L12
Sliding Headstock Type CNC Automatic Lathe
Machining using a guide bushing is a useful method for small diameter workpieces. However, using a guide bushing with short workpieces produces more material waste which increases material costs. The optimum machine configuration differs depending on the workpiece to be machined, and up until now a variety of different machines have been required. The L12 solves this problem. It is a simple matter to fit or remove the guide bushing, so the machine configuration can be changed to suit the workpiece to be machined. As an automatic lathe that encompasses two roles in a single unit, it can be used to machine both long and short workpieces effectively. It also shows uncompromising performance as a machine for high-speed, small-diameter applications. It shortens cycle times with a front spindle capable of high-speed rotation of 15,000 rpm and 10,000 rpm rotary tools. The L series that has built Cincom’s history is now making new functions and performance standard in automatic lathes.
Achieving optimum machining conditions
High-speed spindle and rotary tools
The maximum speed of the front spindle is 15,000 rpm even when using a rotary guide bushing (maximum machining length: 135 mm per chuck), and rotary tools are able to reach speeds of 10,000 rpm. This makes it possible to use the optimum machining conditions when machining small-diameter bar material or using small diameter drills or end mills.

Handles workpieces with complex shapes
Comprehensive tooling
A full range of optional tooling is available. Three both-end rotary tools (angle adjustable from 0° to 30°) can be mounted among the rotary tools on the gang tool post. In addition, adopting rotary tool specifications for the back tool post has made it possible to mount end face rotary tools and a slitting spindle for back machining.

Improved productivity per unit area
Compact design
The design is only 1,760 mm wide by 820 mm deep. You can introduce a high-productivity, 5-axis machine into the same space as required to install an A16 or B12 machine.
Automatic 12 mm lathe offering 2 machines in 1: handles both Swiss-type and bar chucker applications

The L12 is equipped with a detachable guide bushing as standard. This is a major and unprecedented feature. The L12 can be used as a regular guide bushing type automatic lathe when machining long, small diameter workpieces, and with the guide bushing removed, can be used for short workpieces thus minimizing material waste.

Optional LFV function for effective machining of difficult-to-cut material

LFV* (low-frequency vibration cutting) is a technology for performing machining while vibrating the X and Z servo axes in the cutting direction in sync with the rotation of the spindle. It reduces various problems caused by chips entangling with the product or tool, and is effective for small-diameter deep hole machining and the machining of difficult-to-cut materials.

<table>
<thead>
<tr>
<th>Item</th>
<th>LFV mode 1</th>
<th>LFV mode 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>Multiple vibrations per spindle revolution</td>
<td>Multiple spindle revolutions per vibration</td>
</tr>
<tr>
<td>Specification</td>
<td>The axes execute multiple vibrations during one spindle revolution, reliably breaking chips up into small pieces.</td>
<td>Machining is carried out while rotating the spindle multiple revolutions per vibration</td>
</tr>
<tr>
<td>Application</td>
<td>Ideal for outer/inner diameter machining and groove machining</td>
<td>Ideal for micro-drilling where peripheral speed is required</td>
</tr>
</tbody>
</table>

LFV Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Type</th>
<th>Front side LFV (X1, Z1)</th>
<th>Back side LFV (X2, Z2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L12</td>
<td>VII</td>
<td>○ Conventional cutting on the back side</td>
<td>○ Conventional cutting on the front side</td>
</tr>
</tbody>
</table>

Note 1: LFV machining cannot be performed with the Y axis.
Note 2: LFV machining can be performed simultaneously on a maximum of 1 pair of axes.
Note 3: For LFV machining with rotary tools, the "LFV function" and "rotary tool feed per revolution" options are required.

*LFV is a registered trademark of Citizen Watch Co., Ltd.
Convenient functions for easy operation and improved productivity

Trouble-free operation for fast set-ups — easy to maintain with optional functions for flexibility.

Wide operator access
Operability is improved with a lift-up cover that provides a large opening without taking up space at the rear of the machine.

NC program input/output
NC programs can be input and output using a USB memory stick or compact flash card. An RS-232C interface, as featured on previous models, can also be used.

Product receiver box
The workpiece gripped in the back spindle is unloaded into the product chute for collection. Workpiece conveyor is available as an option.

Central lubrication device
Supplying lubricating oil to all ball screws improves maintainability.

Up to 28 tools
A maximum of 28 tools can be mounted.

Deep hole drilling
A drilling tool (L12-U120B) can be added to the opposite tool post, which is effective for deep hole machining.

CAV12 Barfeeder (option)
Engineered exclusively for CINCOM L12

Unique Features

- Fully integrated into the machine control for easier operation and total control from a single console
- Quicker response between the bar feeder and the machine’s sliding headstock
- Improved accuracy when specs are critical
- A unique stabilizing mechanism to minimize wear and down time
- Servo drives reduce moving parts, provide instantaneous insertion and braking response, and positioned bars to tenths accuracy with no following error

- Hydrostatic oil support
- Roller support system
- Automatic remnant retraction
- Versatility – round, hex and square stock
- And just one company to contact for parts and service
Intuitive screen display is easy to view and read

User-friendly screen designed from the operator’s perspective

Equipped with high-speed NC
The machine is equipped with the latest NC model to drastically reduce the start-up and screen switching time compared to conventional machines with advance functions. This feature provides a stress free operating environment.

On-machine program check function
Using manual handle feed, this effective aid to smooth programming allows operations to be run in the forward or reverse direction and can be temporarily stopped for editing, then restarted according to the edited program.

Easy to understand illustrations
In response to the selection of an item, the corresponding illustration is displayed on the screen so that the operator can easily recognize the meaning of the selected item. (The screen shown above displays the machining data).

Code list display
The function displays the list of G and M codes including explanations of the arguments to support programming.

Eco screen
The current power consumption is shown along with the maximum power consumption value, the power consumption record, the cumulative power consumption and the power regeneration (generation) status.

Eco screen
The machine’s power consumption can also be shown in the form of an easy-to-understand graph. Data can be output as well.
Machine Layout

L12 Standard Machine

L12 Option-installed Machine
## Machine Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>L12-1M7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum machining diameter (D)</td>
<td>Ø12mm</td>
</tr>
<tr>
<td>Maximum machining length (L)</td>
<td>GB: 135mm/1 chuck; NGB: 30mm/1 chuck</td>
</tr>
<tr>
<td>Maximum front drilling diameter</td>
<td>Ø8mm</td>
</tr>
<tr>
<td>Maximum front tapping diameter (tap, die)</td>
<td>M6</td>
</tr>
<tr>
<td>Spindle through-hole diameter</td>
<td>Ø20mm</td>
</tr>
<tr>
<td>Maximum main spindle speed</td>
<td>GB 15,000 rpm; NGB 12,000 rpm</td>
</tr>
<tr>
<td>Max. chuck diameter of back spindle</td>
<td>Ø12mm</td>
</tr>
<tr>
<td>Max. part length for front ejection to standard part separator</td>
<td>80mm</td>
</tr>
<tr>
<td>Max. protrusion length of back spindle workpiece</td>
<td>30mm</td>
</tr>
<tr>
<td>Max. drilling diameter for back spindle</td>
<td>Ø6mm</td>
</tr>
<tr>
<td>Max. tapping diameter for back spindle</td>
<td>M5</td>
</tr>
<tr>
<td>Back spindle speed</td>
<td>Max. 10,000 rpm</td>
</tr>
<tr>
<td>Gang rotary tool</td>
<td></td>
</tr>
<tr>
<td>Maximum drilling diameter</td>
<td>Ø5mm</td>
</tr>
<tr>
<td>Maximum tapping diameter</td>
<td>M4</td>
</tr>
<tr>
<td>Spindle speed</td>
<td>Max. 10,000 rpm</td>
</tr>
<tr>
<td>Back tool post rotary tool</td>
<td></td>
</tr>
<tr>
<td>Maximum drilling diameter</td>
<td>Ø5mm</td>
</tr>
<tr>
<td>Maximum tapping diameter</td>
<td>M4</td>
</tr>
<tr>
<td>Spindle speed</td>
<td>Max. 9,000 rpm</td>
</tr>
<tr>
<td>Number of mountable tools</td>
<td>Maximum 28</td>
</tr>
<tr>
<td>Gang tool post</td>
<td>6</td>
</tr>
<tr>
<td>Gang rotary tools</td>
<td>4 Stations (1 built-in / 3 quill)</td>
</tr>
<tr>
<td>Gang drilling tool</td>
<td>Front 4, Back 4</td>
</tr>
<tr>
<td>Back tool post</td>
<td>4</td>
</tr>
<tr>
<td>Tool</td>
<td>3/8” square shank</td>
</tr>
<tr>
<td>Sleeve</td>
<td>3/4” diameter shank</td>
</tr>
<tr>
<td>Main spindle collet chuck</td>
<td>TF16</td>
</tr>
<tr>
<td>Guide bushing</td>
<td>SD125R</td>
</tr>
<tr>
<td>Back spindle collet chuck</td>
<td>TF16</td>
</tr>
<tr>
<td>Rapid feed rate (all axes)</td>
<td>35m/min</td>
</tr>
<tr>
<td>Motors</td>
<td></td>
</tr>
<tr>
<td>Spindle drive</td>
<td>2.2 / 3.7 kW</td>
</tr>
<tr>
<td>Gang tool post rotary tool drive</td>
<td>0.75 kW</td>
</tr>
<tr>
<td>Back spindle drive</td>
<td>0.4 / 0.75 kW</td>
</tr>
<tr>
<td>Back tool post rotary tool drive</td>
<td>0.5 kW</td>
</tr>
<tr>
<td>Lubricating oil</td>
<td>0.25 kW</td>
</tr>
<tr>
<td>Center height</td>
<td>39” (1000 mm)</td>
</tr>
<tr>
<td>Input power capacity</td>
<td>6.1 kVA</td>
</tr>
<tr>
<td>Air pressure and air flow rate for pneumatic devices</td>
<td>0.5 MPa, 60NL</td>
</tr>
<tr>
<td>Weight</td>
<td>3,748 lbs (1700 kg)</td>
</tr>
</tbody>
</table>

## Standard Accessories
- Main spindle chucking device
- Back spindle chucking device
- Gang rotary tool driving devices
- Coolant device (with level detector)
- Lubricating oil supply unit (with level detector)
- Machine relocation detector
- Door lock
- Workpiece separator
- Lighting
- Back rotary tool driving unit
- Rotary guide bushing device

## Optional Accessories
- Cut-off tool breakage detector
- Knock-out jig for through-hole workpiece
- Workpiece conveyor
- Chip conveyor
- High pressure coolant device
- Coolant flow rate detector
- Signal lamp
- 3-color signal tower

## Standard NC Functions
- NC unit dedicated to the L12
- 8.4” Color LCD
- Program storage capacity: 160m
- Tool offset pairs: 40
- Product counter indication (up to 8 digits)
- Spindle speed change detector
- Constant surface speed control function
- Automatic power-off function
- On-machine program check function
- Chamfering corner R
- Variable lead thread cutting
- Arc threading function
- Geometric function
- Spindle C-axis function
- Milling interpolation
- Back spindle C-axis function
- Back spindle chasing function
- canned cycle drilling
- High speed rigid tapping function
- Rigid tapping phase adjustment function
- Differential speed rotary tool function
- Tool Life Management I
- Tool Life Management II
- External memory program driving
- User macros
- Helical interpolation function
- Inclined helical interpolation function
- Heli function
- Polygon function
- Inch command
- Sub inch command
- Network I/O Function

## Optional NC functions
- Tool offset pairs: 80
- Program storage capacity: 600m

## Optional Tool Holder
- GSE3607: 3 Front / 3 Back rotary tool holder (0–30 degree adjustable)
- GSS1530: Back slitting spindle (up to 30mm diameter cutter)