

CITIZEN

Cincom

L12

Sliding Headstock Type CNC Automatic Lathe



The L12: Handling all small diameter work with 5-axis control

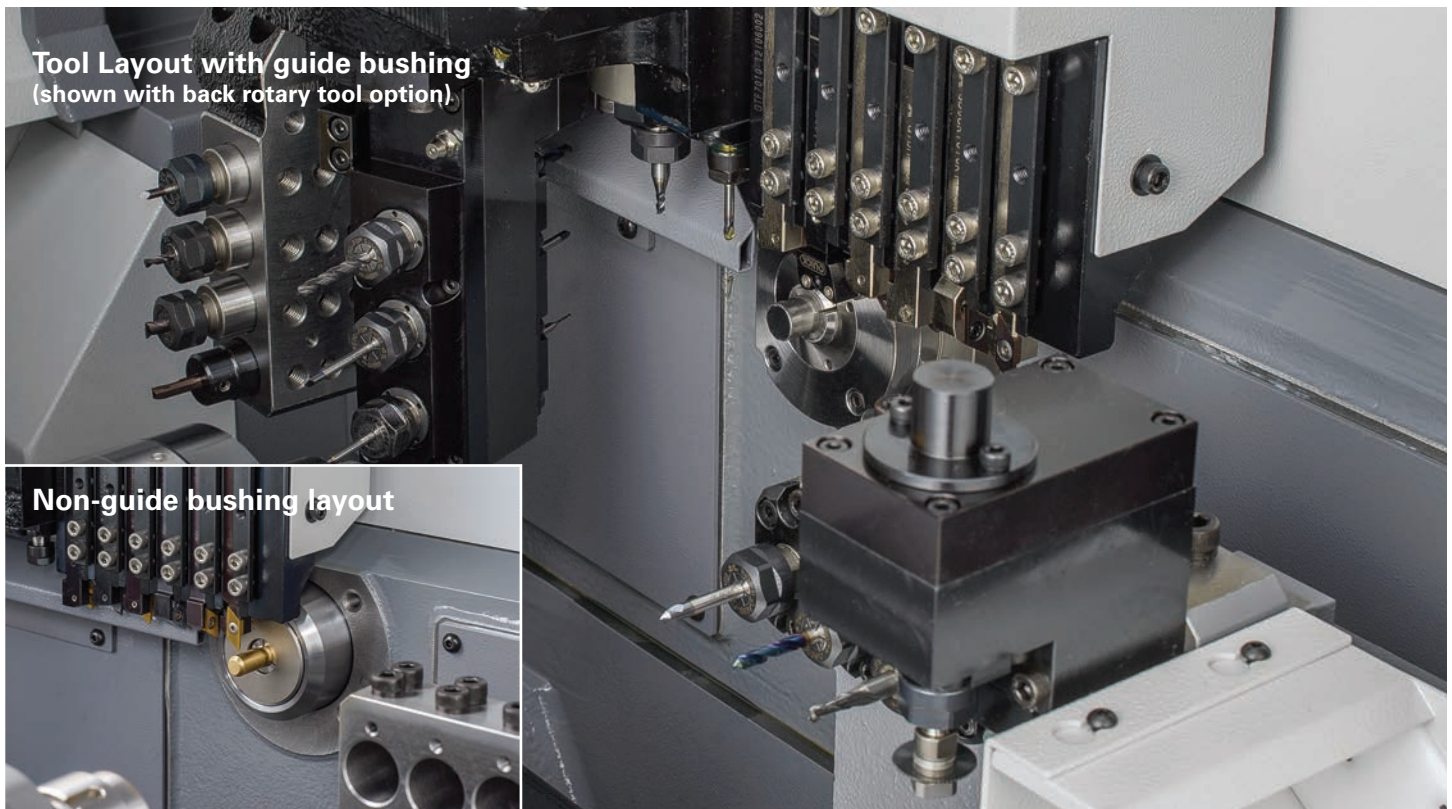
Detachable guide bushing and 15,000 rpm high-speed spindle



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 ma-

chines 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

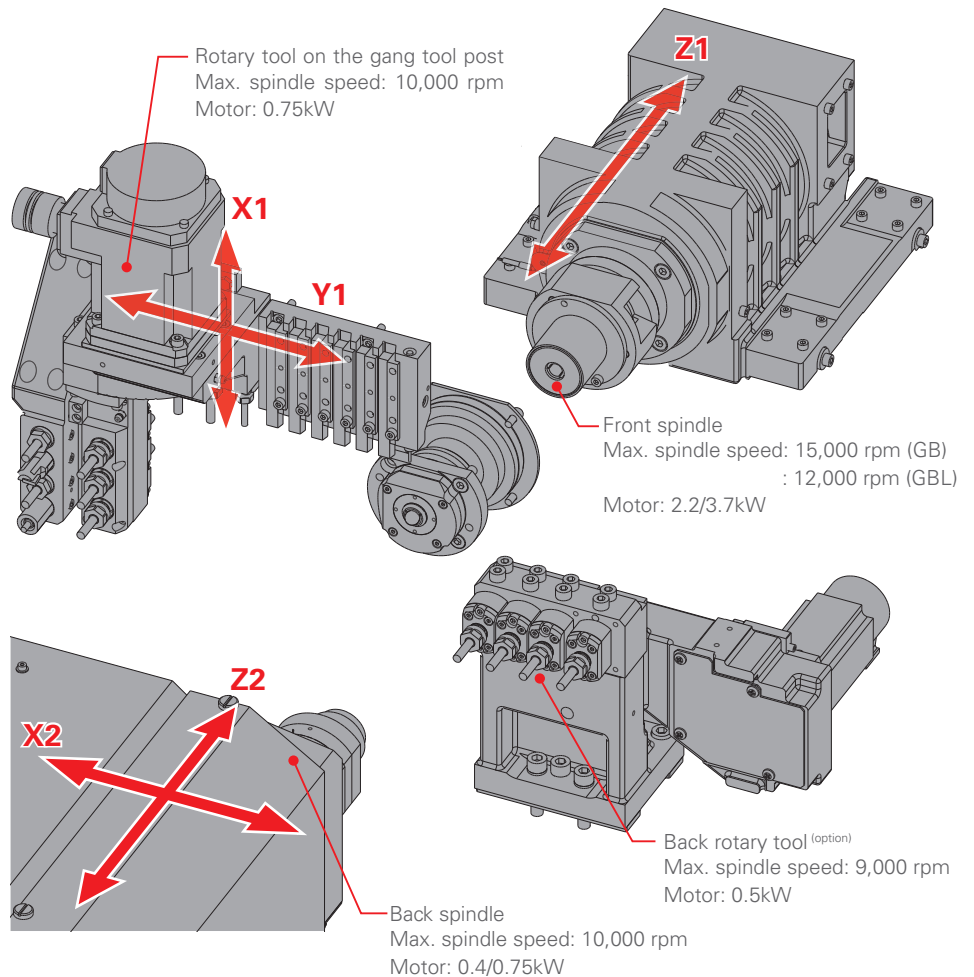
The maximum speed of the front spindle is 15,000 rpm even when using a rotary guide bushing (maximum machining length: 135 mm per chuck), and rotary tools are able to reach speeds of 10,000 rpm. This makes it possible to use the optimum machining conditions when machining small-diameter bar material 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



Ability to switch between guide bushing type and non-guide bushing type in 30 minutes

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.



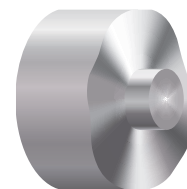
Vibration mode

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

Comparison of chips



Representation of the cutting



LFV Specifications

Model	Type	Front side LFV (X1,Z1)	Back side LFV (X2,Z2)
L12	VII	O Conventional cutting on the back side	O Conventional cutting on the front side

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

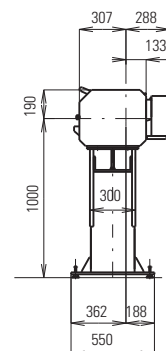
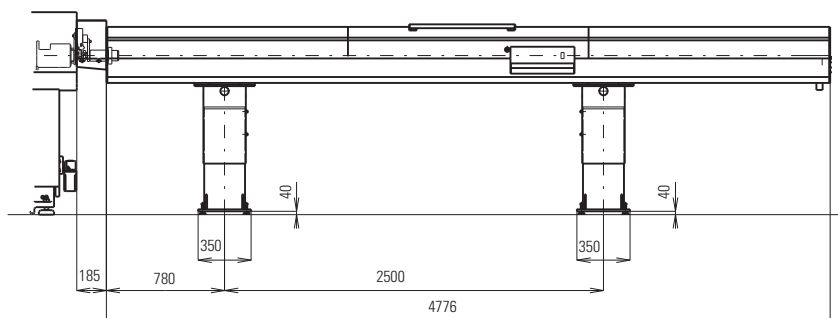
A drilling tool (L12-U120B) can be added to the opposite tool post, which is effective for deep hole machining.

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

Comprehensive Tooling

Gang tool post

GSE3607 (option)

End face drilling spindle (3 double ended spindles).
The angle can be adjusted in the range from 0°
(perpendicular to the end face) to 30°.

Back tool post

Back rotary driving unit (standard)

GSS1530 (option)

Slitting spindle
Max. cutter diameter: $\phi 30$ mm

MSC507 (standard: 3 pcs)
Outer diameter milling spindle
Rego type chuck: ER11

GDF7001 (standard)

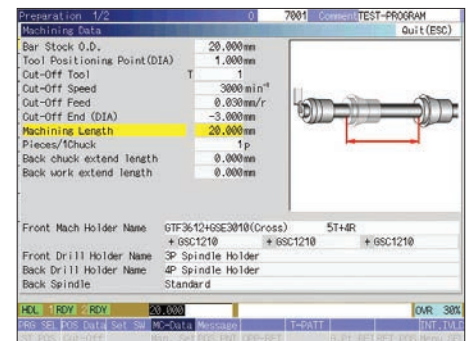
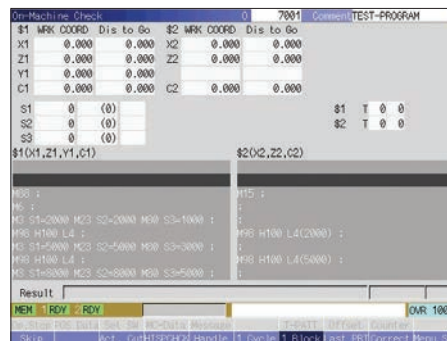
4 vertical sleeve holder
Sleeve mount hole diameter: $\phi 19.05$ mm

MSC507 (option)

Outer diameter milling spindle
Rego type chuck: ER11

Intuitive screen display is easy to view and read

User-friendly screen designed from the operator's perspective



Equipped with high-speed NC

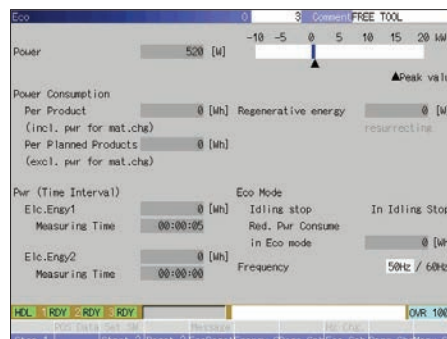
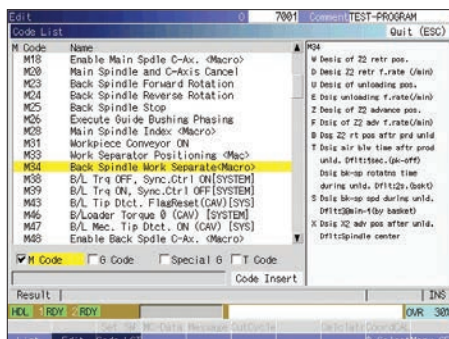
The machine is equipped with the latest NC model to drastically reduce the start-up and screen switching time compared to conventional machines with advance functions. This feature provides a stress free operating environment.

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

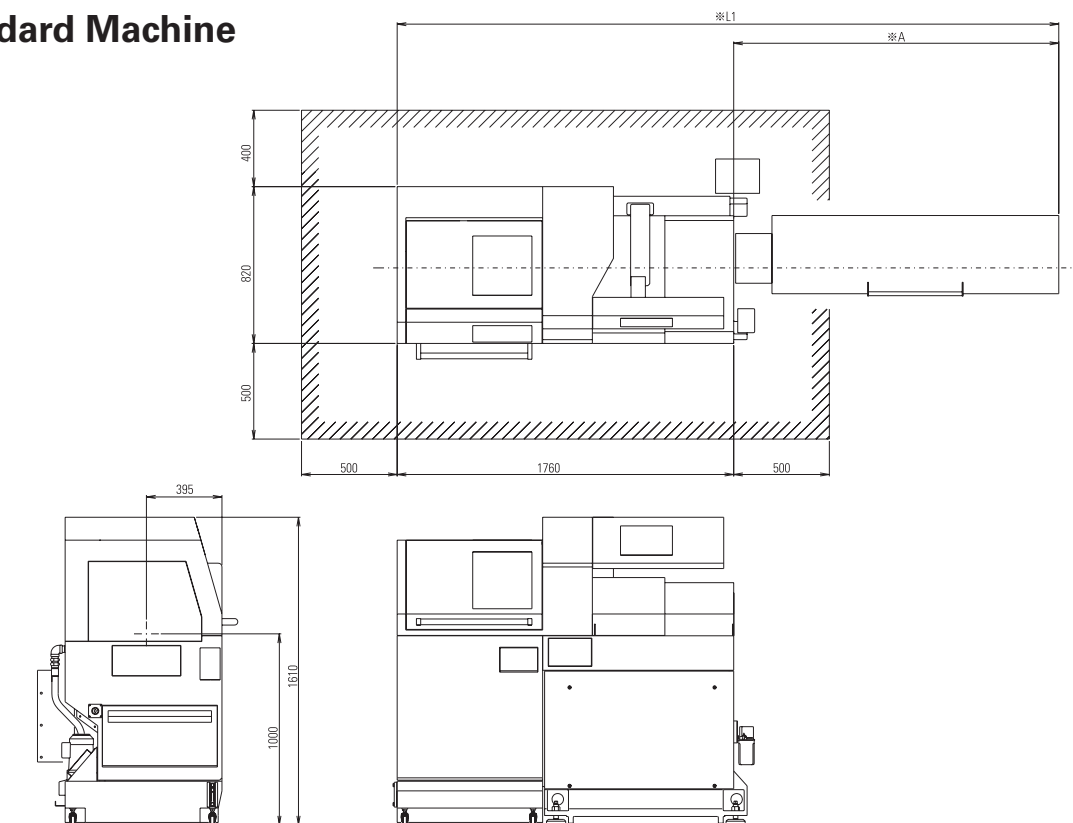
The current power consumption is shown along with the maximum power consumption value, the power consumption record, the cumulative power consumption and the power regeneration (generation) status.

Eco screen

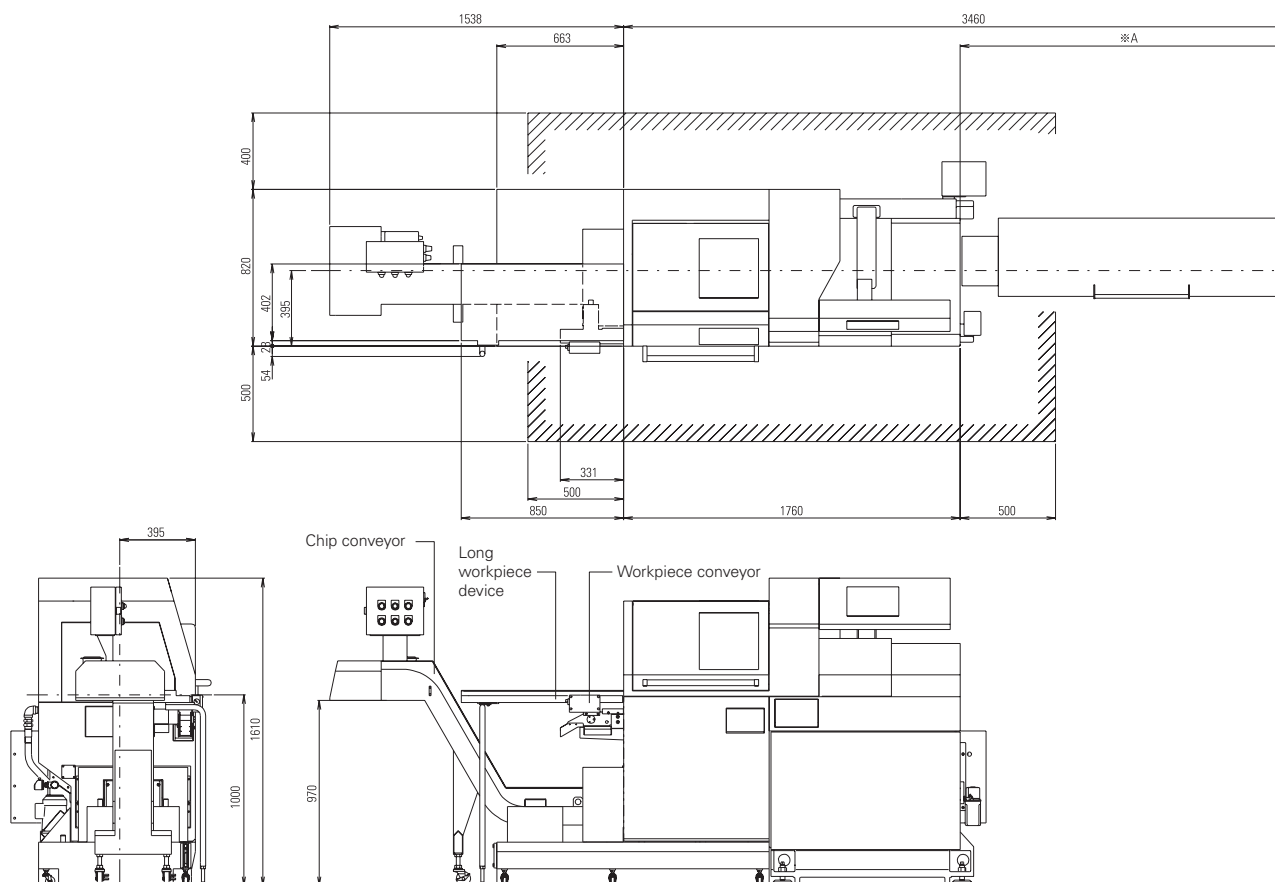
The machine's power consumption can also be shown in the form of an easy-to-understand graph. Data can be output as well.

Machine Layout

L12 Standard Machine



L12 Option-installed Machine



Machine Specifications

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

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
 Hob 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)

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Catalog No. L12 2019