

MultiCam[®]

CNC Cutting Solutions

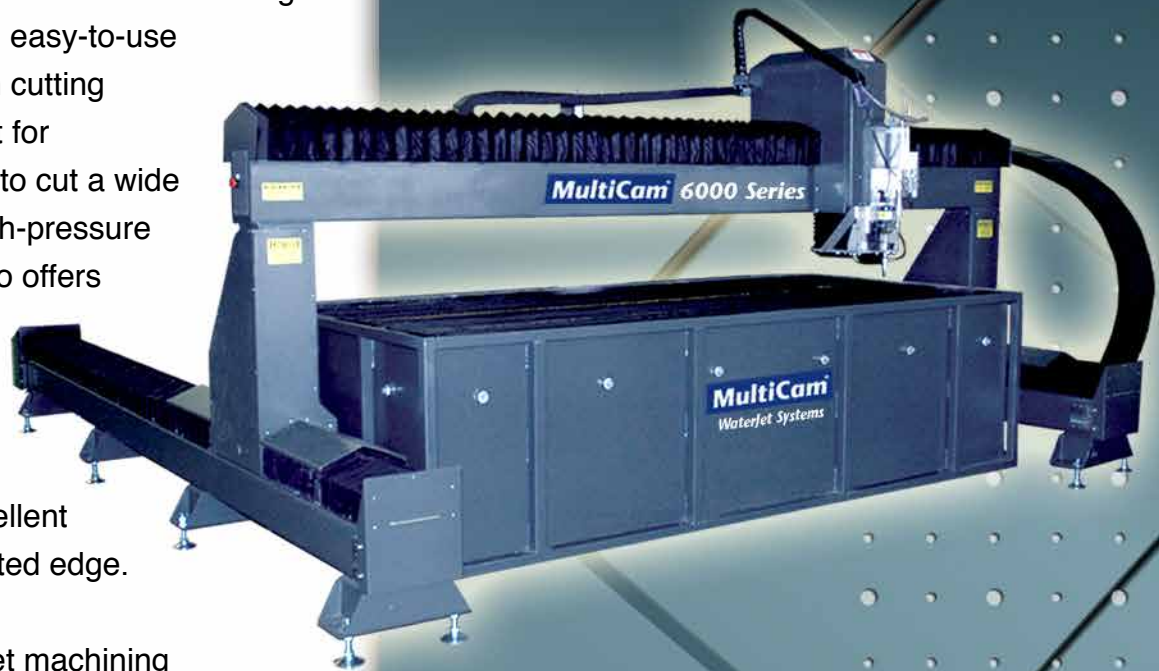
Heavy-Duty Precision and Performance

The MultiCam[®] 6000 Series WaterJet cutting system is an affordable, easy-to-use large format, production cutting solution. We designed it for manufacturers needing to cut a wide variety of materials. High-pressure WaterJet machining also offers unique advantages over other cutting technologies. It allows the user to cut highly accurate parts with excellent finish and no heat-affected edge.

All 6000 Series WaterJet machining systems are manufactured using high-tolerance, large-scale CNC metalworking machines. They are verified with certified laser calibration equipment. And every MultiCam 6000 Series WaterJet also comes with the full support of the MultiCam Technology Center network. With over 70 locations worldwide, MultiCam sales, service, support and training are always nearby.

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MultiCam 6000 Series WaterJet Feature and Specification Guide



Applications:

- **Aerospace**
- **Metal Fabrication**
- **Stone Cutting**
- **Job Shops**

And More

6000-WJ Series Specifications

Standard Features

No machine in its class offers more standard features than the MultiCam 6000 Series Waterjet:

- All-steel, stress-relieved, bridge and rail design
- X and Y axis rails manufactured from heavy structural steel tubing with precision machined bearing references
- Dual-side, brushless, digital ac servo drives
- Full bellows on all axes
- Fast switching between pure water and abrasive cutting
- Weir settling tank and sump pump
- MultiCam EZ Control® and EZ Suite software
- Standard Ethernet interface with DNC file system and unlimited file size transfer capabilities
- Full range of KMT intensifiers available

Options

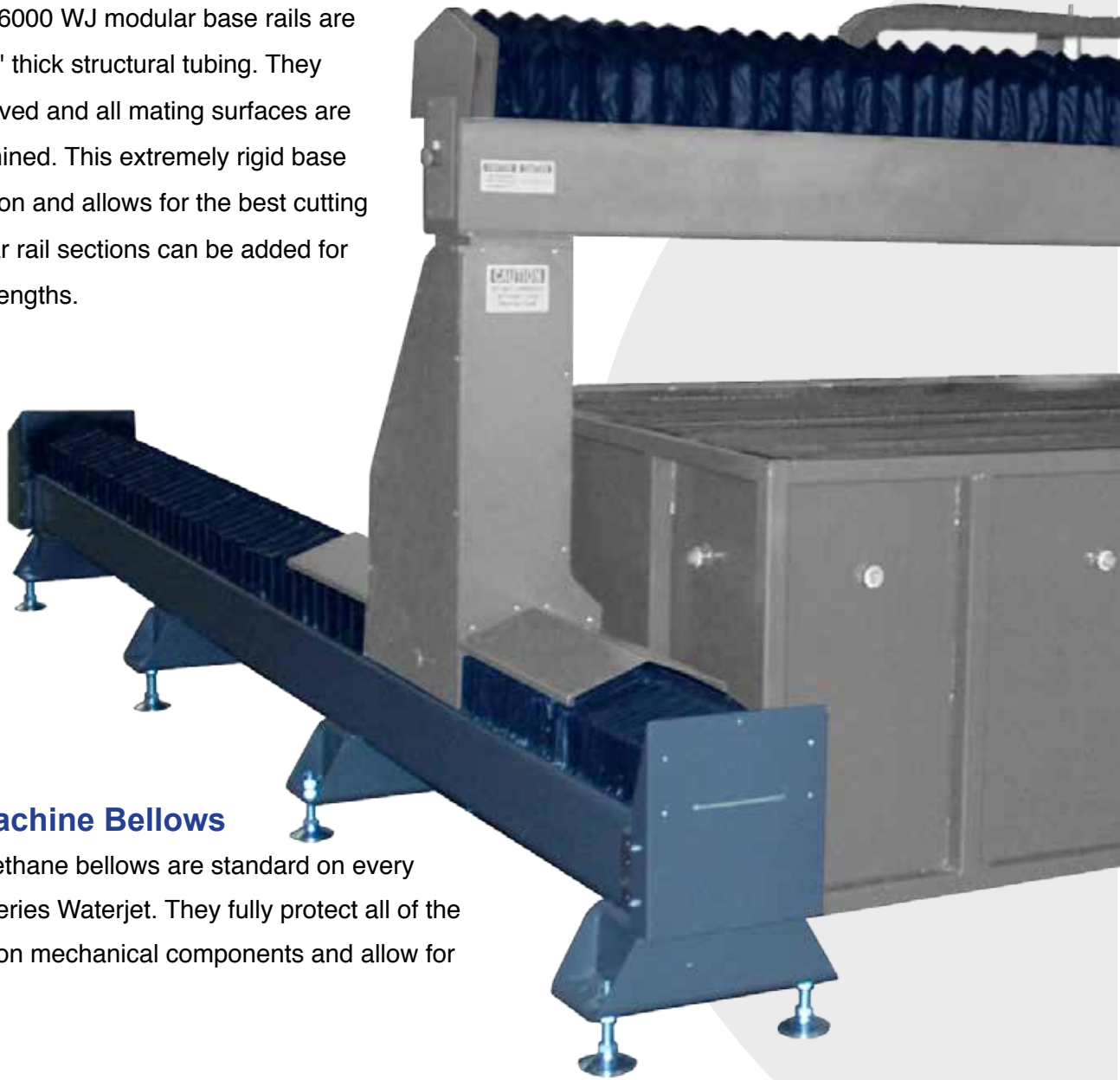
- Single or dual abrasive head assemblies
- Up to four pure water heads
- Pneumatic drill
- Chiller for intensifier
- Abrasive removal systems
- Closed-loop filtration systems
- Air ballast water-leveling system



6000-WJ Series Specifications

Modular Base Rails

The MultiCam 6000 WJ modular base rails are made from 1/2" thick structural tubing. They are stress relieved and all mating surfaces are precision machined. This extremely rigid base reduces vibration and allows for the best cutting quality. Modular rail sections can be added for long machine lengths.



Integrated Machine Bellows

Integrated polyurethane bellows are standard on every MultiCam 6000 Series Waterjet. They fully protect all of the machine's precision mechanical components and allow for easy cleaning.

6000-WJ Series Specifications

X and Y Axis Linear Bearings

35mm Star ball linear bearing profile rails with stainless spring steel strip covers are standard in the X and Y axes.

- 4 bearing packs per axis
- 9600 lb. load capacity per bearing pack
- High rigidity and load capacities in all load directions
- Lowest possible noise level and best running characteristics
- High torque load capacity

Helical Rack and Pinion

The 6000 Series WaterJet's high-speed helical rack and pinion system offers many advantages.

- **Quieter Run:** Compared to a straight rack and pinion, our helical system runs much more quietly, especially at high speeds. Due to the angular cut in the helical rack-and-pinion setup, the gear shaft has thrust loads. This action requires thrust bearings to absorb the load and maintain gear alignment. MultiCam uses Alpha gearboxes designed to handle this load, and the precision machining of the frame allows for exceptional perpendicularity and gear alignment.
- **Faster Acceleration and Accuracy:** Because our helical rack features a greater number of engaged teeth than a straight version, it achieves faster acceleration and accuracy easily. Distributing the load over several teeth also reduces wear and increases the life of the rack-and-pinion system.
- **High-Speed Rapid-Traversal Moves:** Helical rack and pinions produce high-speed, rapid-traverse moves customers can see and appreciate.



6000-WJ Series Specifications

Precision Planetary Gearboxes

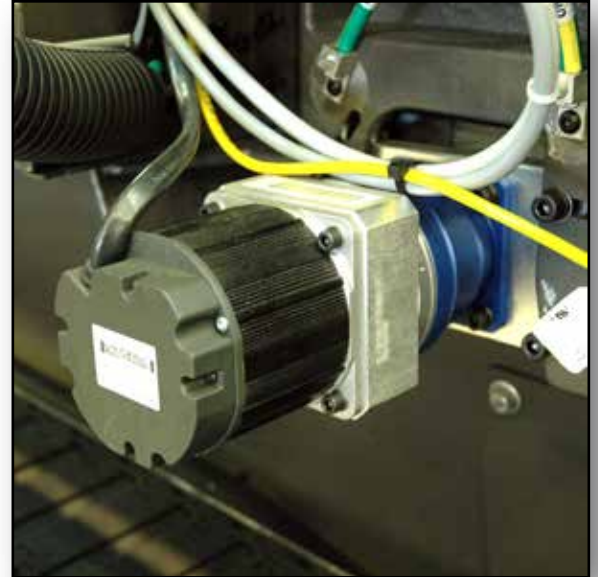
Alpha Precision Planetary Gearboxes are the top of the line in the industry. Case-hardened, ground high-carbon alloy steel gears guarantee the lowest backlash and highest service life available. These gearboxes are among the many components that make the 6000 Series a smooth, accurate and long-lasting cutting system.

- Single Stage: 10:1
- Efficiency: > 97%
- Low noise level
- Designed for continuous operation with a 100% duty cycle



Brushless AC Servo Motors

After extensive testing, MultiCam found the Teknic Hudson Brushless AC Servo Motors to be the premier solution on the market today. Teknic has had an extensive history in motors and controls since its founding in 1985. It boasts a long record of providing critical components for military and aerospace applications and is a leading commercial and industrial supplier. Teknic creates servo motors that give MultiCam machines a competitive edge in the market.



6000-WJ Series Specifications

Abrasive Feeder/Hopper System

All MultiCam machines equipped to run abrasive waterjet applications have a metered, highly accurate abrasive feeder/hopper system. The pressurized bulk hopper holds 6.5 cubic feet (approximately 500 pounds) of abrasive. A 0.25" ID nylon reinforced hose connects it to the abrasive feeder.

Fully programmable via the EZ Control, the feeder dispenses abrasive in fractional ounce increments. The CNC program and the hand-held keypad can operate the abrasive feeder at varying rates during a program. Soft restart is a standard feature. It allows restarting of a program using pure water and introduces the abrasive where it left off so it won't damage the part.



Weir Settling Tank

A Weir Settling Tank is standard on all MultiCam Waterjets. It's positioned below the water level height adjustment drain at the rear of the main cutting tank. Excess cutting tank water flows through each of the four chambers, allowing debris and other solids to accumulate in the tank. A sump pump is included for discharging cleaned water to the drain.



6000-WJ Series Specifications

Pneumatic Drill

The optional pneumatic drill is designed to predrill hard-to-pierce materials such as G10, laminates, fiberglass and acrylic. These materials have a tendency to crack or separate during piercing.

- 1/3-hp air drill
- 16-CFM maximum air consumption (full load)
- 1/4" chuck capacity
- 700 rpm
- 3" stroke



Digital Servo Drive System

Digital servo drives and brushless digital ac servo motors form a digital vector servo drive system that's standard on all MultiCam 6000 Series Waterjet machines. It integrates position, velocity and torque loops seamlessly to provide uncompromised tracking accuracy, smoothness and reliability.

This system is the latest in high-performance technology. It advances the state of the art by utilizing seamless coordination to allow real-time information sharing so all system functions cooperate in any situation. For example, if the torque loop senses that the ac servo motor reached 100% torque output, it passes upstream to the servo compensator instantly. Then the system delivers a coordinated response, maintaining precise control. You'll realize tighter tracking, smoother motion and faster rapid traverse for superior machine throughput and reliability.

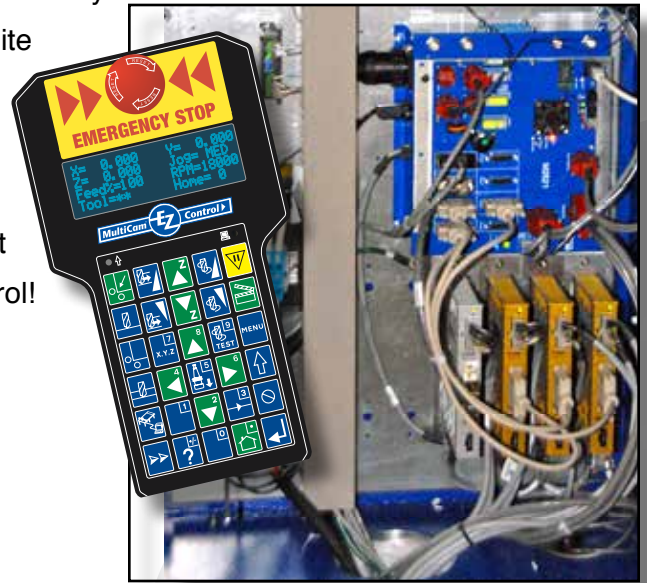


6000-WJ Series Specifications

EZ Control

MultiCam's EZ Control features an advanced CNC interface that's very powerful yet easy to use. The PC front end, EZ Productivity Suite software, hand-held operator interface and industrial motion controller provide the ultimate in reliability, ease of use and sheer power. Keeping the motion control and PC separate allows for the most accurate and reliable motion control without bogging down the PC. No wonder MultiCam named it EZ Control!

- 32-bit CPU
- Linear, circular, helical and smooth curve interpolation
- 64-bit motion control algorithms
- 1000-line look ahead
- Built-in self-testing and voltage protection
- 12-MB memory for unlimited file size transfer capabilities
- Industry-standard M and G codes
- Multiple home positions
- Proximity restart
- Tool compensation
- Cut and spindle rpm speed override
- Standard Ethernet TCP/IP connection
- MultiCam's exclusive hand-held operator interface



Optional Integrated PC

All MultiCam 6000 Series WaterJets include an integrated PC for quick access of EZ Suite and EZ G-Code software at the machine.

- Intel 1.6-GHz CPU
- 1-GB RAM
- 19" LCD monitor with polycarbonate overspray screen
- 160-GB hard drive
- Windows operating system

6000-WJ Series Specifications

EZ Suite™ Software

Complete user-friendly machine tool management solution that works with any CAD/CAM software. EZ Suite provides the tools necessary for operators to effectively run any MultiCam machine with little training.

Job Console

- Allows easy viewing of jobs sent to the machine
- EZ Suite allows visual imaging of machine code, so verifying the correct job prior to processing is much easier

Job Editor

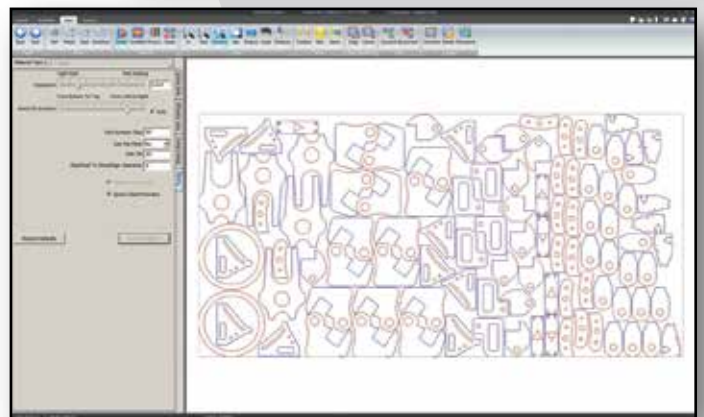
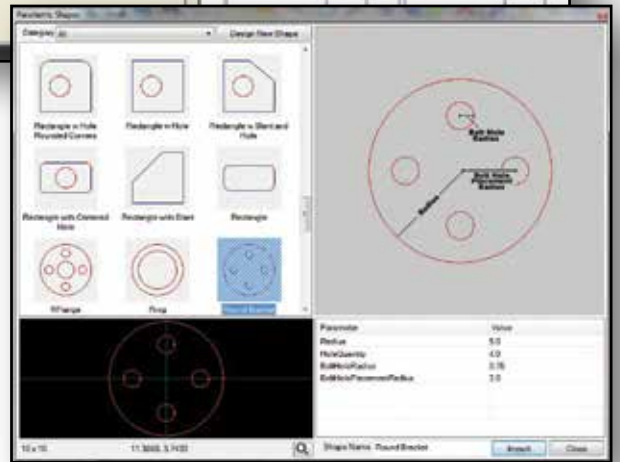
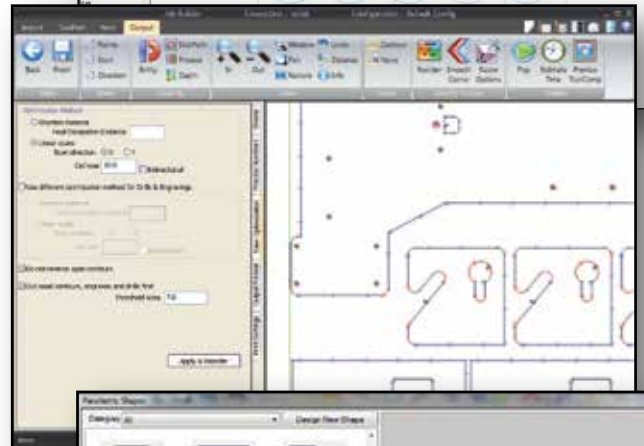
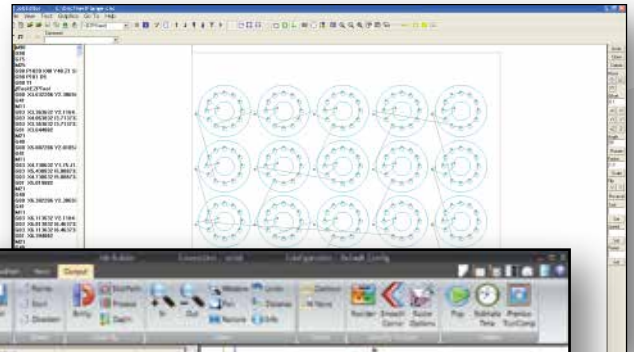
- Edit nested jobs on the fly; no more re-cutting entire nested programs due to one part breaking or reconfiguring file to include broken part

Job Reporter

- Use this great tool to track machine use and job production cycles; export reports using most spreadsheet and database formats

EZ G-Code Creator

- Designers and operators don't need to know M- and G-Codes with MultiCam's EZ G-Code Creator
- Simply import a .DXF or .AI file into the EZ G-Code Creator and the software package will translate the file into machine code automatically and optimize part cutting
- With the cut simulation tool, easily verify that the tool path, order of operations and edge finish are correct before sending the program to the machine



6000-WJ Series Specifications

KMT Waterjet Pumps

Since 1971, KMT Waterjet Systems has been a global leader in waterjet technology. Manufactured in the U.S. with worldwide support and service, precision-engineered pumps are extremely efficient and reliable.

MultiCam is proud to offer a full spectrum of KMT intensifiers that provide both economical system integration and massive power and maximum cutting speed of the 90,000-psi Streamline PRO Series Pumps.

Please contact your local MultiCam Technology Center for specific information and recommendations. MultiCam also will work with you to integrate the 6000 Series Waterjet machine with existing pump technology you may have.



6000-WJ Series Specifications

Standard Features



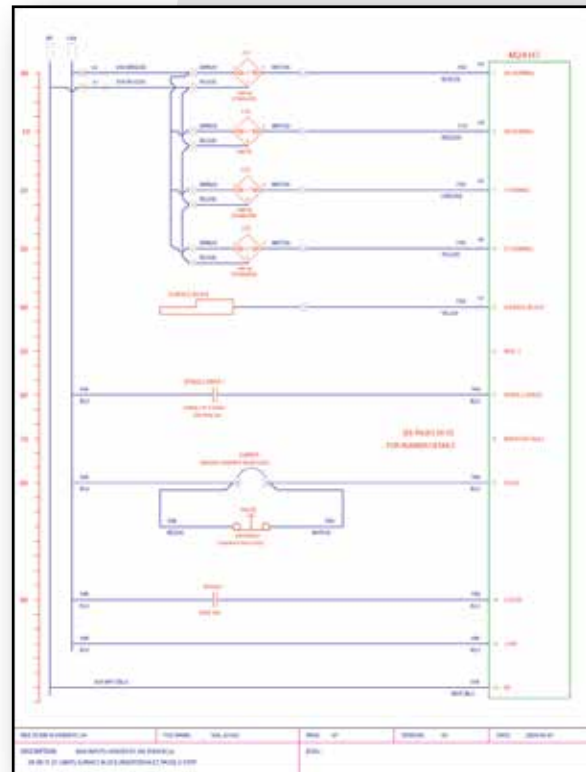
Leveling Feet



Tool Box

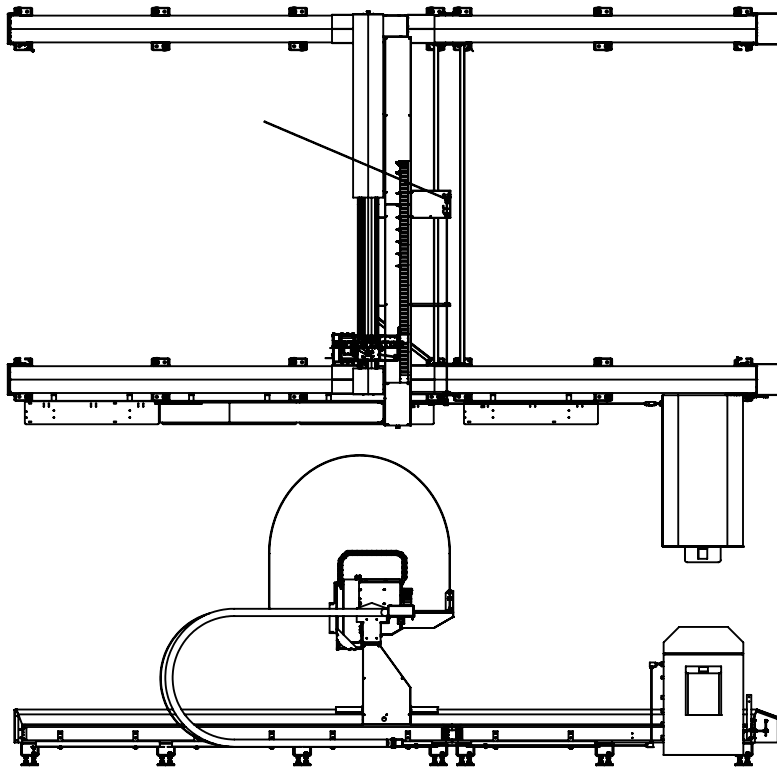


Operation Manual



Electrical Schematics

6000-WJ Series Specifications



MultiCam® 6000-WJ Series Bridge & Rail System

6000 Series Specs (inches)

- Z-Axis Travel: 12"
- Repeatability: +/- .001"
- Positional Accuracy: +/- .003" over 10 feet
- Cutting Speed: 800 ipm
- Rapid Traverse: 1400 ipm
- Drive System X and Y axis: Helical Rack and Pinion
- Drive System Z axis: Balls Screw

6000 Series Specs (metric)

- Z-Axis Travel: 305 mm
- Repeatability: +/- .025 mm
- Positional Displacement Accuracy: +/- .076 mm over 3 meters
- Cutting Speed: 20.3 m/min
- Rapid Traverse: 35.6 m/min
- Drive System X and Y axis: Helical Rack and Pinion
- Drive System Z axis: Balls Screw

Size Chart (inches)

Machine Model	Y axis Working Area	X axis Working Area
6-305-W	80"	145"
6-405-W	100"	145"
6-502-W	120"	60"
6-505-W	120"	145"
6-605-W	144"	145"
6-705-W	180"	145"

Size Chart (metric)

Machine Model	Y axis Working Area	X axis Working Area
6-305-W	2032 mm	3683 mm
6-405-W	2540 mm	3683 mm
6-502-W	3048 mm	1524 mm
6-505-W	3048 mm	3683 mm
6-605-W	3657 mm	3683 mm
6-705-W	4572 mm	3683 mm

*Additional Lengths can be achieved by adding modular X-axis rails