working envelopes. It is an excellent choice for the entry level manufacturer or any shop looking for an economical way to cut plate steel and aluminum.

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

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All specifications subject to change.

Innovation. Quality. Performance.

1000 Series Bridge & Rail Specifications

The MultiCam 1000 Series Bridge & Rail 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 frame and gantry design for high strength and rigidity.
- Powerful precision dual X-axis 2 phase high speed stepper motors
- Hardened and polished carbon steel rails with DualVee® wheels for stable load bearing
- Precise captured motion control in all axis

Integrated Material Database

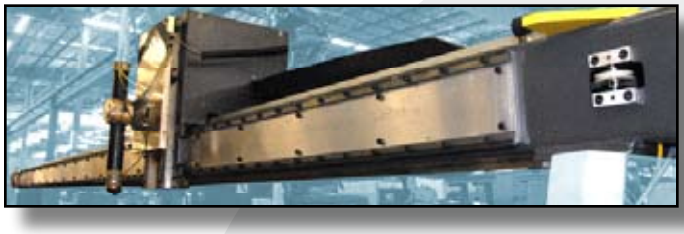
Normally when you change material type, material thickness, or arc current, many parameters such as feedrate, pierce delay, pierce height, etc. all need to be adjusted. MultiCam has made this process simple by integrating all of these cutting values into an easy-to-use menu driven database on our hand held controller. The user simply selects material type, thickness, and arc current and all of the settings are adjusted automatically.

1000 Series Bridge & Rail Specifications

Base Frame

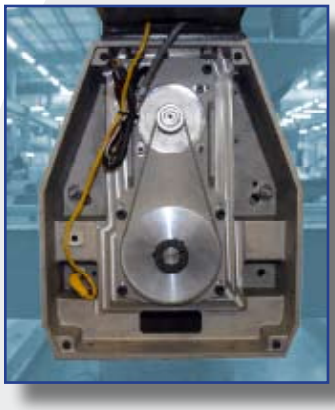
The base frame is constructed from structural steel and features 6” x 6” x .5” capped angel rails. Leg stands are fabricated from 4” x 4” x .25” structural steel tubing and are independently mounted to the floor for rigidity.

Gantry



The gantry is constructed from 6”x 6” x .25” structural steel tubing and can be equipped with internal steel cables and pulleys for an optional second tool carriage.

Gantry Supports

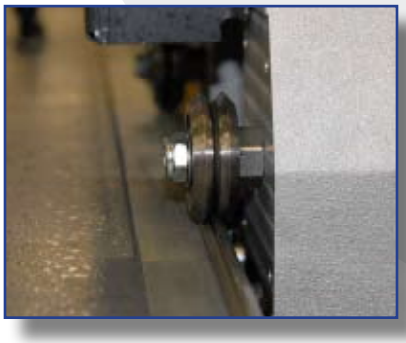


Cast aluminum gantry supports are used to house X-axis drive motors and bearings. The supports are machined on a four axis horizontal machining center to ensure that they are parallel and perpendicular. Castings provide extremely stable support for the gantry.

Drive Train

Both the X and Y axes are driven by precision machined one inch (1”) R2020 rack and 40 tooth, 20° pressure angle, hardened pinions. The Z axis features 10” of programmable stroke and is driven by a .5” diameter lead screw.

Bearings



For stable load bearing in all axes the 1000 Series Bridge & Rail utilizes Bishop Wisecarver® hardened and polished carbon steel rails with 1.80” diameter DualVee® wheels. Each wheel has a dynamic load rating of 2057 lbs.

1000 Series Bridge & Rail 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 Bridge & Rail Plasma exclusively uses Hypertherm 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. The HPR 130/260 high definition systems deliver incomparable cut quality at half the operating costs. Ask your MultiCam representative for additional details and capabilities of the Hypertherm torches.

Oxy-fuel Torches (Optional)

Multicam offers a variety of Oxy-fuel flame cutting options. The 1000 Series Bridge & Rail can be equipped with an acetylene, propane, natural gas, MAPP, or propylene torch to fit most flame cutting applications.

Cutting Table (Optional)

For versatility the 1000 Series Bridge & Rail comes standard without a cutting table. This gives customers the ability to design and fabricate their own cutting platform. MultiCam also offers a complete line of modular downdraft tables.

Adaptive Automatic Torch Height Control/ Quick-stop Crash Protection (Optional)

MultiCam has introduced 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 independent from the motion controller. They cannot automatically adapt to changes in cut speed and material thickness. The only connection to the motion controller 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.

Unlike these controllers the MultiCam Torch Height Control is fully integrated with the motion controller. The sensitivity of the Torch Height control is automatically adjusted based on the current cutting parameters. The MultiCam 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 the controller itself and there are fewer parts which translates into lower maintenance costs.

The quick-stop crash protection torch holder makes changing consumable a snap, and protects your investment against serious damage.

During the cut process it is possible for small parts to tilt up. If the torch hits one of these obstacles, the torch release and shift to the side. The machine will pause and allow the user to fix the problem and continue on.

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.

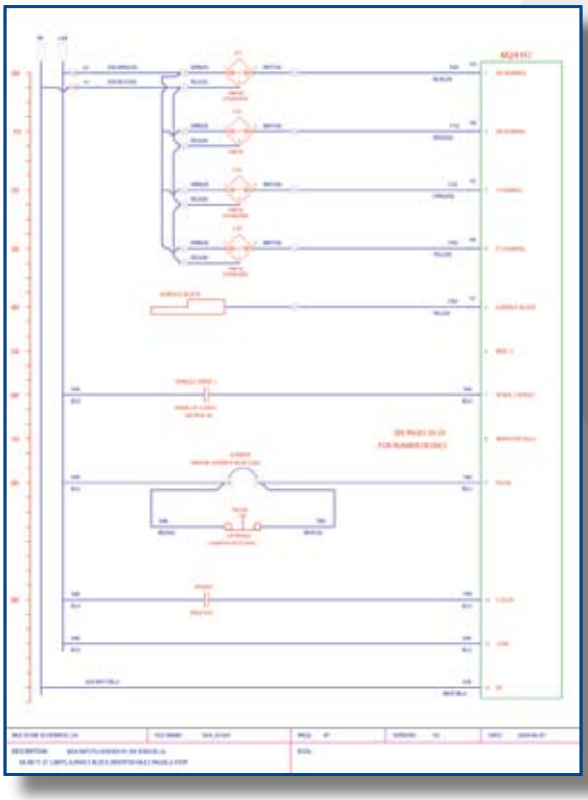
Features include:

- 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.

Standard Features

Tool Box

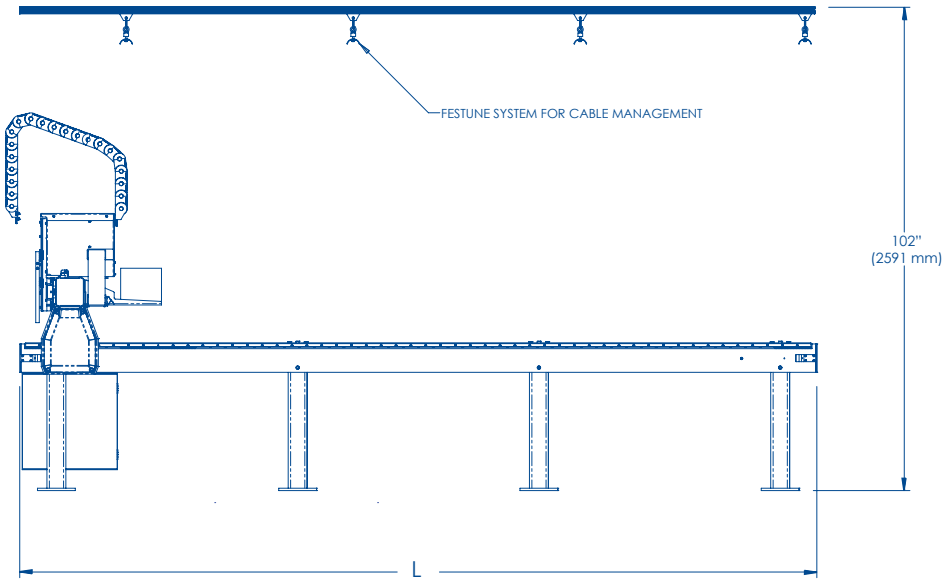
Operation Manual

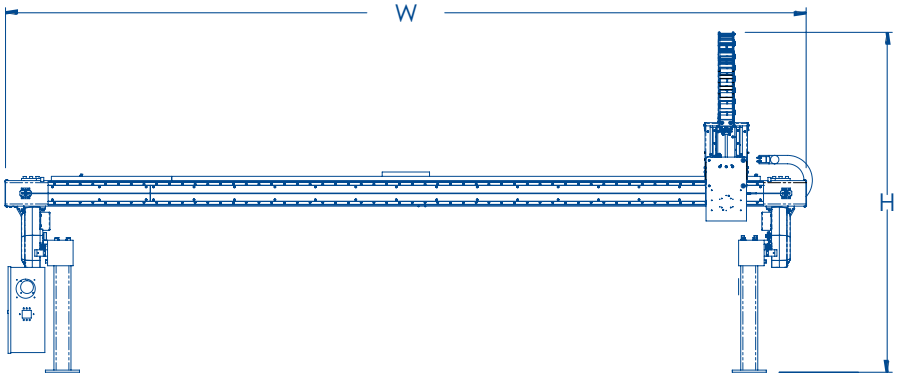


Electrical Schematics

MultiCam®

1000 Series Bridge & Rail Plasma





Size Chart (inches)

MODEL	L	W	H	WORKING AREA
1-305-P-BR	165	124	80	80 X 144
1-308-P-BR	261	124	80	80 X 240
1-310-P-BR	381	124	80	80 X 360
1-312-P-BR	501	124	80	80 X 480
1-315-P-BR	681	124	80	80 X 660
1-405-P-BR	165	140	80	96 X 144
1-408-P-BR	261	140	80	96 X 240
1-410-P-BR	381	140	80	96 X 360
1-412-P-BR	501	140	80	96 X 480
1-415-P-BR	681	140	80	96 X 660
1-505-P-BR	165	164	80	120 X 144
1-508-P-BR	261	164	80	120 X 240
1-510-P-BR	381	164	80	120 X 360
1-512-P-BR	501	164	80	120 X 480
1-515-P-BR	681	164	80	120 X 660
1-605-P-BR	165	188	80	144 X 144
1-608-P-BR	261	188	80	144 X 240
1-610-P-BR	381	188	80	144 X 360
1-612-P-BR	501	188	80	144 X 480
1-615-P-BR	681	188	80	144 X 660

Size Chart (metric)

MODEL	L	W	H	WORKING AREA
1-305-P-BR	4191	298	2032	2032 X 3658
1-308-P-BR	6629	298	2032	2032 X 6048
1-310-P-BR	9677	298	2032	2032 X 9144
1-312-P-BR	12725	298	2032	2032 X 12192
1-315-P-BR	17297	298	2032	2032 X 16764
1-405-P-BR	4191	336	2032	2438 X 3658
1-408-P-BR	6629	336	2032	2438 X 6048
1-410-P-BR	9677	336	2032	2438 X 9144
1-412-P-BR	12725	336	2032	2438 X 12192
1-415-P-BR	17297	336	2032	2438 X 16764
1-505-P-BR	4191	394	2032	3048 X 3658
1-508-P-BR	6629	394	2032	3048 X 6048
1-510-P-BR	9677	394	2032	3048 X 9144
1-512-P-BR	12725	394	2032	3048 X 12192
1-515-P-BR	17297	394	2032	3048 X 16764
1-605-P-BR	4191	451	2032	3658 X 3658
1-608-P-BR	6629	451	2032	3658 X 6048
1-610-P-BR	9677	451	2032	3658 X 9144
1-612-P-BR	12725	451	2032	3658 X 12192
1-615-P-BR	17297	451	2032	3658 X 16764

1000 Series Bridge & Rail Plasma Specs (inches)

- Z-Axis Travel: 10"
- Repeatability: +/- .002"
- Cutting Speed: 500 ipm
- Rapid Traverse: 700 ipm
- Drive System X and Y axis: Rack and Pinion
- Drive System Z axis: Lead Screw

1000 Series Bridge & Rail Plasma Specs (metric)

- Z-Axis Travel: 254 mm
- Repeatability: +/- .05 mm
- Cutting Speed: 12.7 M/min
- Rapid Traverse: 17.8 M/min
- Drive System X and Y axis: Rack and Pinion
- Drive System Z axis: Lead Screw