

# **MultiCam®**

## **CNC Cutting Solutions**

## **MultiCam 5000® Series CNC Router Feature and Specification Guide**

### **Rugged, Reliable and Built to Last!**

The MultiCam® 5000 Series CNC Routers are extremely flexible machines. We designed them for easy configuration to meet most high-speed routing application requirements. Use this rugged cutting system in a broad range of woodworking, plastic and non-ferrous metal production jobs.

Rigid all-steel construction and a space-saving, moving-gantry design make the 5000 Series robust, commercial-grade machines designed for heavy-duty CNC routing. With the industry's largest range of standard table sizes and spindle configurations, MultiCam's 5000 Series is an ideal choice in today's competitive manufacturing environment.



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All specifications subject to change.

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### ***Ideal for Cutting:***

- **Wood**
- **Plastics**
- **Non-Ferrous Metals**
- **Composite Materials**

***And More***

***Innovation. Quality. Performance.***

# 5000-R Series Specifications

No CNC routing machine in its class offers more standard features than the MultiCam 5000 Series.

- User-friendly operator interface
- 25-mm linear bearing profile rails for maximum stiffness
- 2700-IPM rapid traverse
- Standard automatic tool calibration
- High-speed three-axis motion controller
- 12-MB memory with unlimited file size transfer capabilities
- High-performance brushless digital ac servo system standard
- Helical rack in X and Y axes
- Standard Ethernet or RS232 direct connections



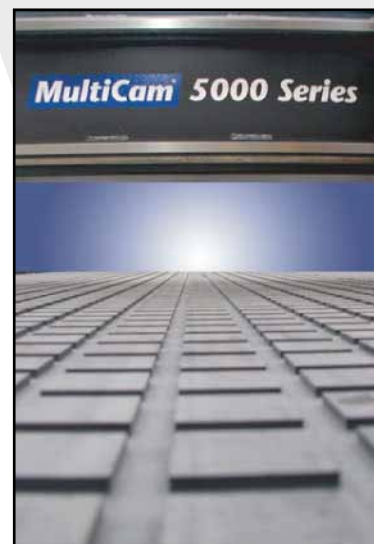
## Automatic Tool Changer (ATC)

Order an optional 12-position rotary tool changer for 5000 Series machines. MultiCam optimized this accessory for bidirectional rotation. It takes the shortest route to help reduce tool change time. All ATC systems come standard with automatic tool calibration. Tool change routines built into the controls simplify integration with your favorite CAM software. An automatic tool changer solution will help reduce job time, improve accuracy and reduce setup errors.



## Standard Working Surface

Our standard working surface is 1" thick 80-82 Durometer phenolic with a grid pattern to utilize 0.500 x 0.250 foam gasket tape. Mounted on top of the steel base frame and machined in place, it ensures a flat cutting surface normal to the spindle. Phenolic makes an excellent work surface because of its dependable mechanical strength and dimensional stability. In addition, phenolic has low-moisture absorption, resists heat and wear and is easy to repair as needed.

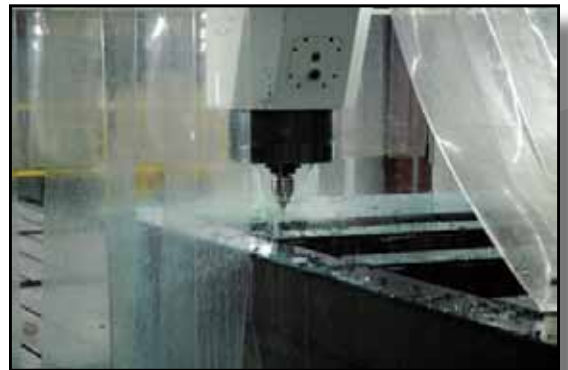


# 5000-R Series Specifications

## Base Frame

MultiCam welds, stress relieves and precision machines the one-piece 5000 Series steel-plate base frame. It features 0.5" thick side plates and 2" bar stock to support the X-axis linear bearings. One-piece construction provides a very accurate and smooth cutting system while reducing installation time greatly. It essentially removes the possibility for installation errors that could affect the system's performance and accuracy.

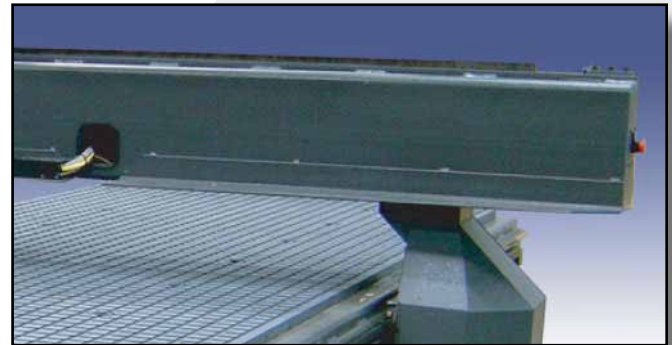
Dual X axes feature 25-mm linear rails, ac brushless servos, precision planetary gearboxes plus helical rack and pinion.



## Gantry

The gantry is fabricated from 8" x 12" structural steel tubing with 0.625" welded bar stock supporting the linear rails. This assembly is stress relieved prior to precision machining.

Y axis features 25-mm linear rails, ac brushless servos, precision planetary gearboxes plus helical rack and pinion.



## Gantry Supports

In conjunction with wide X-axis bearing spacing, cast-iron gantry supports help dampen vibration and give the structural tube gantry extremely rigid support.



## Linear Bearings

The 25-mm linear bearing profile rails with stainless spring steel strip covers are standard in the X, Y and Z axes.

- High rigidity and top-load capacities in all load directions
- Lowest possible noise level and best running characteristics
- High-torque load capacity
- Four bearing packs per axis
- 4000-pound load capacity per bearing





# 5000-R Series Specifications

## Precision Planetary Gearboxes

Alpha Precision Planetary Gearboxes are the top of the line in the industry. Case-hardened and finished ground high-carbon alloy steel gears guarantee the highest service life available. These gearboxes are among the many components that make the MultiCam 5000 Series a smooth, accurate and long-lasting cutting system.

- Single Stage: 10:1 gear ratio
- Efficiency: > 97%
- Low noise level
- Integrated thermal compensation
- Designed for continuous operation



## Regulator Units

Machines equipped with tool-changing spindles come standard with SMC filter regulator units that include an ambient air drier.



## Ball Screw Assembly

The 5000 Series Ball Screw Assembly has an available 17" of stroke that is ideal when using specialty tools. It allows for the option of adding larger gantry clearance in the field. Gantry riser blocks are available to increase the throat of the machine by 4" or 8". Precision dual angular contact ball bearings support the 20-mm ball screw in a steel housing. The top of the screw is mounted to a spring-actuated fail-safe brake system.



# 5000-R Series Specifications

## EZ Control®

MultiCam EZ Control® is one of the most powerful yet easy-to-use motion-control systems available on machine tools today. No wonder MultiCam named its motion system EZ Control!

- Hand-held operator interface with graphic icons
- 12-MB memory with unlimited file-size transfer capabilities
- Multiple home positions
- Automatic Z surfacing
- Electronic depth safety system
- Proximity restart
- Tool compensation
- Cut speed override
- Spindle rpm override
- Standard Ethernet TCP/IP connection



## Drive Assembly

High-torque, brushless digital ac servo motors coupled to zero backlash Alpha gearboxes drive both the X and Y axes. This results in high acceleration of the gantry as well as excellent cut quality.

## Digital Servo Drive System

Digital servo drives and brushless digital ac servo motors form a digital vector servo drive system that is standard on all MultiCam Digital Express machines. This drive system integrates position, velocity and torque loops seamlessly to provide uncompromised tracking accuracy, smoothness and reliability.

MultiCam servo-driven machine drives are the latest in high-performance technology. They advance the state of the art by utilizing seamless coordination and allowing information sharing in real time so all system functions cooperate in any situation. Realize tighter tracking, smoother motion and faster rapid traverse to yield superior machine throughput and reliability.



# 5000-R Series Specifications

## High-Speed Helical Rack System

A precision-ground helical rack comes standard on the MultiCam 5000 Series CNC Router. If watching it move is not impressive enough, wait until you see it cut. With a maximum rapid-traverse speed of 2700 IPM, this drive system can get to a full-speed move in less than half a second!

Our helical rack offers a number of advantages over a straight rack. Especially at high speeds, helical rack and pinions run much more quietly than straight ones. With more teeth engaged than on straight racks, you will achieve faster acceleration and accuracy. Distributing the load over several teeth also reduces wear as well as rack and pinion life.

The Helical Rack System ensures smoother, faster, more accurate cutting. And you will see a substantial decrease in job time, due primarily to high accelerations. Customers with longer machines also will benefit from high-speed rapid-traverse moves.



## Custom Dual-Gantry 5000 Series



# 5000-R Series Specifications

## Standard Features



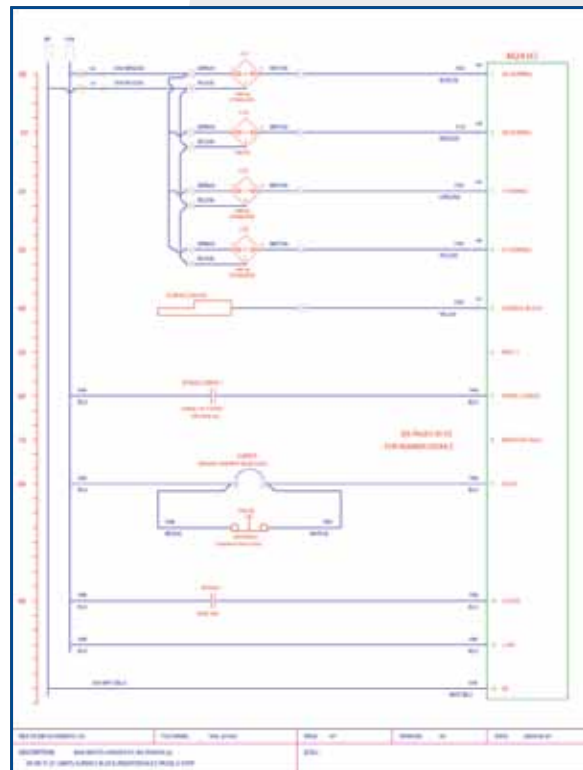
Leveling Feet



Tool Box



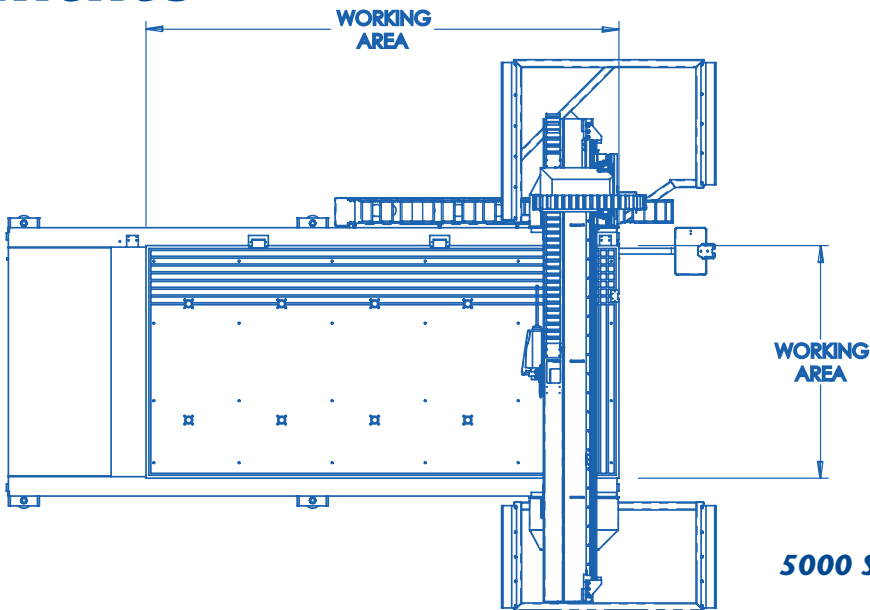
Operation Manual



Electrical Schematics

# 5000-R Series Specifications

**Inches**

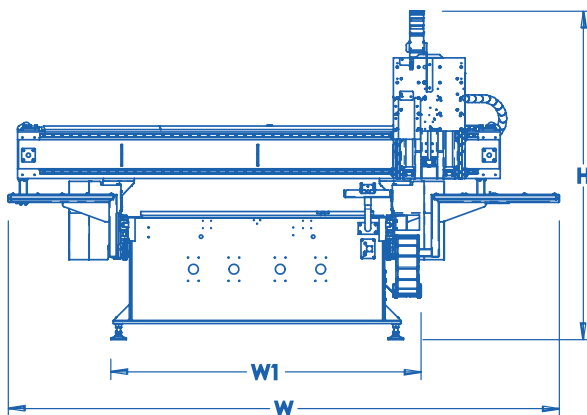
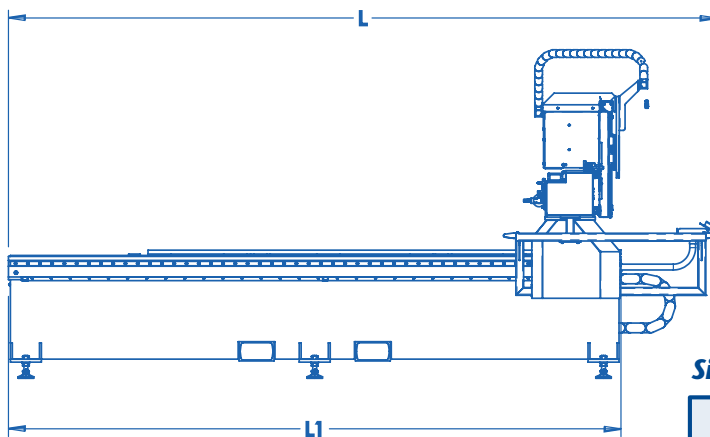


**MultiCam®**

**5000 Series**

## 5000 Series Specifications (Inches)

- Z-Axis Clearance: 8"; Optional: 12" or 16"
- Z-Axis Travel: 17"
- Repeatability: +/- 0.001"
- Positional Displacement Accuracy: +/- 0.005" over 10'
- Cutting Speed: 2200 IPM
- Rapid Traverse: 2700 IPM
- Drive System X and Y Axes: Rack and Pinion
- Drive System Z Axis: Ball Screw
- Standard Work Surface: 1" Phenolic



## Size Chart (Inches)

MODEL	L	L1	W	W1	H	WORKING AREA
101	108	76	89	66	86	50 x 50
103	158	126	89	66	86	50 x 100
202	118	86	99	76	86	60.5 x 60
204	184	152	99	76	86	60.5 x 122
205	202	170	99	76	86	60.5 x 145
208	300	268	99	76	86	60.5 x 242
304	184	152	119	96	86	80 x 122
305	202	170	119	96	86	80 x 145
308	300	268	119	96	86	80 x 242
404	184	152	135	112	86	96 x 122
405	202	170	135	112	86	96 x 145
408	300	268	135	112	86	96 x 242
505	202	170	159	136	86	120 x 145
508	300	268	159	136	86	120 x 242

Specifications subject to change.

Add 20" to W for Optional Wide or Dual Carriages and 4" to H for Optional Wide Carriage.

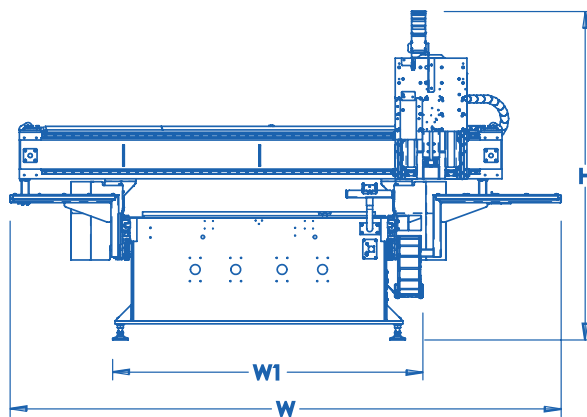
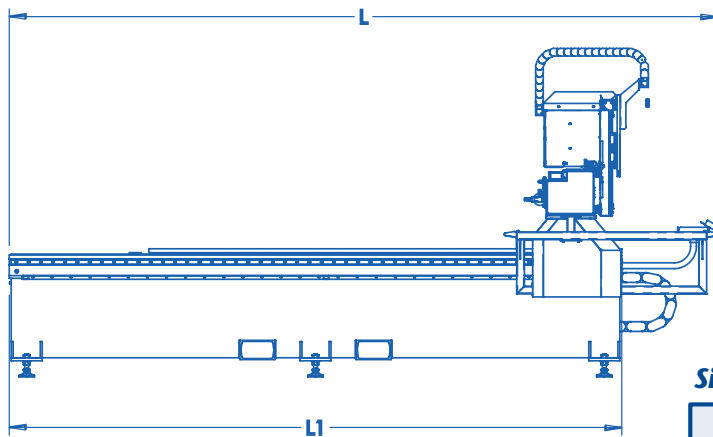
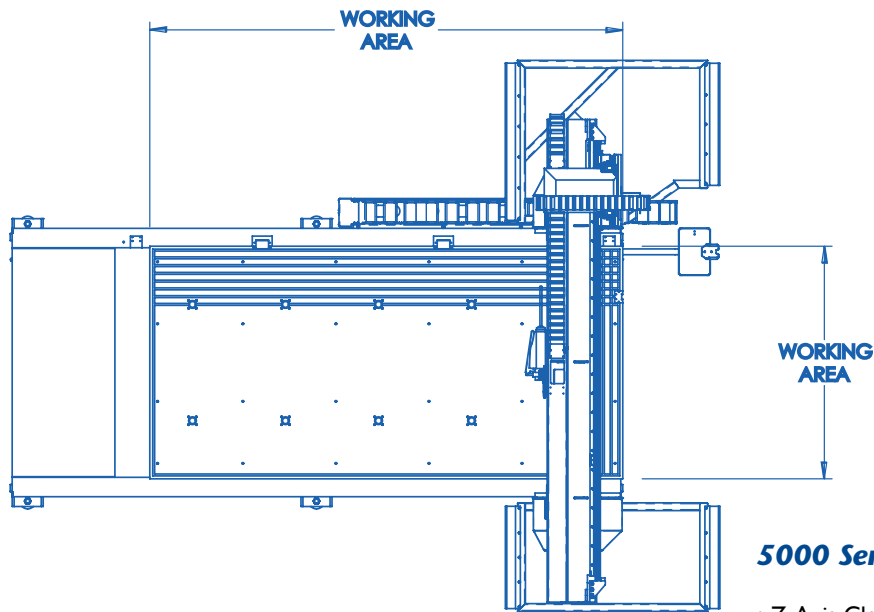


# 5000-R Series Specifications

## Metric

**MultiCam®**

## 5000 Series



### 5000 Series Specifications (Metric)

- Z-Axis Clearance: 203 mm; Optional: 304 mm or 406 mm
- Z-Axis Travel: 432 mm
- Repeatability: +/- 0.025 mm
- Positional Displacement Accuracy: +/- 0.125 mm over 3 m
- Cutting Speed: 55.9 MPM
- Rapid Traverse: 68.6 MPM
- Drive System X and Y Axes: Rack and Pinion
- Drive System Z Axis: Ball Screw
- Standard Work Surface: 25-mm Phenolic

### Size Chart (Metric)

MODEL	L	L1	W	W1	H	WORKING AREA
101	2743	1930	2261	1676	2184	1270 x 1270
103	4013	3200	2261	1676	2184	1270 x 2540
202	2997	2184	2515	1930	2184	1537 x 1524
204	4674	3861	2515	1930	2184	1537 x 3099
205	5131	4318	2515	1930	2184	1537 x 3683
208	7620	6807	2515	1930	2184	1537 x 6147
304	4674	3861	3023	2438	2184	2032 x 3099
305	5131	4318	3023	2438	2184	2032 x 3683
308	7620	6807	3023	2438	2184	2032 x 6147
404	4674	3861	3429	2845	2184	2438 x 3099
405	5131	4318	3429	2845	2184	2438 x 3683
408	7620	6807	3429	2845	2184	2438 x 6147
505	5131	4318	4039	3454	2184	3048 x 3683
508	7620	6807	4039	3454	2184	3048 x 6147

Specifications subject to change.

Add 508 mm to W for Optional Wide or Dual Carriages and 102 mm to H for Optional Wide Carriage.