

LC Series Specifications

systems



Small Investment, Big Return

A Techno CNC Router can be financed with a weekly payment less than what you could pay a 40-hour per week employee. You can expand your business without overhauling your company.

Balancing Quality with Economy.

Since 1986, Techno has provided economical CNC solutions. Knowing that good quality routing is built from the ground up, our LC Series Router features a heavy steel base frame, T-slot table surface, a one-piece moving gantry beam construction of extruded aluminium. This gantry has internal reinforced webbing and hardened steel rails/bearings, which makes this design extremely rigid yet light enough to travel at high speeds, minimizing vibration while increasing accuracy and repeatability.

LC Series Features:

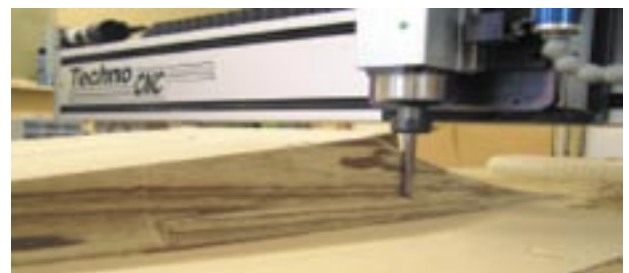
- >> Heavy-Duty Tubular Steel Frame
- >> Precision Ball Screws on All Three Axes
- >> Closed-Loop Servo Motors and Drives
- >> THK Rails and Bearings
- >> Aluminium T-Slot Table / Vacuum Plenum for Maximum Tool Calibration
- >> Automatic Tool Calibration
- >> User-Friendly G-Code Interface
- >> Free CNC Interface Updates
- >> Backed with 20 Years of CNC Expertise

Techno CNC Routers:

- Improve Cut Quality
- Increase Production
- Decrease Overhead
- Are Easy to Use and Operate
- Ship Factory Tested and Assembled
- Give Customers the ability to Bid on jobs that were Previously Out of Reach

CNC Support and Solutions

Working with G-code Technology, our customers remain our concern long after their machine ships. We provide free application assistance, technical support and CNC Interface updates all for the life of your machine.



TECHNO DRIVE SYSTEMS

Techno's LC Series Router utilizes THK rails and ball screw drives, which provide smooth play-free motion, require minimal maintenance, provide greater accuracy and longer life. The placement of the ball screw is in the center of the axis of travel, so that it eliminates the possibility of racking. This assures that the Techno machine does not need to be realigned ever, causing no wear on the drive or carriage system. No down time spent repairing damage from racking results in increased productivity and profits.



COMPETITOR DRIVE SYSTEMS

Several competitors to Techno use other drive systems, such as the rack and pinion gear drive. The racks are typically installed on the outside of the machine, thus exposed to the elements. As the machine moves (cuts), debris collects on the rack. These foreign materials get ground into the racks and gears, causing more friction in the drive system, which, in turn causes wear and makes the machine less accurate and unstable.

In addition, rack and pinion systems typically require two drive motors to drive the one axis (one on the right side and one on the left side of the machine). Using a two motor, rack system requires that the motors stay completely in sync with one another at all times. When these motors get out of sync, racking occurs (racking is when the system twists due to misalignment). Racking deforms the gears within the system and begins to wear, making the machine unstable. During a machine run, when a load becomes too heavy, stepper motors (which are typically used with rack and pinion systems) stall.

This saves the stepper motor from excessive damage, but not the rack and pinion drive components. In the case of servo motors used in conjunction with rack and pinion drives, both the motor and the rack suffer damage when racking occurs. Servo, being the more powerful motor than a stepper, compounds the damage in a rack and pinion system, making this a very expensive repair.

Techno's ball screw drive (and servo motor) systems do not suffer these setbacks because they do not rack.



THK CARRIAGE AND RAILS:

Techno refuses to cut any corners when it comes to drive components because, literally, everything is riding on them.

High-quality THK carriage and rails provide:

- Smooth Play-Free Motion
- Superior Cut Quality
- Minimal Maintenance
- Machine Longevity

On the LC Series Router, Techno utilizes four bearing carriages per axis assembly. These bearings are capable of carrying loads in excess of 8,000 lbs. per carriage, dynamically. This design, bordering on overkill, assures a long productive lifetime for the Techno LC Series Router.



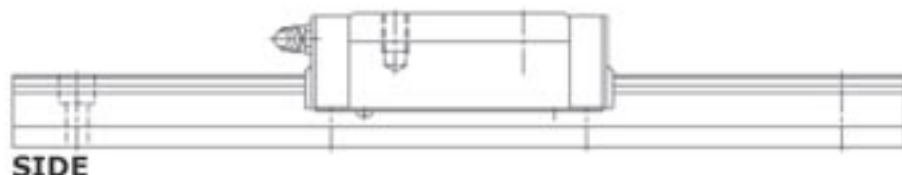
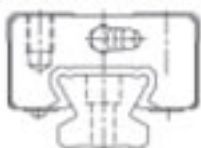
This chart provides additional load characteristics for THK rails and bearings.

THK Model Number	Outline Dimensions			Grease Fitting	Basic Load Rating		Weight	
	Height	Width	Length		C	C0	LM Block	LM Rail
	H	W	L		kN	kN	kg	kg/m
SR20W	28	42	66.2	B-M6F	12.5	25.2	0.3	2.1

SCHEMATIC OF THK RAILS



CROSS SECTION



CLOSED-LOOP SERVO CONTROL SYSTEM

The Techno LC Series is equipped with servomotors that deliver continuous high-speed performance.

Because these high-powered motors are closed-loop servos, they constantly check and maintain their position at all times, allowing you to create perfect parts every time.



MULTI-ZONE VACUUM TABLE

The Techno vacuum table and accessories are designed to be as universal as possible. Techno understands that fixturing parts can be one of the most complex aspects of manufacturing. Techno's vacuum table allows for both mechanical and vacuum fixturing to be used simultaneously.

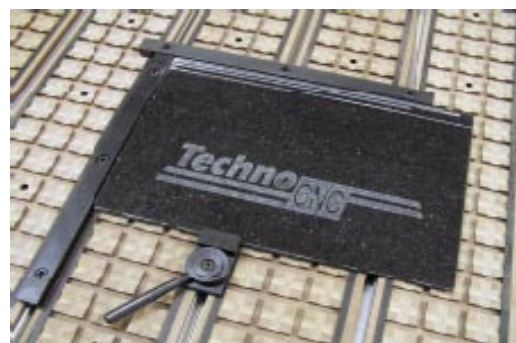
What does this mean?

If you are processing sheets of material, such as: Plywood, MDF, Melamine, Plastic, Aluminum, Foam or any other sheet-like material, vacuum hold-down is an excellent solution. If you are processing small or irregular shaped products, then you may want to utilize vacuum along with mechanical clamps.

The T-Slots built into the Techno vacuum table provide easy mounting gates so that your materials line up square and parallel to the axes of travel. In addition, the tables are zoned. If you are processing small parts then you do not require the entire machine's vacuum table to be wide open, rather just a small section.

Techno's vacuum tables are also easily customizable. They are gridded tabletops, which allow gasketing material to be routed throughout the grid, essentially portioning off and concentrating your vacuum holddown. The 1" grid-channels cut into the tabletop, allow gasketing to form specific patterns to fixture small parts.

When utilizing all the various functions and advantages of the Techno Vacuum Table, very little vacuum escapes, which allows you to use smaller vacuum pumps. Simply shutting down valves or utilizing the rubber plugs to isolate an unused section on the table also makes setup and fixturing parts quick and easy.



ATC AND MANUAL QUICK-CHANGE SPINDLES

Techno offers its customers many spindle options for their CNC Routers. The right spindle is important in order to achieve optimum machine performance.

Both the Automatic Tool Change or Manual Quick-Change Spindles, are constructed of aluminum extrusion bodies with angular contact bearings that are housed in a cast iron end bell. They are available in the ranges of 1 to 16HP, and each set comes standard with ER industry collets/wrenches, vacuum shroud, inverter electronic controls, line reactor for spindle surge protection, automatic spindle, start/stop relay, and programmable speed control circuit board which allows users to predefine the spindle rpm within CAD/CAM programs.

Features:

- 3 ph AC Colombo Motor
- 3 ph Inverter Control
- Line Reactor for Spindle Protection
- Advanced Electronic Circuitry
- 6000 to 18000 Fully Programmable rpm Operation
- ISO or HSK Tooling Available
- Electric Fan Cooling
- Extremely Quiet Operation



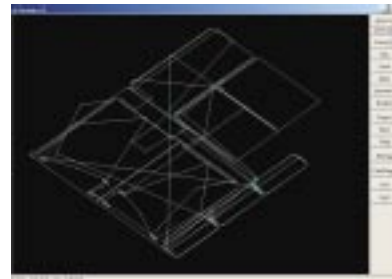
G-CODE INTERFACE

Our LC Series CNC Router comes standard with a Techno Windows-based G-Code Interface that can be upgraded for free, via the internet, for the life of the machine, and will always keep you current with latest technology.

- Built-in G-Code Editor
- Toolpath Preview
- Production Logging and Reporting
- Infinite Look Ahead
- Continuous Motion



As times and computers change, and environments become more advanced, updating Techno's system is as easy as downloading a new version of the interface. The LC Series operates within an existing Windows office computer environment. This allows for easy file transfer and management of your machine programs and operations.



Dimensions in mm (inches)							
Machine Model	Work Envelope (X x Y)	Floor Print (W x L x H)	Repeatability	Resolution	Maximum Speed mm/min (in/min)	Gantry clearance	Z-Axis Travel
3024	762 x 610 (30 x 24)	1194 x 1474 x 1524 (47 x 58 x 60)	0.0254 (0.001)	0.005 (0.0002)	6350 or 20320 (250 or 800)	127 (5.0)	226 (8.9)
3024T*	762 x 610 (30 x 24)	1194 x 1118 x 915 (47 x 44 x 36)					
4848	1220 x 1220 (48 x 48)	1880 x 2108 x 1524 (74 x 83 x 60)					
4896	1220 x 2438 (48 x 96)	1880 x 3175 x 1524 (74 x 125 x 60)					
59120	1500 x 3048 (59 x 120)	2770 x 3785 x 1524 (109 x 149 x 60)					
78120	1981 x 3048 (78 x 120)	2770 x 3785 x 1524 (109 x 149 x 60)					

*Vacuum table option not available with this model

TECHNICAL SUPPORT

At Techno, customers remain our concern long after their machine ships.

We provide FREE application assistance and FREE technical support for the life of the machine

VACUUM PUMPS

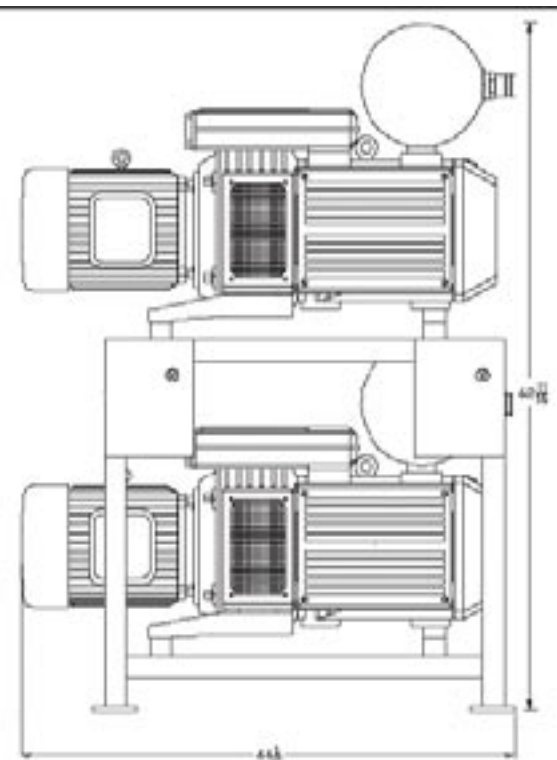
The most commonly asked question, when it comes to vacuum hold-down and nested-based manufacturing, is how much vacuum does your application require? Vacuum systems should be evaluated based on the specific application. The smaller the part or thinner the material to be held requires the greater volume of air flow, thus increasing the size of the vacuum pump.

Many people state that you can't have enough vacuum. This is somewhat true, but depending on the application, it can be very costly. It is always easier to overbuy. Purchasing a single 40HP or 50HP pump can cost in excess of \$25,000, and this is only the initial cost. What about the utilities? Depending on where your shop is located, these rates can vary considerably.

Keep in mind, operating costs rarely go down, so this cost will increase year to year. At Techno, our vacuum options and designs make our systems a valuable tool in keeping overhead down.

There are other options to be considered. Purchasing a number of smaller pumps can help reduce cost. If you are processing sheets of material that have large parts, then a single pump can be utilized. If the nest has numerous smaller parts, then it is best to run all the pumps for maximum air flow. There are other devices which can be purchased to aid the vacuum holddown system, such as: a spindle pressure foot, or roller hold-down. These devices push down on the material while being routed thus aiding the effectiveness of the vacuum system.

At Techno, we offer Rotary Vane Vacuum pumps. These pumps are quiet, clean, and require minimal maintenance. The standard size we offer is a 10HP or twin pack, which incorporates two 10HP pumps mounted on a steel frame. These pumps pull 25" Hg @ 173CFM each. This level of vacuum is essential for holding the parts in place while being routed.



VACUUM PUMP OPTIONS

TWIN PACK OF ROTARY VANE VACUUM PUMPS

- (2) 10HP TEFC Rotary Vane Vacuum Pumps
- Available in 230/460V, 50-60Hz, 3 ph
- Comes standard with motor starters, vacuum gauge, primary and secondary filters, check valve and necessary plumbing to connect to the router
- Rated for 346 CFM, 25" Hg, 81db for very quiet operation

OR

SINGLE ROTARY VANE VACUUM PUMP

- (1) 10HP TEFC Rotary Vane Vacuum Pump
- Available in 230/460V, 50-60Hz, 3 ph or 1 ph
- Comes standard with motor starter, vacuum gauge, primary and secondary filter, check valve and all necessary plumbing to connect to router
- Rated for 173 CFM, 25" Hg, 81db for very quiet operation

OR

SINGLE 25HP REGENERATIVE VACUUM PUMPS

- (1) 25HP TEFC Rotary Vane Vacuum Pumps
- Available in 230/460V, 50-60Hz, 3 ph
- Comes standard with motor starter, vacuum gauge, primary and secondary filter, safety valve and all necessary plumbing to connect to the router.
- Rated for 295CFM @ 14" Hg (467 cfm open flow)

