

# **MultiCam®**

## **CNC Cutting Solutions**

## **MultiCam® 7000 Series CNC Router Feature and Specification Guide**

### **The Ultimate in Heavy-Duty, High-Performance CNC Routing**

The MultiCam® 7000 Series Routers offer the ultimate in high-performance CNC machining. Choose from a broad range of standard table sizes and spindle configurations.

Designed for high-speed, heavy-duty routing, 7000 Series machines are easy to configure to meet demanding application requirements in the woodworking, plastics and non-ferrous metals industries.

Heavy-duty plate frame construction coupled with a space-saving, moving-gantry design makes the 7000 Series a robust, commercial-grade machine designed for today's competitive manufacturing environment.



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

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

***And More***

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

# 7000-R Series Specifications

No CNC cutting machine in its class offers more standard features than the MultiCam 7000 Series Router.

- User-friendly operator interface
- 25- and 35-mm linear ball-bearing profile rails for maximum stiffness
- 3000-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



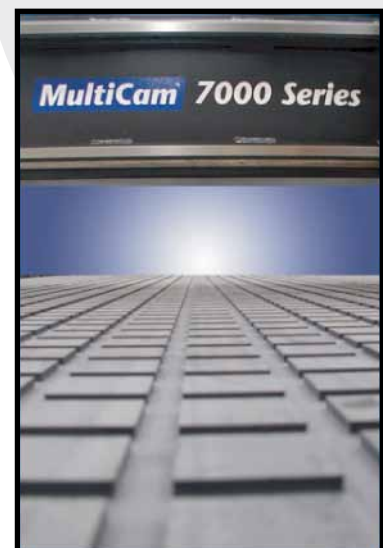
## Automatic Tool Changer (ATC)

Order an optional 12-position rotary tool changer for the 7000 Series machine. It optimizes the system for bidirectional rotation and takes the shortest route to help reduce tool change time. All ATC systems come standard with automatic tool calibration, and the 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

The standard working surface is a 1" thick 80-82 Durometer phenolic with a grid pattern to utilize 0.500 x 0.250 foam gasket tape. Mounted to the top of the steel base frame, the phenolic is machined in place. This 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.



# 7000-R Series Specifications

## Base Frame

MultiCam welds, stress relieves and precision machines the one-piece 7000 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 35-mm linear rails, ac brushless servos, precision planetary gearboxes plus helical rack and pinion.



## Gantry

To fabricate the gantry, we weld, stress relieve and precision machine steel plate up to .75" thick. Features include extensive perpendicular (90°) and diagonal (45°) internal ribbing running the length of the gantry to ensure a smooth, vibration-free cut.

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



## Gantry Supports

The 7000 Series gantry supports are heavy steel weldments. In conjunction with extra-wide 22" X-axis bearing spacing, they give the structural tube gantry extremely rigid support.

## Linear Bearings

Standard ball linear bearing profile rails with stainless spring steel strip covers are 25 mm in the Y and Z axes. Heavy-duty, 35-mm bearings are standard in the X axis.

- 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 for 25-mm bearings and over 9600-pound load capacity for 35-mm bearings





# 7000-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 7000 Series a smooth, accurate and long-lasting cutting system.

- Single Stage: 10:1
- 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 7000 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.



# 7000-R Series Specifications

## EZ Control®

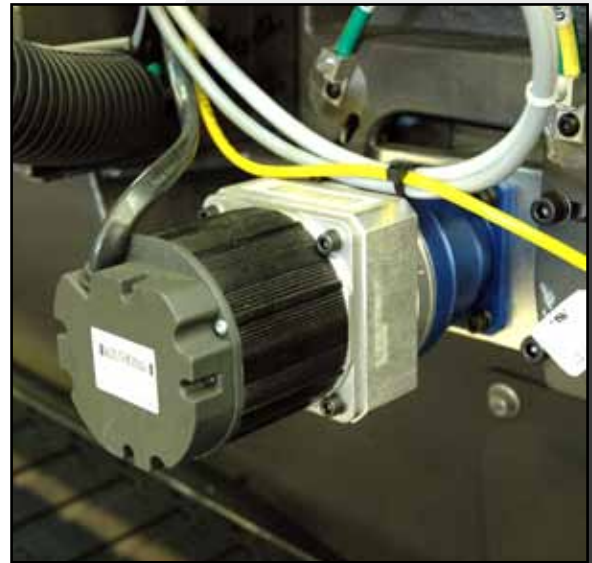
MultiCam EZ Control® is one of the most powerful yet easy-to-use motion-control systems available on machine tools today. No wonder MultiCam named its motion system EZ Control!

- 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.



# 7000-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 3000 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.





# 7000-R Series Specifications

## Standard Features



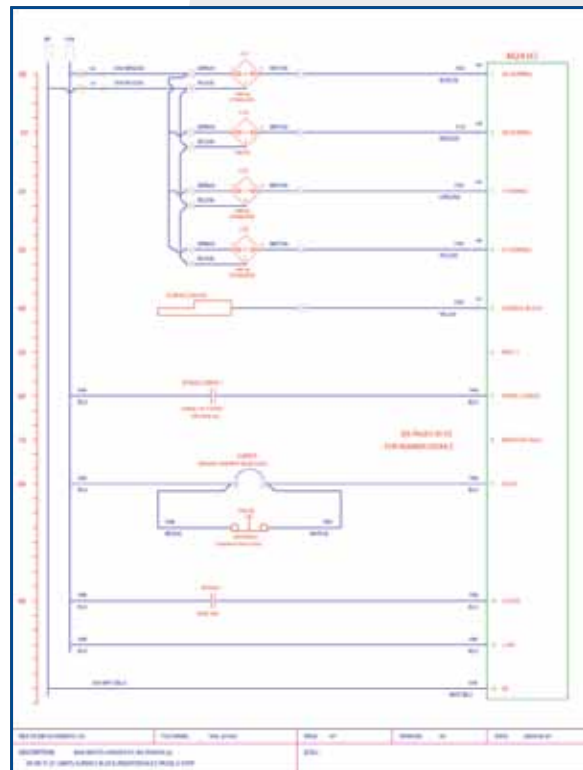
Leveling Feet



Tool Box



Operation Manual

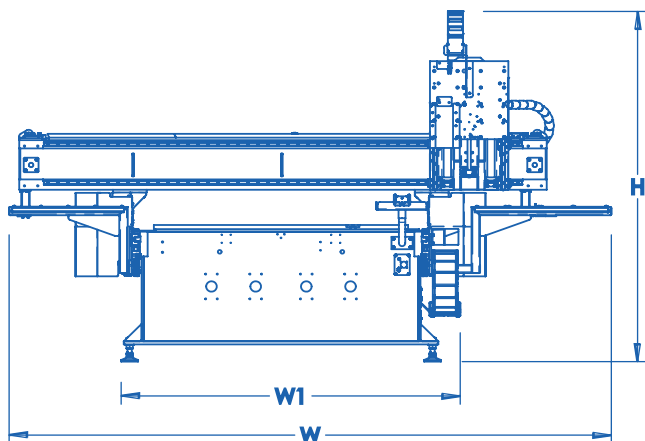
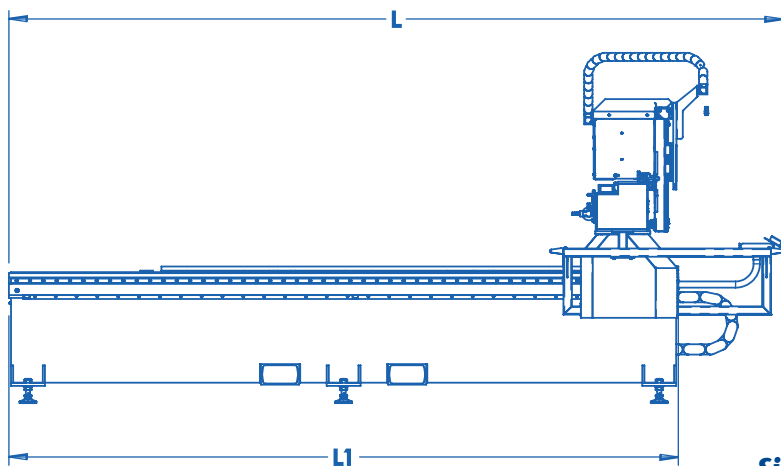
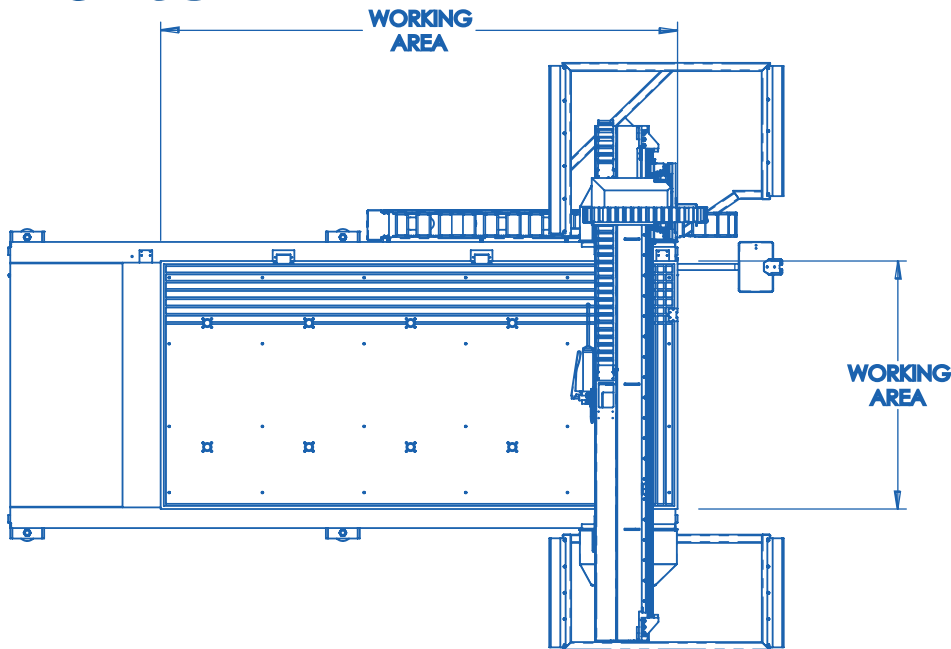


Electrical Schematics

# 7000-R Series Specifications

**Inches**

**MultiCam<sup>®</sup>**  
**7000 Series**



Specifications subject to change.

## 7000 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: 3000 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
103	162	136	113	72	86	50 x 100
202	122	96	123	80	86	60.5 x 60
204	184	158	123	80	86	60.5 x 122
205	206	180	123	80	86	60.5 x 145
208	302	268	123	80	86	60.5 x 242
209	350	316	123	80	86	60.5 x 290
304	184	158	143	98	86	84 x 122
305	202	180	143	98	86	84 x 145
306	232	206	143	98	86	84 x 170

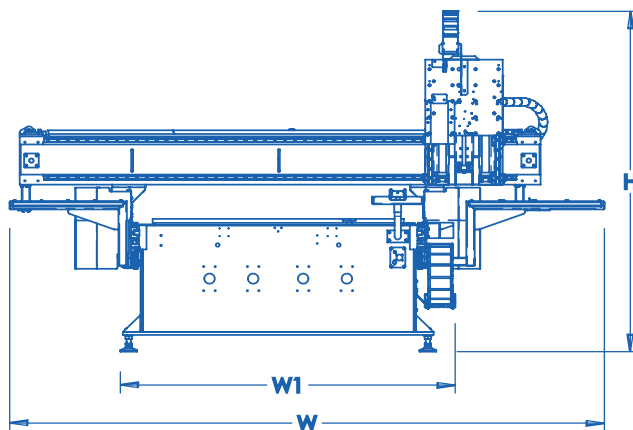
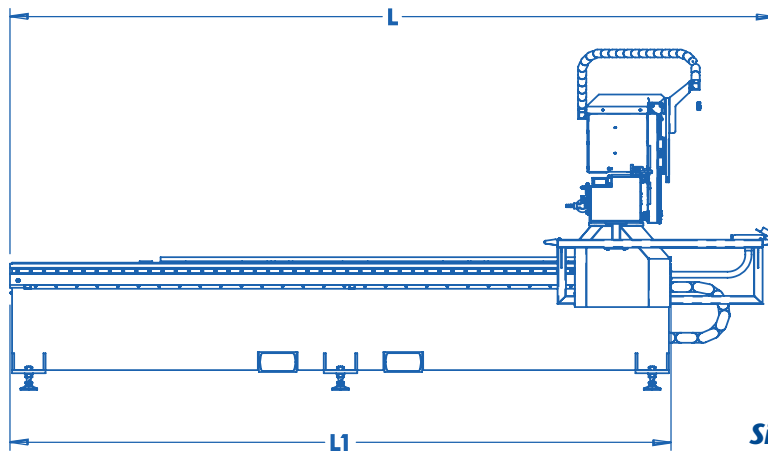
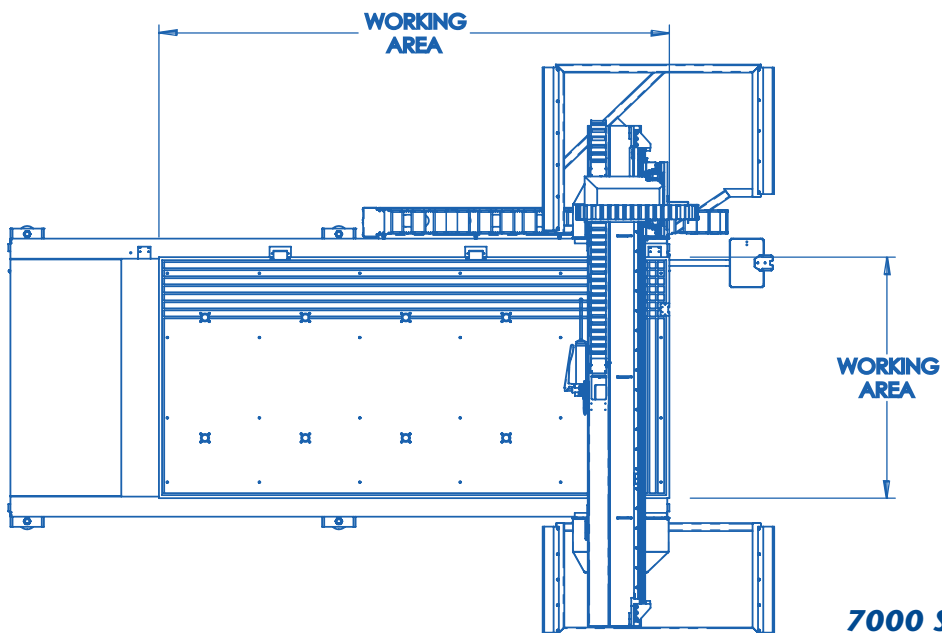
Add 20" to W for Optional Wide or Dual Carriages and 4" to H for Optional Wide Carriage.



# 7000-R Series Specifications

## Metric

## MultiCam<sup>®</sup> 7000 Series



Specifications subject to change.

### 7000 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: 76.2 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
103	4115	3454	2870	1829	2184	1270 x 2540
202	3099	2438	3124	2032	2184	1537 x 1537
204	4674	4013	3124	2032	2184	1537 x 3099
205	5232	4572	3124	2032	2184	1537 x 3683
208	7671	6807	3124	2032	2184	1537 x 6147
209	8890	8026	3124	2032	2184	2032 x 7341
304	5131	4013	3632	2489	2184	2134 x 3099
305	7620	4572	3632	2489	2184	2134 x 3683
306	5893	5232	3632	2489	2184	2134 x 4318

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