

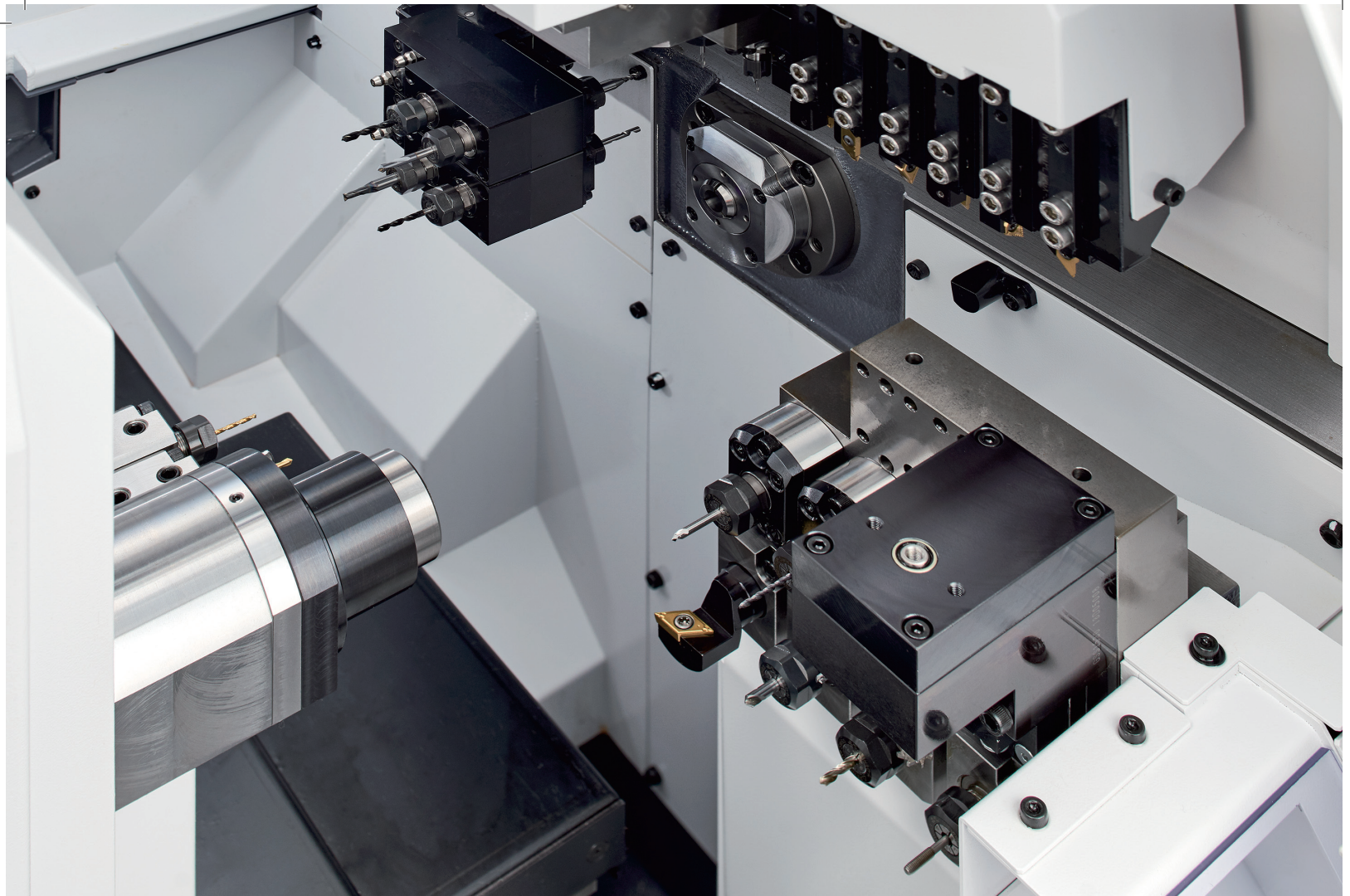
CITIZEN

Cincom

L12-X

Sliding Headstock Type CNC Automatic Lathe





L12-X

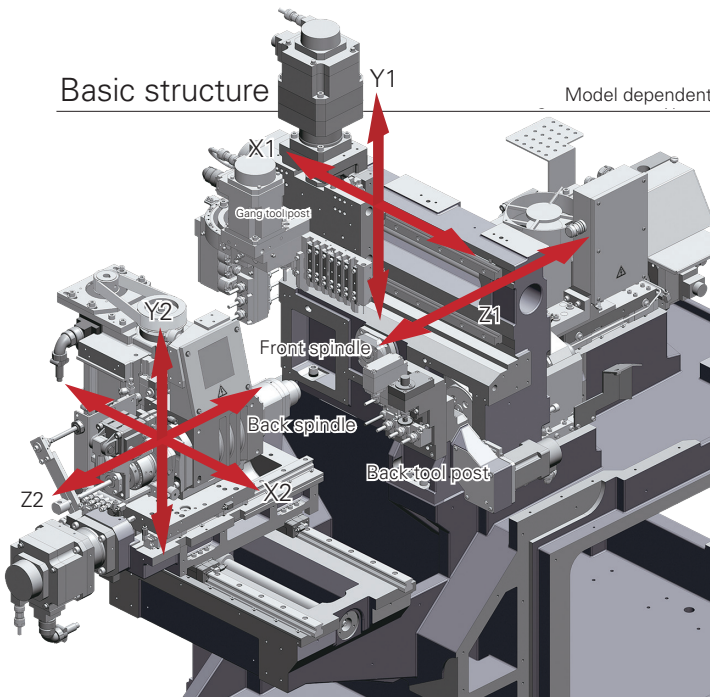
Adoption of a modular tooling system Addition of Y2 axis for even higher functionality

A modular tooling system has been adopted for the gang and back tool posts. The wide variety of tooling layouts available, such as "adjustable angle end-face spindle" allows for slanted hole drilling that enable you to perform various kinds of machining. Equipping of a Y2 axis to the back spindle strengthens back machining. This increases the degree of freedom for process allocation, and increases the maximum number of tools that can be installed to 38. Additionally, adoption of a built-in motor for the back spindle drive enables a maximum speed of $12,000 \text{ min}^{-1}$. This reduces the acceleration/deceleration time to improve productivity. The machine is capable to handle up to 16 mm through expansion.

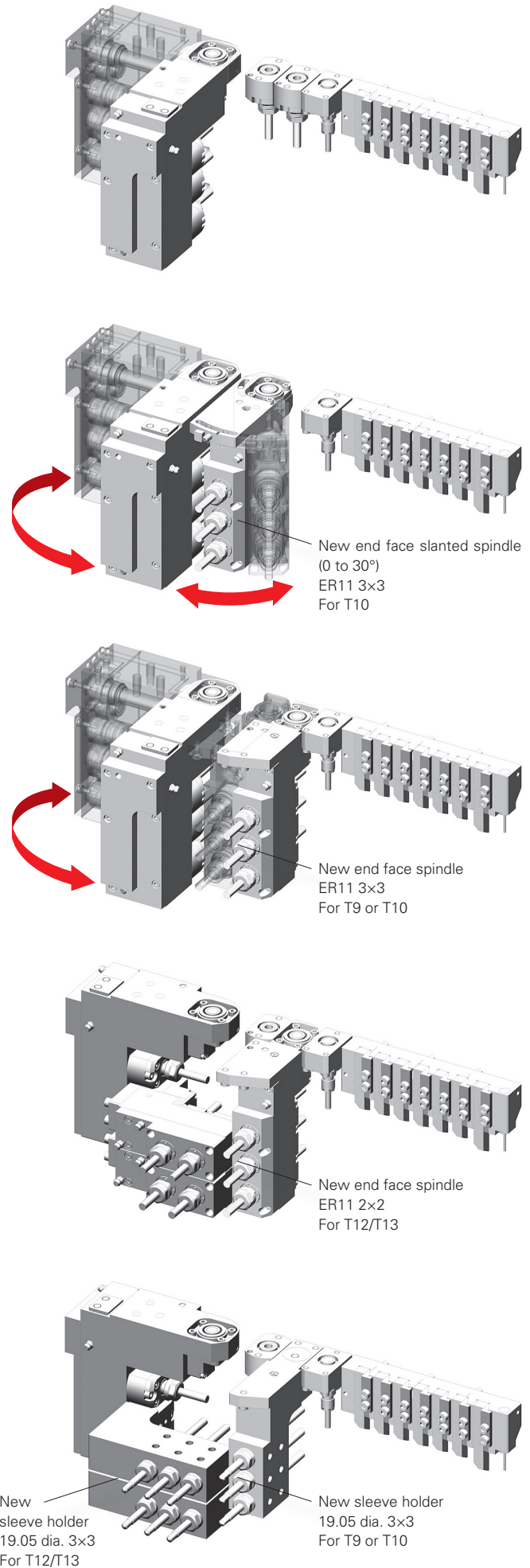


Basic structure

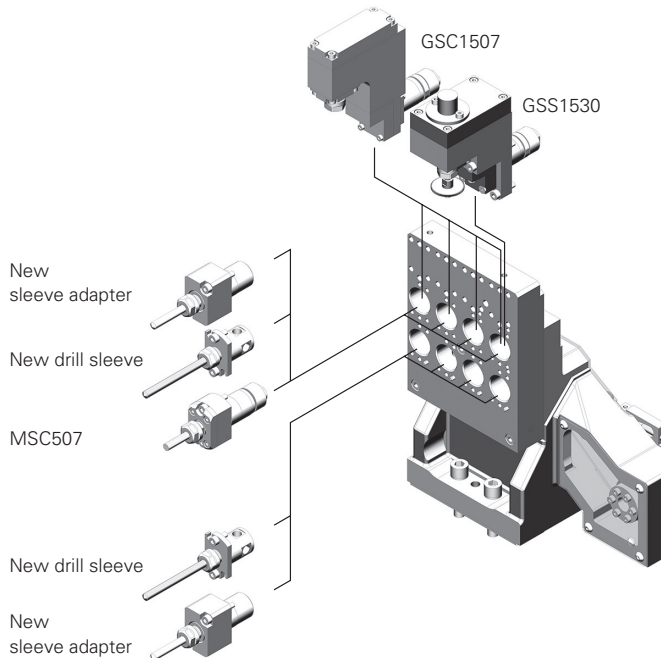
Model dependent



Gang tool post tooling variation



Back tool post tooling variation



LFV



LFV* (low-frequency vibration) cutting is a technology for cutting in which each X/Z servo axis is vibrated in the cutting direction and synchronized with the spindle speed. This reduces various types of problems such as cutting chips being caught up in components, workpieces or cutting tools, and enables small-diameter deep hole drilling and machining of materials that are difficult to cut.

| Model type | Front X1, Z1 | Back X2, Z2 | LFV Mode 1 | LFV Mode 2 |
|------------|-------------------------------------|--------------------------------------|------------|------------|
| X | ○ Back performs standard cutting | ○ Front performs standard cutting | ○ | ○ |

1. LFV machining cannot be performed with the Y axis.
2. Up to one pair (= two axes) can be operated simultaneously as LFV machining.
3. LFV machining using rotary tools requires the "LFV function" and "Rotary tool per rotation feedrate" options.

* LFV is a registered trademark of Citizen Watch Co., Japan.

Machine specification

| Item | L12-X |
|---|---|
| | L12 - 2M10 |
| Max. machining diameter (D) | 12 mm dia. / 16mm dia. (OPT) |
| Max. machining length (L) | 135 mm/1 chucking (GB), 30 mm (GBL) |
| Max. front drilling diameter | 8 mm dia. |
| Max. tapping diameter for the front spindle | M6 |
| Spindle through-hole diameter | 20 mm dia. |
| Main spindle speed | Max. 15,000 min ⁻¹ (GB), Max. 12,000 min ⁻¹ (GBL) |
| Max. chuck diameter for the back spindle | 12 mm dia. |
| Max. protrusion length | 80 mm |
| Max. protrusion length of the back spindle workpiece | 30 mm |
| Max. drilling diameter for the back spindle | 8 mm dia. |
| Max. tapping diameter for the back spindle | M6 |
| Back spindle speed | Max. 12,000 min ⁻¹ |
| Gang rotary tools | |
| Max. drilling diameter | 5 mm dia. |
| Max. tapping diameter | M4 |
| Main spindle speed | Max. 10,000 min ⁻¹ |
| Back rotary tools ^{OP} | |
| Max. drilling diameter | 5 mm dia. |
| Max. tapping diameter | M4 |
| Main spindle speed | Max. 9,000 min ⁻¹ |
| Number of tools to be mounted | 38 |
| Gang tool post | 7 |
| Gang rotary tools | 6 to 17 |
| Front drills | Standard: 2, Max.: 11 |
| Back drills | 8(17) |
| Tool size | |
| Turning tool | ∅ 10 mm, ∅ 12 mm ^{OPT} |
| Sleeve | 19.05 mm dia. |
| Chuck and bushing | |
| Main spindle collet chuck | FC096-M |
| Guide bushings | WFG541-M |
| Back spindle collet chuck | FC096-M-K |
| Rapid feed rate | |
| All axes | 35 m / min |
| Motors | |
| Front spindle drive | 2.2 / 3.7 kW |
| Gang tool post rotary tool drive | 0.75 kW |
| Back spindle drive | 0.75 / 1.5 kW |
| Back tool post rotary tool drive ^{OP} | 0.5 kW |
| Coolant oil | 0.25 kW |
| Centre height | 1,050 mm |
| Rated power consumption | 8 KVA |
| Full-load current | 22 A |
| Main breaker capacity | 40 A |
| Power supply voltage | AC200V ± 10% |
| Pneumatic unit: Required pressure and required flowrate | 0.5 MPa at 44 NL/min (Power on), 55 NL/min. (Stationary), 150 NL/min (Air blower) |
| Machine main unit dimensions | W 1,840 × D 970 × H 1,710 mm |
| Weight | 2,200 kg |

Main standard accessories

| | |
|---|--|
| Main spindle chucking unit | Back spindle chucking unit |
| Gang rotary tool driving unit | Coolant oil supply unit (with level detector) |
| Lubricating oil supply unit (with level detector) | Air-driven knock-out device for back machining |
| Machine relocation detector | Door lock |
| Product chute | Automatic fire extinguishing unit |
| Lighting | |

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 |
| Scratchproof chute part | Medium-pressure coolant unit |
| Workpiece separator (For front) | Signal lamp |
| Coolant flow rate detector | 3-colour signal tower |
| Machine internal lighting equipment | LFV |
| Back rotary tool driving unit | |

Standard NC functions

| | |
|--|--|
| CINCOM SYSTEM M70LPC-VL (Mitsubishi Electric) | 8.4 inch colour liquid crystal display (LCD) |
| Program storage capacity: 40 m (Approx. 16 KB) | Constant peripheral speed control function |
| Tool offset pairs: 40 | Automatic power-off function |
| Product counter indication (up to 8 digits) | Spindle 1° indexing function |
| Operating time display function | On-machine program check function |
| Spindle speed change detector | Nose radius compensation |
| Chamfering/Corner R function | Spindle speed change detector |
| Eco display | Obstruction check |
| Machine operation information display | |

Special NC functions

| | |
|--|--|
| Variable lead thread cutting | Tool offset pairs: 80 |
| Arc threading function | Tool life management I |
| Geometric command function | Tool life management II |
| Spindle synchronised function | Program storage capacity: 600 m (Approx. 240 KB) |
| Spindle C-axis function | External memory program driving |
| Milling interpolation function | 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 for drilling | Inclined helical interpolation function |
| Synchronised tapping function | Hob function |
| High-speed synchronised tapping function | Polygon function |
| Synchronised tapping phase adjustment function | Inch command |
| Differential speed rotary tool function | Sub inch command |
| Optional block skip (9 sets) | Back machining program skip function |
| Canned cycle for composite turning | |

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