CITIZEN

# Cincom

# L32

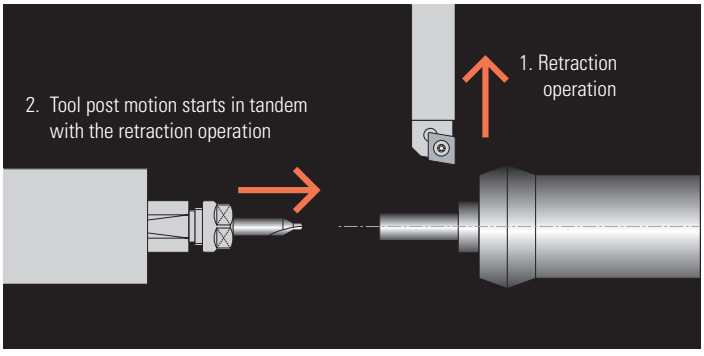
Sliding Headstock Type CNC Automatic Lathe

L32 VIII

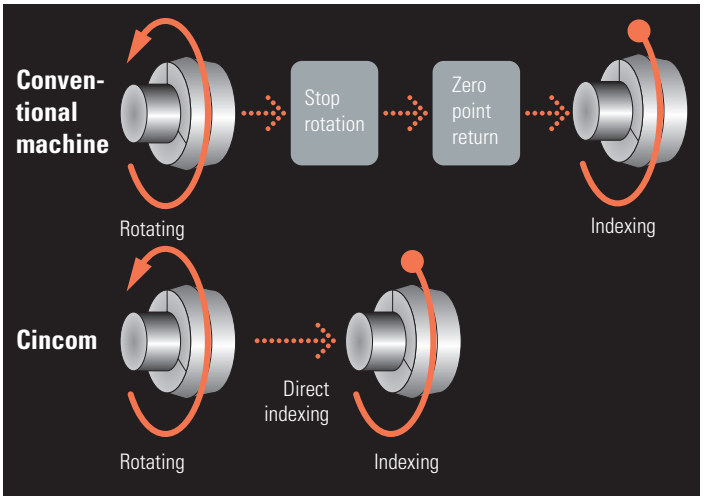
# Cincom Control saves time between processes

**Cincom Control**
We have developed a control system unique to Citizen that realizes fast and smooth operation. It reduces idle time and achieves faster rapid feed together with substantial shortening of cycle time.

**Multiple tool post overlapping function**
Independent opposite and gang tool posts are provided. In front machining, idle time has been completely eliminated by using a unique control method whereby the tool post to be used next starts the preparation for machining without waiting for the other one to complete its retraction operation.




**Direct spindle indexing function**
This substantially reduces spindle indexing time. When indexing the spindle, this function allows the spindle to be decelerated and stopped at the required index position by specifying this position with a C-axis command while the spindle is rotating. This eliminates the idle time up until rotation stops, and improves working efficiency.



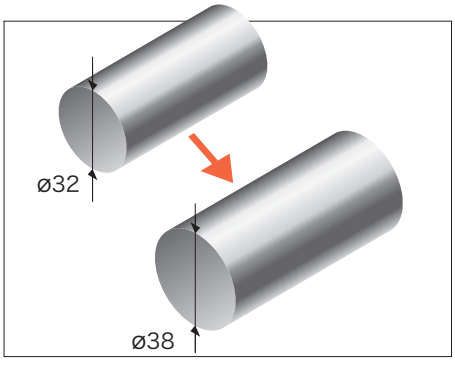
# Cincom's Time-tested L32 Series in a Modular Design

With a legacy as one of the best-selling Cincom machines, the next-generation L32 is available in 3 models with a modular design. Ranging from a 5-axis machine with excellent cost performance to a high-end machine equipped with B axis and back tool post Y axis, you can select the machine according to the functions you require.

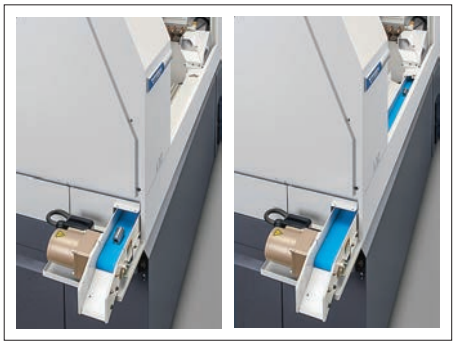
And in combination with the wide range of tooling, these machines can cope flexibly with the workpieces to be machined.



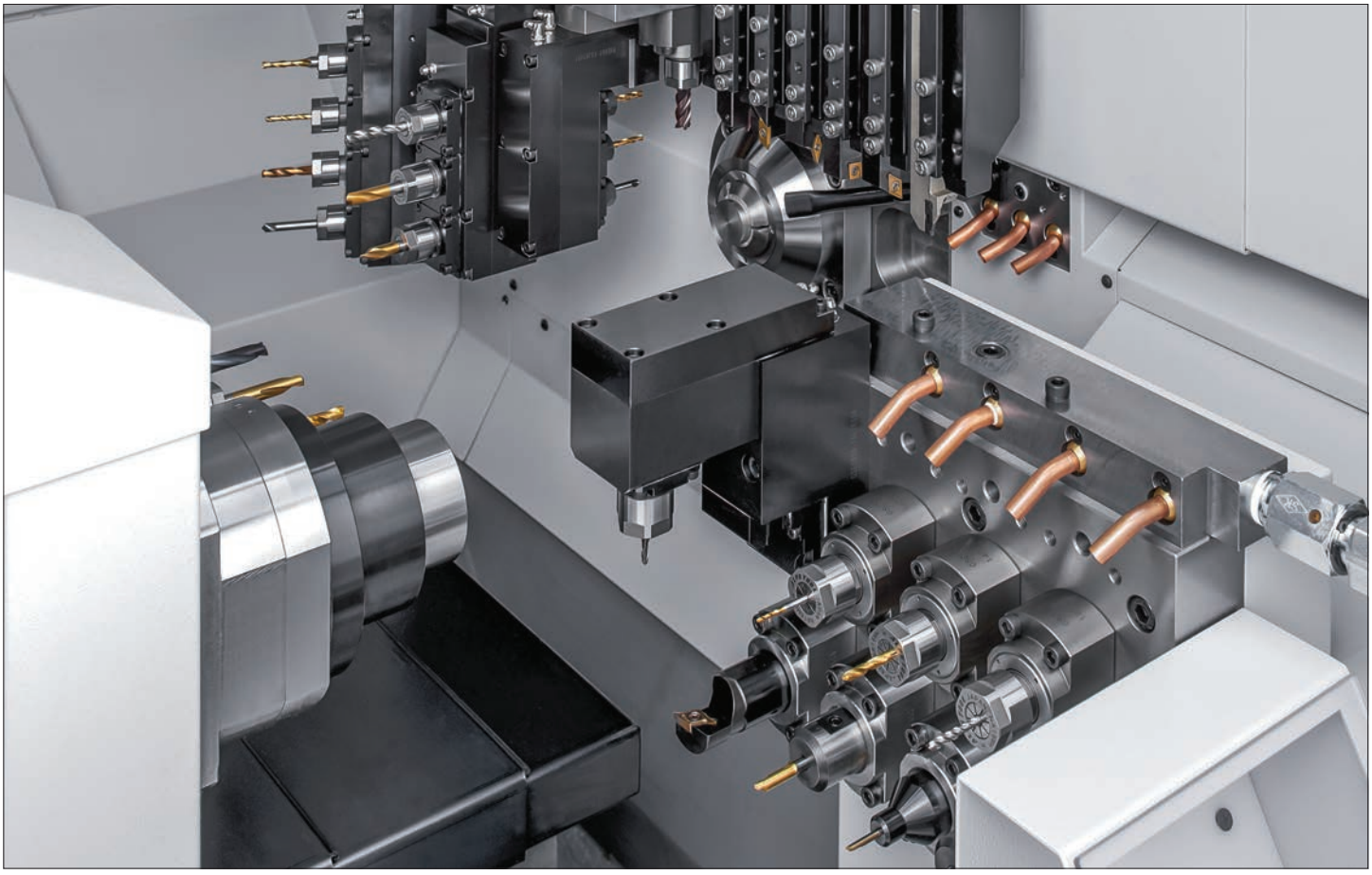
**Extra-wide cover for operator convenience**
The operator door can be flipped up to provide access to the interior of the machining area through a very large opening, allowing comfortable and easy access for tool setting and other adjustments.




**ø32 mm max. bar as standard; ø38 mm as option**
Supply of bar stock up to ø38 mm is supported as an option. The machining length per chucking is 320 mm in both capacities. A wide range of workpieces can be machined.



**Workpiece conveyor equipped as standard**
Workpiece conveyor facilitates the efficient mass production of large-diameter workpieces. The cover over the unloading route can be removed easily, giving good maintainability too.



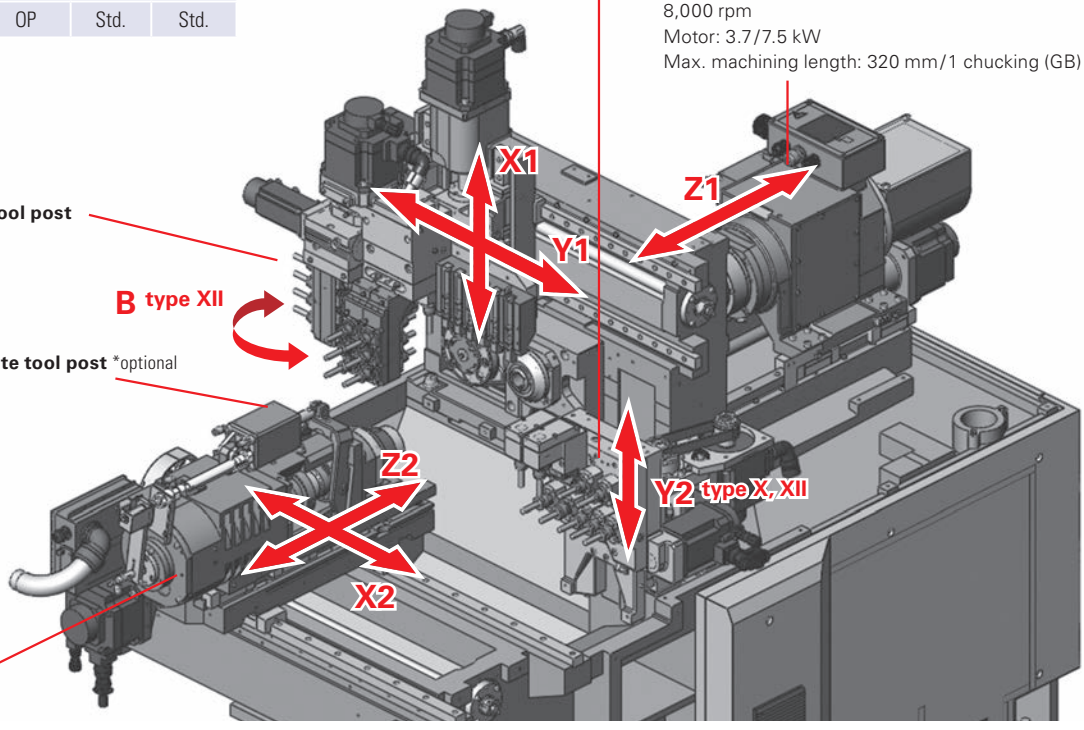
L32 XII

# Basic Construction

| | Type VIII | Type X | Type XII |
|---|---|---|---|
| B axis (rotary tools on the gang tool post) | – | – | Std. |
| Y axis (back tool post Y axis) | – | Std. | Std. |
| Rotary tools on the opposite tool post | OP | OP | OP |
| Rotary tools on the back tool post | OP | Std. | Std. |

**Back tool post rotary tools** Optional for Type VIII/IX
6,000 rpm (Max.)
3,000 rpm (rating)
Motor: 1.0 kW

**Front spindle**
8,000 rpm
Motor: 3.7/7.5 kW
Max. machining length: 320 mm/1 chucking (GB)




**Rotary tools on the gang tool post**
6,000 rpm (Max.)
4,500 rpm (rating)
Motor: 1.0 kW

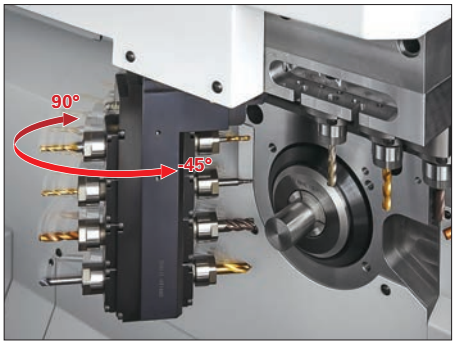
**Rotary tools on the opposite tool post** *optional
6,000 rpm (Max.)
3,000 rpm (rating)
Motor: 1.0 kW

**Back spindle**
8,000 rpm
Motor: 2.2/3.7 kW

# Function Modules that can be combined without restrictions

With a modular design, the L32 has a lineup of three Types – VIII, X and XII – which can be combined with selected variations: rotary tools on a gang tool post, an opposite tool post, or a back tool post.

We allow selection of functions according to the machining needs, and help customers optimize their manufacturing by combining these functions to achieve their ideal machine configuration.



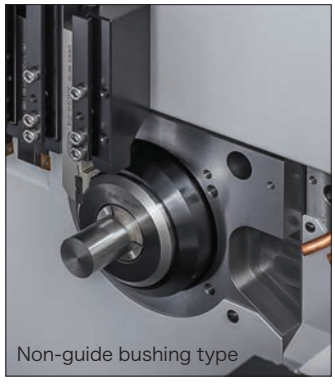

U32B (Rotary tool on the gang tool post B axis)

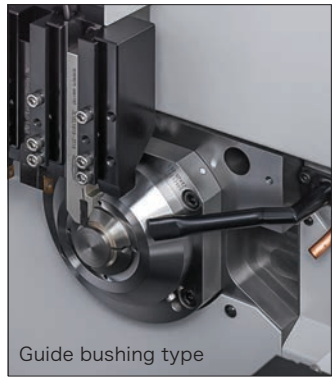
U121B (Rotary tool on the opposite tool post)

U12B (Back tool post incorporating Y axis)

## Easily switch between guide bushing type and non-guide bushing type

The guide bushing can be fitted and removed in a quick and simple operation. The machine can be used as an automatic lathe with two roles in a single machine: as a regular guide bushing type automatic lathe when machining long thin workpieces, and as a guide bushingless automatic lathe when using cold drawn material and to leave short remnant bars.


Non-guide bushing type


Guide bushing type

## LFV Function (option)

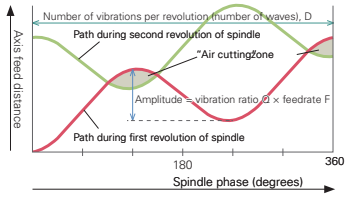
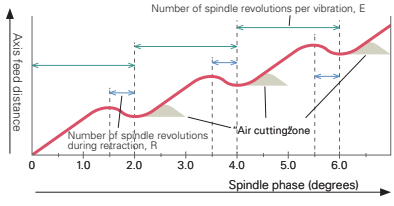
### Effective machining of difficult-to-cut material

LFV technology

LFV* (Low Frequency Vibration) cutting is a technology for performing machining while vibrating the S and Z servo axes in the cutting direction in synchrony 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 as well as 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

Material: SUS304 Weight: 14.3 g (same scale)

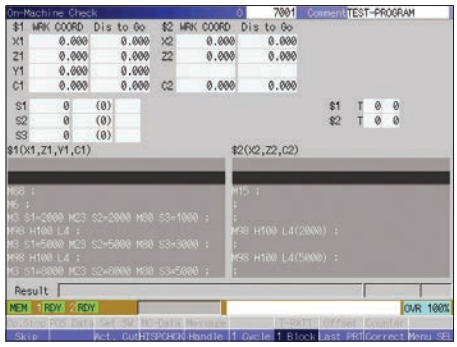
Chips generated by customary cutting

Chips generated with LFV cutting

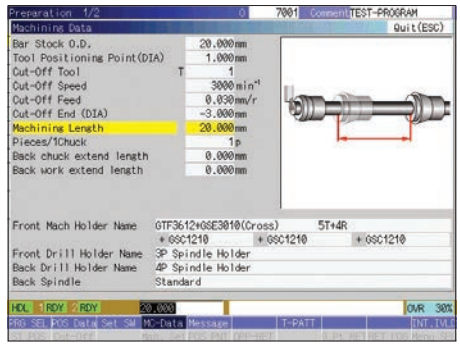
Note 1. LFV machining cannot be performed with the Y axis.
Note 2. LFV machining can be performed simultaneously on a maximum of 1 pair of axes.
Note 3. For LFV machining with rotary tools, the "LFV function" and "rotary tool feed per revolution" options are required.
*LFV is a registered trademark of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

# Intuitive screen display is readable at a glance

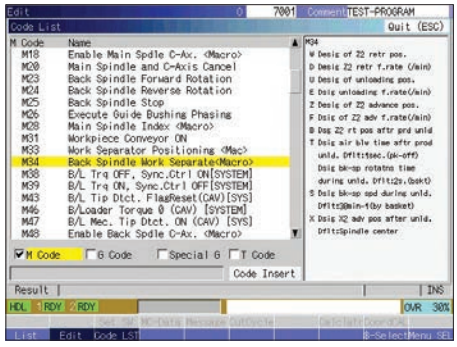
**Equipped with high-speed NC**
The machine is equipped with the latest NC model to drastically reduce the start-up and screen switching time compared to conventional machines with advanced functions.



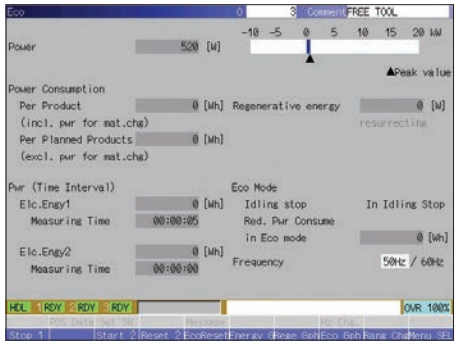
**On-machine program check function**
Using manual handle feed, operations can be run in the forward or reverse directions, and you can temporarily stop program operation, edit the program, and then restart operation.



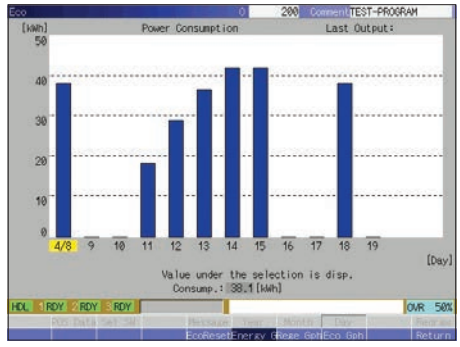
**Display of easily understood illustrations**
Illustrations appropriate for each item are displayed. You can see what they mean at a glance (the screen shown above displays the machining data).



**Display of code list**
The function displays the list of G and M codes including explanations to aid programming.

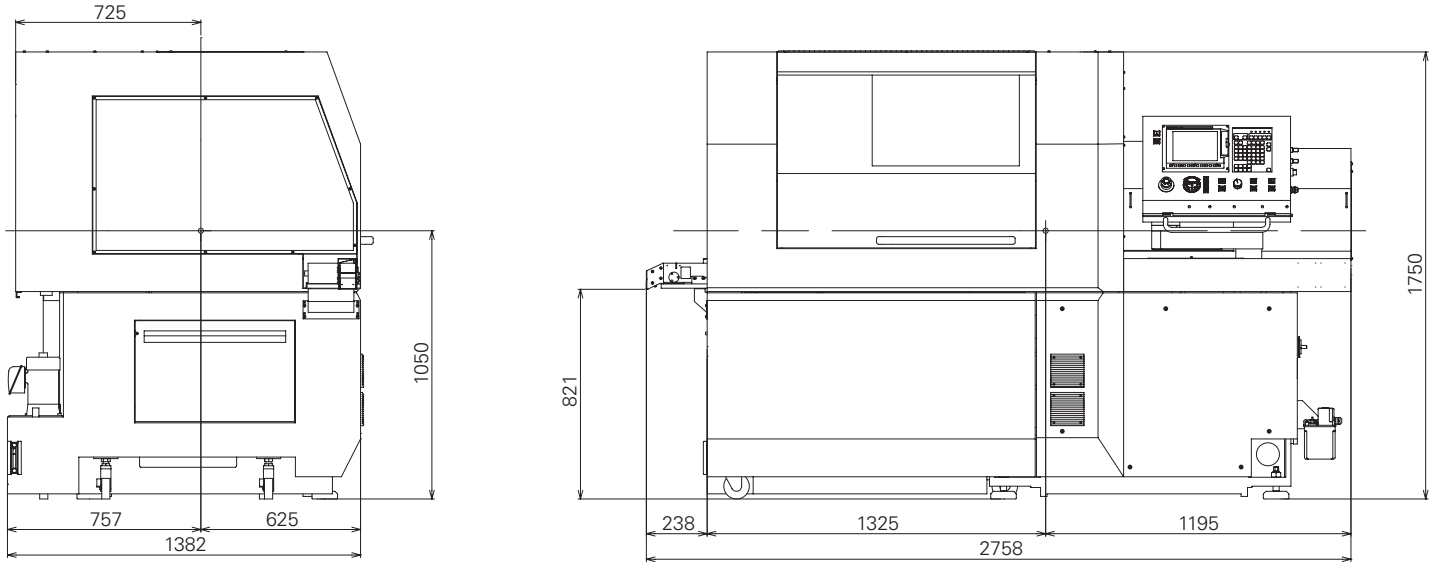


**Eco screen**
The current power consumption is shown on the screen, along with the cumulative power consumption, and the power regeneration (generation) status.

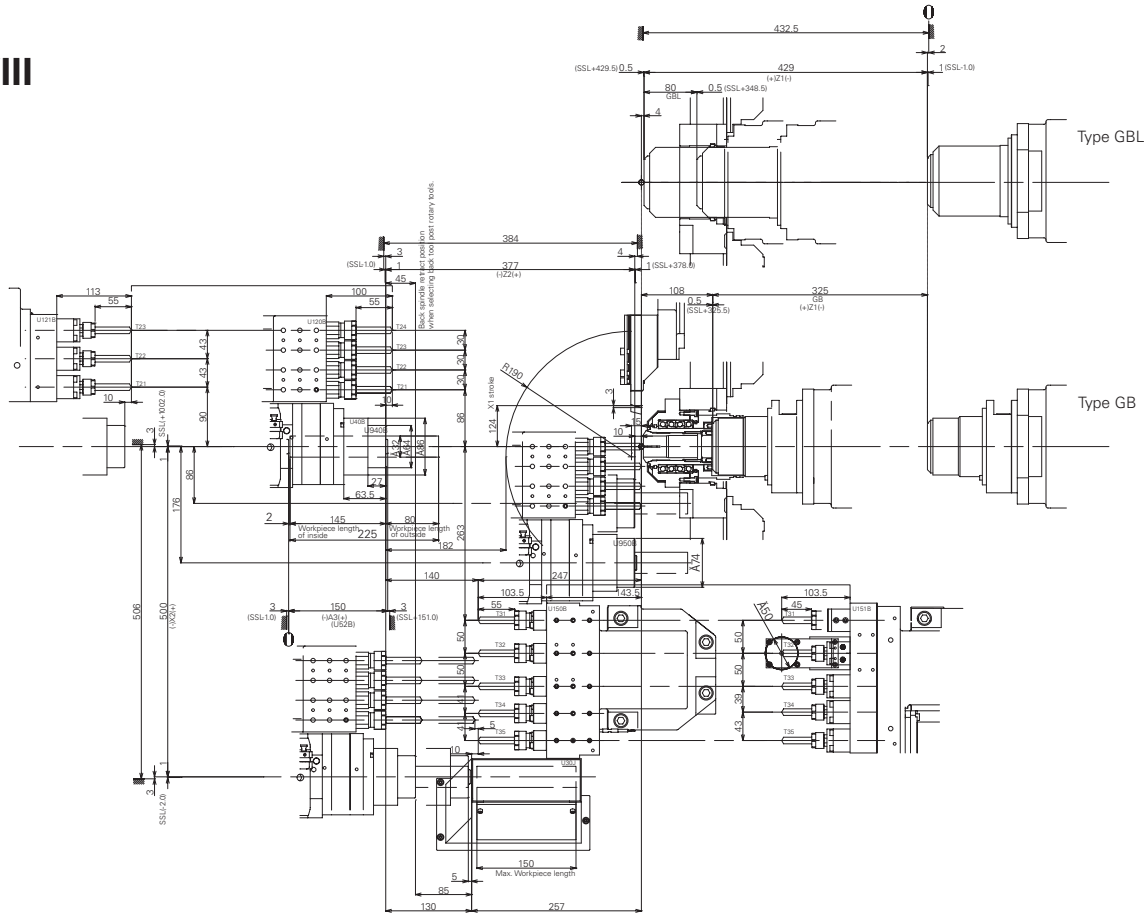


**Eco screen** (example graph display)
The machine's power consumption can also be shown in the form of an easy-to-understand graph.

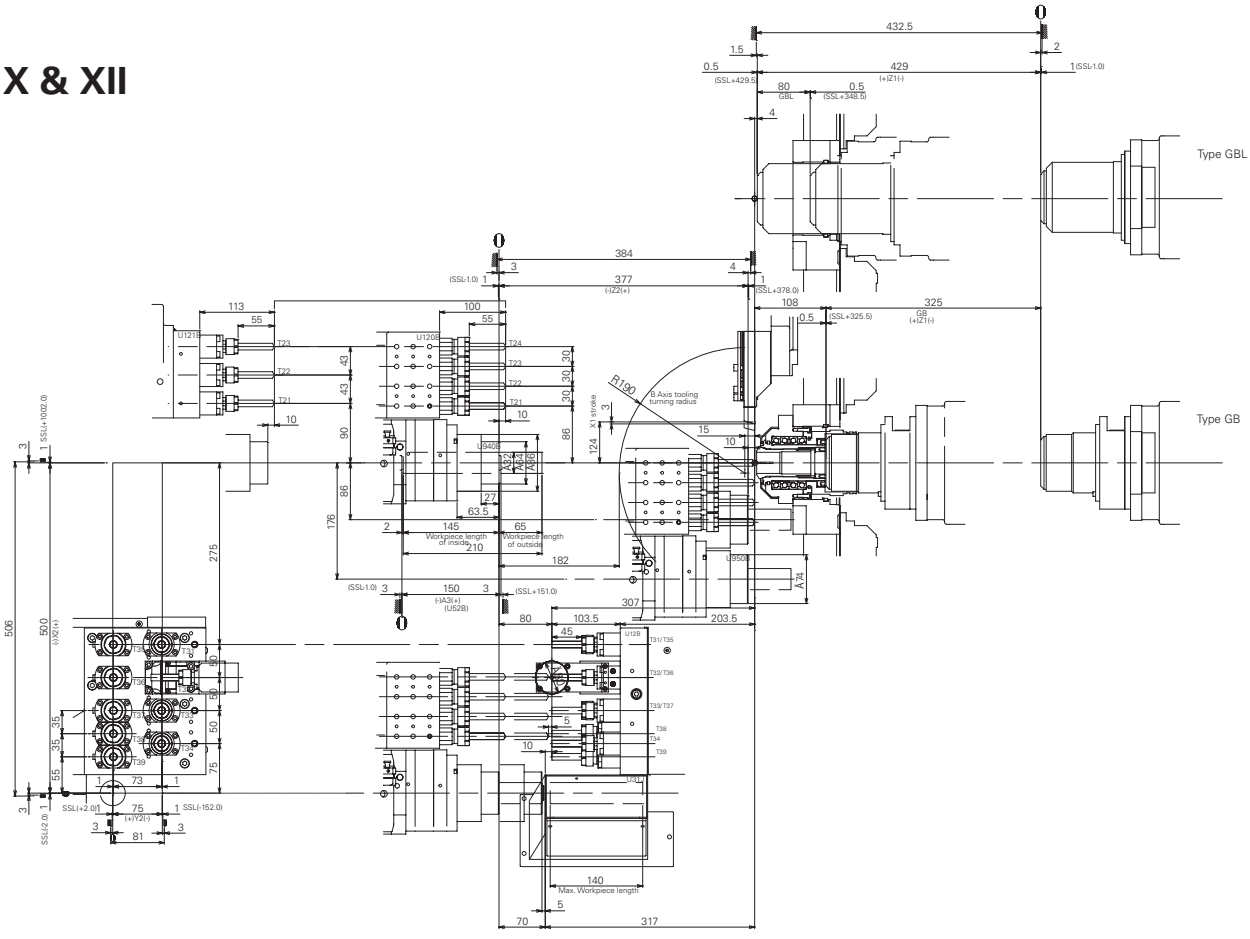
# External view



## Type VIII




## Type X & XII



# Machine Specifications

| Item | Type VIII | Type X | Type XII |
|---|---|---|---|
| | L32-1M8 | L32-1M10 | L32-1M12 |
| Max. machining diameter (D) | ø32 mm (option: ø38) | | |
| Max. machining length (L) | GB:320 mm/1chucking NGB: 2.5D | | |
| Spindle through-hole diameter | ø39 mm | | |
| Main spindle speed | Max.8,000 rpm | | |
| Max. chuck diameter of back spindle | ø32 mm | | |
| Max. protrusion length of back spindle workpiece | 80 mm | 65 mm | |
| Max. protrusion length | 150 mm | 140 mm | |
| Back spindle speed | Max.8,000 rpm | | |
| Gang rotary tool: Spindle speed | Max.6,000 rpm (Rating 4,500 rpm) | | |
| Front rotary tool (OP): Spindle speed | Max.6,000 rpm (Rating 3,000 rpm) | | |
| Back tool post rotary tool (OP type VIII): Spindle speed | Max.6,000 rpm (Rating 3,000 rpm) | | |
| Number of tools to be mounted (max.) | 19~30 | 24~44 | 30~40 |
| Gang turning tool | | 6 | |
| Gang rotary tool | 4~6 | 5~13 | 7~11 |
| Front drilling tool | 4~9 | 4~16 | 4~9 |
| Back drilling tool | 5~11 | 9~20 | 13~19 |
| Tool size | | | |
| Gang turning tool | □5/8" | | |
| Sleeve | 1" | | |
| Chuck and bushing | | | |
| Main spindle collet chuck | TF37SP (TF43: ø38 spec) | | |
| Back spindle collet chuck | TF37SP (TF43: ø38 spec) | | |
| Rotary tool collet chuck | ER11, ER16 | | |
| Chuck for drill sleeves | ER11, ER16 | | |
| Guide bushing | TD32 (STM38: ø38 spec) | | |
| Rapid feed rate | | | |
| All axes (except Y2) | 32 m/min | | |
| Y2 axis | – | 24 m/min | |
| Motors | | | |
| Spindle drive | 3.7/7.5 kW | | |
| Gang tool post rotary tool drive | 1.0 kW | | |
| Back spindle drive | 2.2/3.7 kW | | |
| Back tool post rotary tool drive (OP type VIII) | 1.0 kW | | |
| Front rotary tool drive (OP) | 1.0 kW | | |
| Coolant oil | 0.4 kW | | |
| Lubricating oil | 0.003 kW | | |
| Center height | 1,050 mm | | |
| Rated power consumption | 13.2 kVA | | |
| Full-load current | 36A | | |
| Main breaker capacity | 60A | | |
| Air pressure and air flow rate for pneumatic devices | 0.5 MPa, 64.2 NL | | |
| Weight | 6,283 lb | 6,393 lb | |

*Type VIII back tool post rotary tool is optional; **Front rotary tool drive unit is optional for all types

## Standard accessories

- Main spindle chucking unit
- Back spindle chucking unit
- Rotary guide bushing unit
- Gang rotary tool driving unit
- Coolant unit (with level detector)
- Lubricating oil supply unit (with level detector)
- Machine relocation detector
- Door lock
- Cut-off tool breakage detector
- Workpiece separator
- Lighting
- Rotary guide bushing drive unit
- Main spindle coolant unit
- Back tool post rotary unit (type X, XII)

## Optional accessories

- Knock-out jig for through-hole workpiece
- Chip conveyor
- Back rotary tool unit (type VIII)
- Coolant flow rate detector
- Signal lamp
- 3-color signal tower
- Front rotary tool unit

## Standard NC functions

- CINCOM SYSTEM M70LPC-VU (Mitsubishi)
- 8.4 inch color LCD
- USB slot
- Program storage capacity: 80 m (approx. 32 KB)
- Tool offset pairs : 80
- Product counter indication (up to 8 digits)
- Operating time display function
- Machine operation information display
- Multiple repetitive cycle for turning
- B axis control function (type XII)
- Back spindle chasing function
- Interference check function
- Synch tapping phasing function
- Spindle speed change detector
- Constant surface speed control function
- Automatic power-off function
- On-machine program check function
- Chamfering, corner R
- Nose radius compensation
- Eco indication
- Variable lead thread cutting
- Arc threading function
- Geometric functions Spindle synchronized function
- Spindle C-axis function
- Back spindle C-axis function
- Milling interpolation
- Canned cycle drilling
- Rigid tapping function
- High speed Rigid tapping function
- Differential speed rotary tool function
- Tool life management I
- Tool life management II
- External memory program driving
- User macros
- Helical interpolation function
- Slant helical interpolation function
- Hob function
- Polygon function
- Inch command
- Sub inch command
- Network I/O function

## Optional NC functions

- Optional block skip (9 sets)
- Back machining program skip function
- Program storage capacity 600 m (approx. 240KB)
- Low Frequency Vibration (LFV) Control

## Environmental Information

| | | | |
|---|---|---|---|
| **Basic Information** | *Energy Usage* | Power supply voltage | AC 200V |
| | | Electrical power requirement (Max) | 13.2 kVA |
| | | Required pneumatic pressure | 0.5 MPa |
| **Environmental Performance Information** | *Power Consumption* | Standby power*1 | 0.320 kW |
| | | Power consumption with model workpiece*2, *3 | 0.0133 kWh/cycle |
| | | Power consumption value above converted to a CO2 value*4 | 6.3 g/cycle |
| | *Air Consumption* | Required air flow rate | 45 NL/min. (max. 182 NL/min., during air blow) |
| | *Lubricant Consumption* | At power ON | 2.55 cc/60 min |
| | *Noise Level* | Value measured based on JIS | 78.5 dB |
| **Approach to Environmental Issues** | *Recycling* | Indication of the material names of plastic parts | Covered in the instruction manual *5 |
| | *Environmental management* | Citizen Machinery is ISO14001 accredited. "Green Procurement" is pursued by prioritizing purchases for 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. The average cycle time is 55 seconds with the standard test workpiece of our company.
*4: This is the value converted in accordance with the CHUBU Electric Power CO2 emissions coefficient for 2009 as published by the Ministry of the Environment.
*5: 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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