CITIZEN
Micro HumanTech

Cincom

L12

Sliding Headstock Type CNC Automatic Lathe

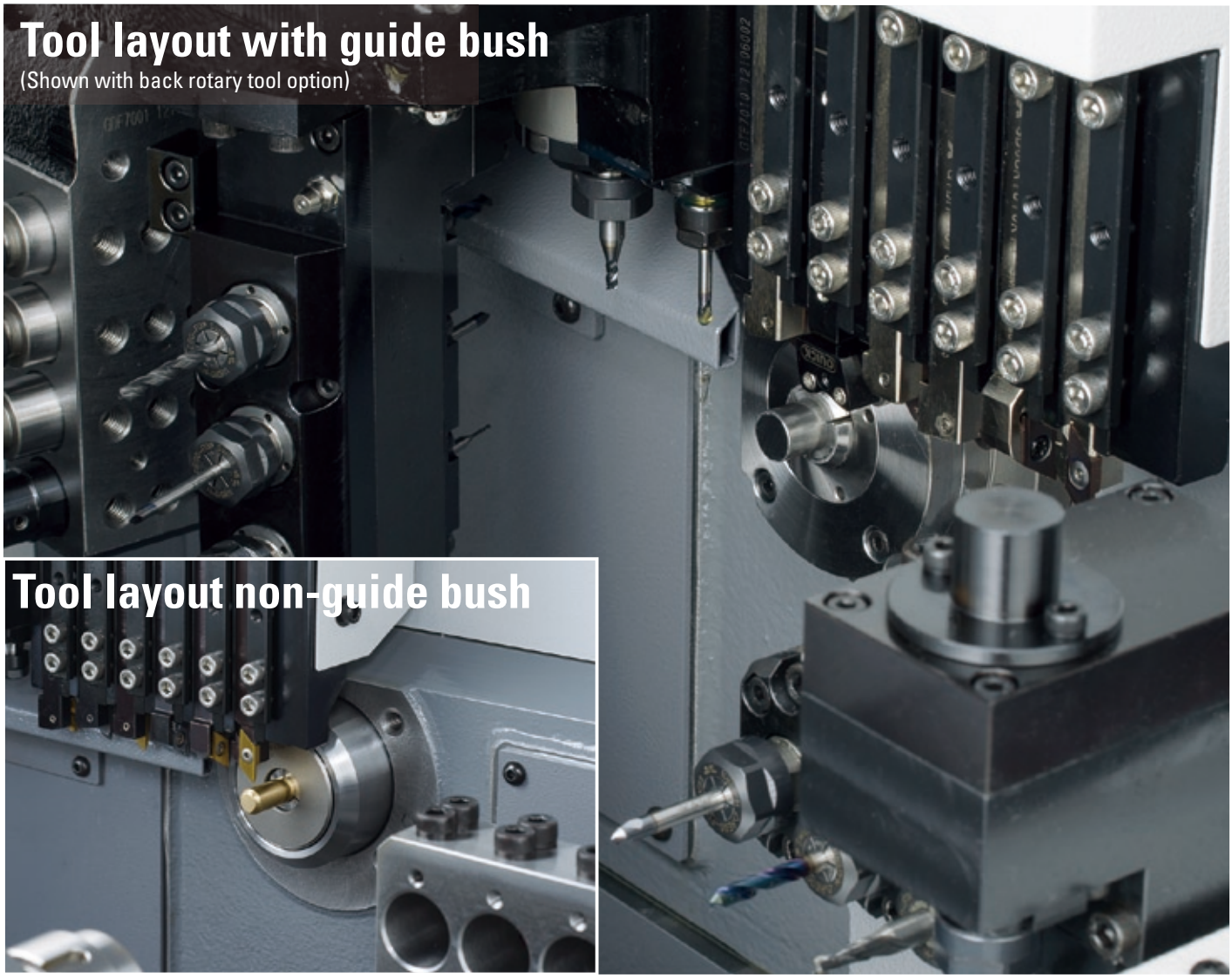
The L12: Handling all small-diameter work with 5-axis control

Detachable guide bushing and 15,000min^{-1} high-speed spindle

Machining using a guide bushing is a useful method for long, slender workpieces. On the other hand, using a guide bushing with short workpieces leaves a long remnant bar, increasing material costs. The optimum machine configuration differs according to 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 min^{-1} and 10,000 min^{-1} rotary tools. The L series that has built Cincom's history is now creating the new 'standard' in automatic lathes for function and performance.

Tool layout with guide bush

(Shown with back rotary tool option)



Tool layout non-guide bush

Achieving optimum machining conditions

High-speed spindle and rotary tools

The maximum speed of the front spindle is 15,000 min^{-1} 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 min^{-1}. 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

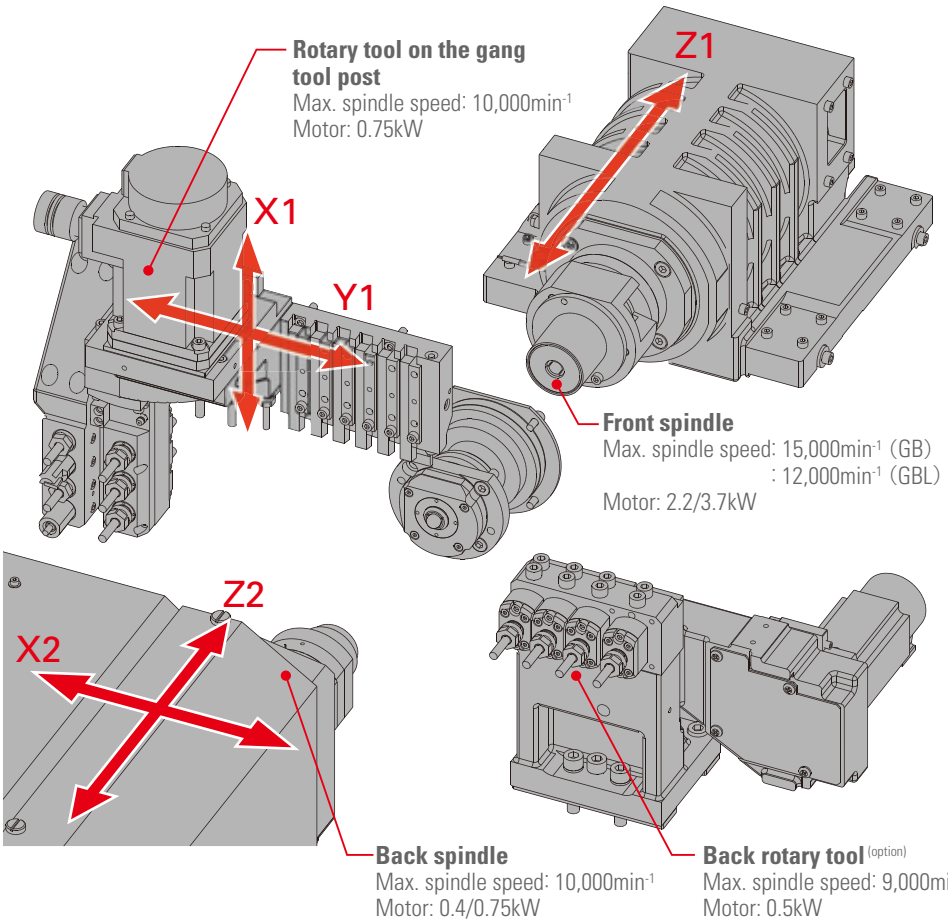
Comprehensive tooling

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 specifica-
tions 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 A12/16 series or B12 machine up until now.



Automatic lathe offering 2 roles in 1 machine: handles both long and short workpieces

Ability to switch between guide bush type and non-guide bush 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 thin workpieces, and with the guidebush removed, can be used for short workpieces thus leaving short remnant bars.

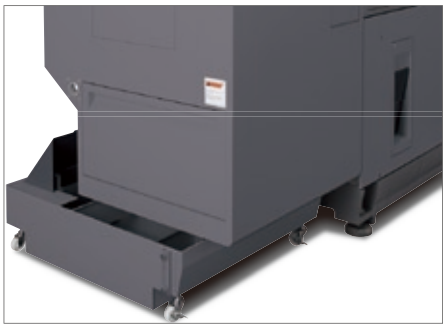
Convenient functions for easy operation and improve productivity

Ease of operation pursued for fast set-ups.
Easy to maintain with optional functions for flexability of use

Wide operator access
A lift-up cover gives an extensive opening without taking up space at the rear of the machine, and improves operability.

NC program I/O
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.

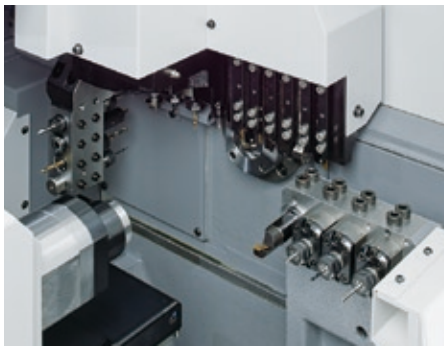
Product receiver box
The workpiece gripped in the back spindle is unloaded into the product chute for collection. Workpiece conveyor and support for scratch prevention are both available.



Coolant tank
The coolant tank has a large capacity of 100 liters and can be removed easily.

Chip receiver box
With its large opening, the chip collection port is designed for easy cleaning. Chip conveyor is optionally available.

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



Up to 27 tools
A maximum of 27 tools can be mounted.

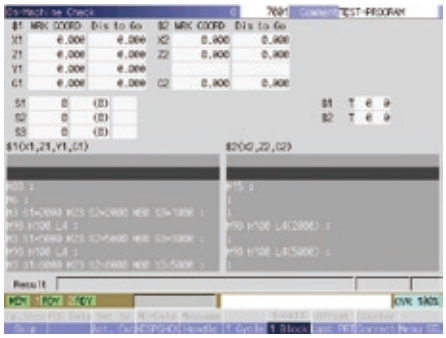
Deep hole drilling
A drilling tool can be added to the opposite tool post, which is effective for deep hole machining (for CS).

Intuitive screen display is easy to view and read

Screen designed from the operator's perspective, and comfortable to use

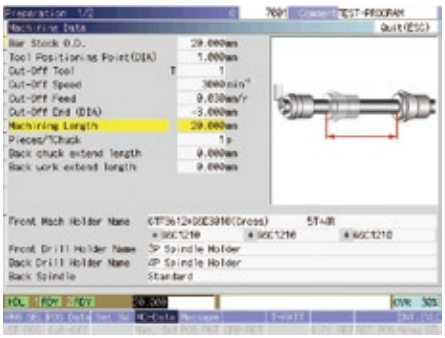
Equipped with high-speed NC

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



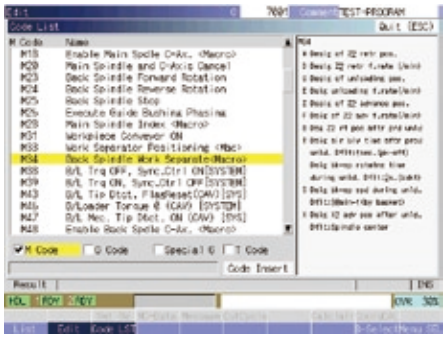
On-machine program check function

Using manual handle feed, operations can be run in the forward or reverse directions, and you can temporarily stop program operation, edit the program, and then restart operation. This helps to make programming go smoothly.



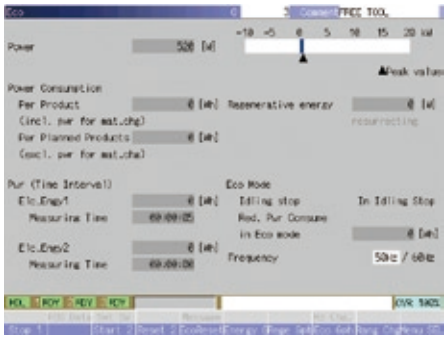
Display of easily understood illustrations

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.)



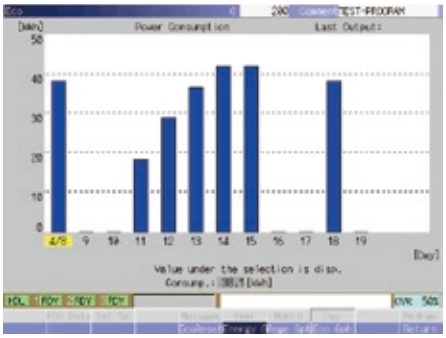
Display of code list

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 on the screen, along with the maximum power consumption value, the power consumption record, the cumulative power consumption, and the power regeneration (generation) status. Data can be output, too.



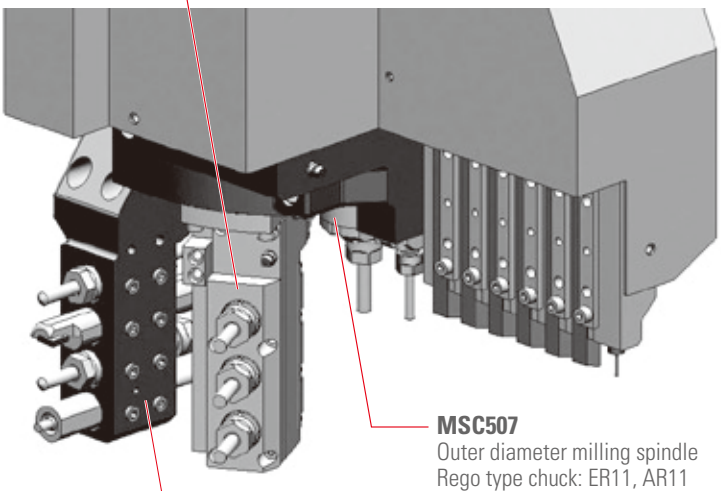
Eco screen

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

Comprehensive Tooling

Gang tool post

GSE3607
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°.

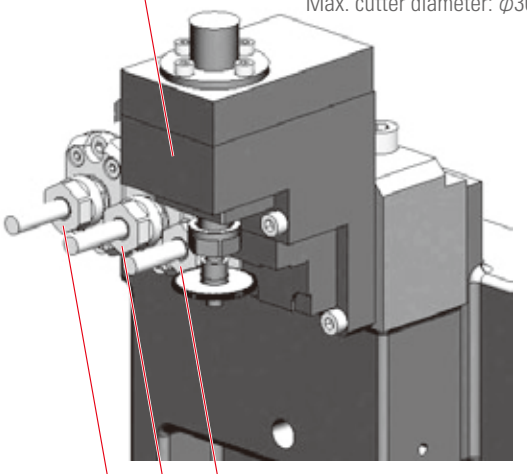


MSC507
Outer diameter milling spindle
Rego type chuck: ER11, AR11

GDF7001
4 vertical sleeve holder
Sleeve mount hole diameter: ϕ19.05 mm

Back tool post
(rotary tool specification option)

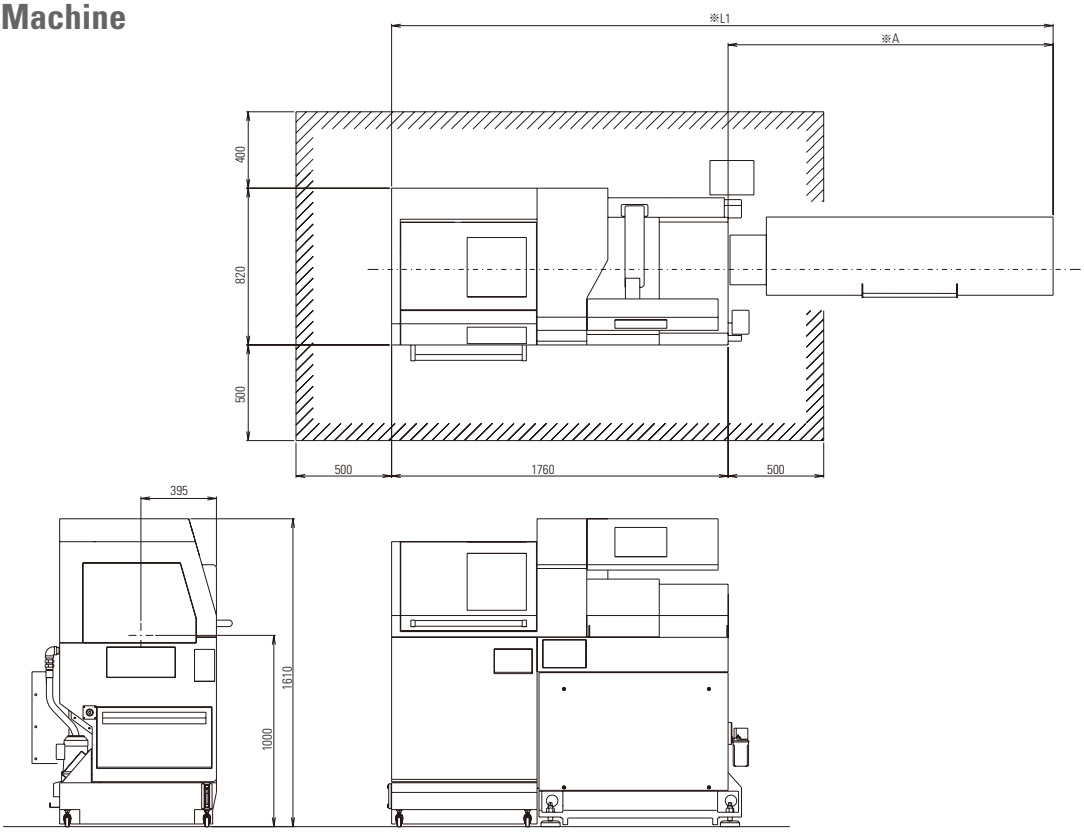
GSS1530
Slitting spindle
Max. cutter diameter: ϕ30 mm



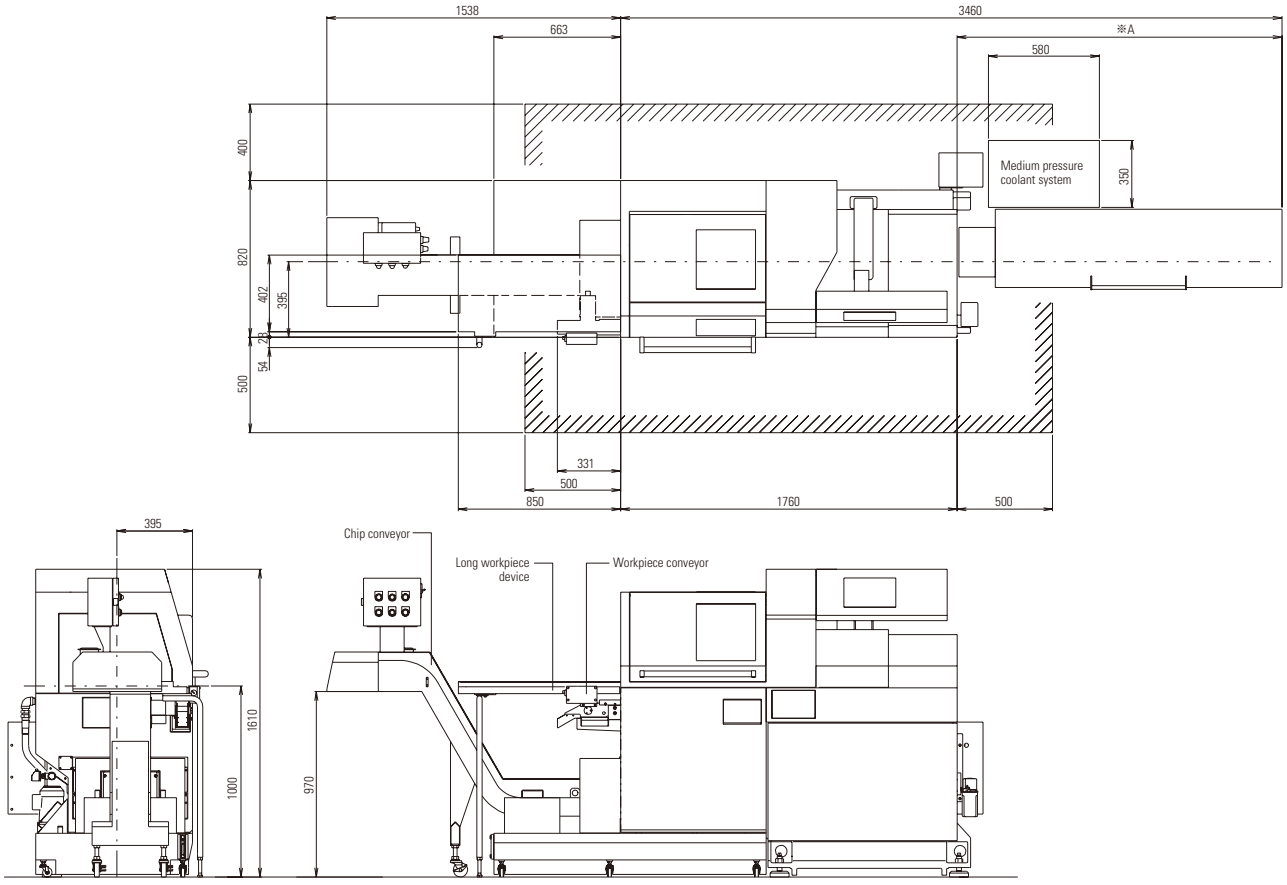
MSC507
Outer diameter milling spindle
Rego type chuck: ER11, AR11

Machine Layout

L12 Standard Machine



L12 Option-installed Machine



Machine Specification

Item	L12 type VII (L12-1M7)
Maximum machining diameter (D)	ϕ12mm
Maximum machining length (L)	GB:135mm/1chuck GBL:30mm
Maximum front drilling diameter	ϕ8mm
Maximum front tapping diameter (tap, die)	M6
Spindle through-hole diameter	ϕ20mm
Main spindle speed	GB:Max.15,000min^{-1} GBL:Max.12,000min^{-1}
Max. chuck diameter of the back spindle	ϕ12mm
Max. protrusion length	80mm
Max. protrusion length of the back spindle workpiece	30mm
Max. drilling diameter for the back spindle	ϕ6mm
Max. tapping diameter for the back spindle	M5
Back spindle speed	Max.10,000min^{-1}
Gang rotary tool	
Maximum drilling diameter	ϕ5mm
Maximum tapping diameter	M4
Spindle speed	Max.10,000min^{-1}
Back tool post rotary tool Option	
Maximum drilling diameter	ϕ5mm
Maximum tapping diameter	M4
Spindle speed	Max.9,000min^{-1}
Number of tools to be mounted	27
Gang turning tool	6
Gang rotary tool	4～9
Gang drilling tool	Front 4, Back 4
Back tool post	4
Tool size	
Tool	□10mm
Sleeve	ϕ19.05mm
Main spindle collet chuck	FC096-M
Guide bushing	WFG541-M
Back spindle collet chuck	FC096-M-K
Rapid feed rate(All axes)	35m/min
Motors	
Spindle drive	2.2/3.7kW
Gang tool post rotary tool drive	0.75kW
Back spindle drive	0.4/0.75kW
Back tool post rotary tool drive Option	0.5kW
Coolant oil	0.25kW
Center height	1,000mm
Rated power consumption	6.1kVA
Full-load current	22A
Main breaker capacity	30A
Air pressure and air flow rate for pneumatic devices	0.5MPa, 60NL (Max.190NL)
Weight	1,700kg

Standard accessories	
Main spindle chucking unit	Air-driven knock-out device for back machining
Back spindle chucking unit	Machine relocation detector
Gang rotary tool driving unit	Door lock
Coolant device (with level detector)	Workpiece separator
Lubricating oil supply unit (with level detector)	

Special accessories	
Rotary guide bushing unit	Motor-driven knock-out device for back machining
Cut-off tool breakage detector	Workpiece conveyor
Knock-out jig for through-hole workpiece	Chip conveyor
Scratch-free part of product chute	Medium-pressure coolant device
Workpiece separator (for front face)	Signal lamp
Coolant flow rate detector	3-color signal tower
Work light	

Standard NC functions	
NC unit dedicated to the L12	Constant surface speed control function
8.4 inch color liquid crystal display (LCD)	Automatic power-off function
Program storage capacity : 40m (approx.16KB)	Main spindle indexing at 1° intervals
Tool offset pairs : 40	Nose radius compensation
Product counter indication (up to 8 digits)	Chamfering, corner R
Operating time display function	On-machine program check function
Spindle speed change detector	

Special NC functions	
Variable lead thread cutting	Tool offset pairs : 80
Arc threading function	Tool life management I
Geometric function	Tool life management II
Spindle synchronized function	Program storage capacity 600m (approx.240KB)
Spindle C-axis function	External memory program driving
Milling interpolation	Network I/O function
Back spindle 1°indexing function	Submicron commands
Back spindle C-axis function	User macros
Back spindle chasing function	Helical interpolation function
Canned cycle drilling	Inclined helical interpolation function
Rigid tapping function	Hob function
High speed Rigid tapping function	Polygon function
Rigid tapping phase adjustment function	Inch command
Differential speed rotary tool function	Sub inch command

Environmental Information

Basic Information	Energy usage	Power supply voltage	AC200V
		Electrical power requirement (Max)	6.1kVA
		Required pneumatic pressure	0.5MPa
Environmental Performance Information	Power consumption	Standby power *1	0.309kW
		Power consumption with model workpiece *2	0.012kWh/cycle
		Power consumption value above converted to a CO_2 value *3	5.5g/cycle
	Air consumption	Required air flow rate	46NL/min (max.190 NL/min., during air blow)
	Lubricant consumption	At power ON	2.5cc/30min
	Noise level	Value measured based on JIS	77.9dB
Approach to Environmental Issues	Environmental load reduction	RoHS Directive / REACH regulations	Compliant
	Recycling	Indication of the material names of plastic parts	Covered in the instruction manual *4
	Environmental management		We are ISO14001 accredited. We pursue "Green Procurement", whereby we make our purchases while prioritizing goods and services that show consideration for the environment.

*1 : This is the standby power in the idle stop mode (a function that turns servomotor excitation off when it is not necessary, for example during program editing).
*2 : This is the power consumption in program operation (when not cutting) for one of our standard test pieces, shown for the purpose of comparing the environmental performance with that of existing models.
*3 : This is the value converted in accordance with the CHUBU Electric Power CO_2 emissions coefficient for 2009 as published by the Ministry of the Environment.
*4 : If polyvinyl chloride (PVC) and fluoric resin are not processed correctly they can generate harmful gases. When recycling these materials, commission a contractor that is capable of processing them appropriately.

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