

CITIZEN

Cincom

K12/16E

Sliding Headstock Type CNC Automatic Lathe



K16E – faster processing with outstanding ease-of-use.

Citizen's highly successful K series evolves for the new age to meet the needs of the changing global market

Up to 23 tools

To meet the trend to produce complex parts on a lower cost machine

Flexible tooling layout

Up to 8 rotary tools can be mounted including cross drilling/milling, face drilling & slitting

Now with back slitting and back cross drilling capability

Same holder is adaptable for both slitting and cross drilling

Faster processing

New control delivers significant cycle time savings for complex parts

Citizen's renowned ease of use

*Citizen is the machine of choice for fast set-ups and changeovers.
The new control and user interface makes using the K series even easier than before*

Citizen's unique Cincom Control cuts non-cutting time to a minimum

Citizen's dynamic software development leads the swiss type/sliding head sector

Rigid and compact

The acclaimed rigid but compact construction of the previous K series is carried forward with the K12/16E

High speed spindle

15,000rpm main spindle is standard on both K12 and K16 models

Improved back spindle torque

The back spindle has improved torque at low rpm



Further reductions in cycle times

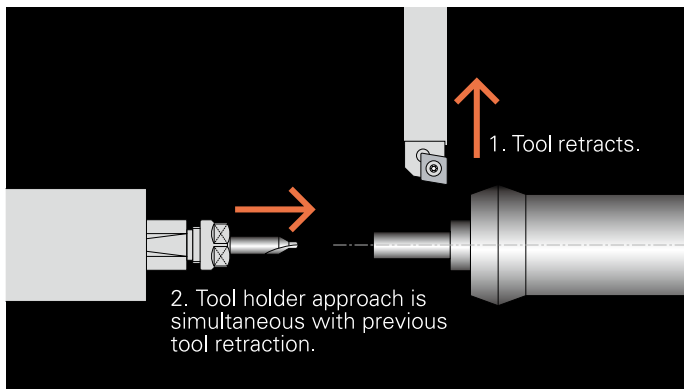
Cincom Control cuts non-cutting time to a minimum.

Cincom Control

Citizen has developed a new control system for high-speed, smooth axis motion. "Cincom Control" reduces idle time, increases feed rates and substantially reduces cycle time.

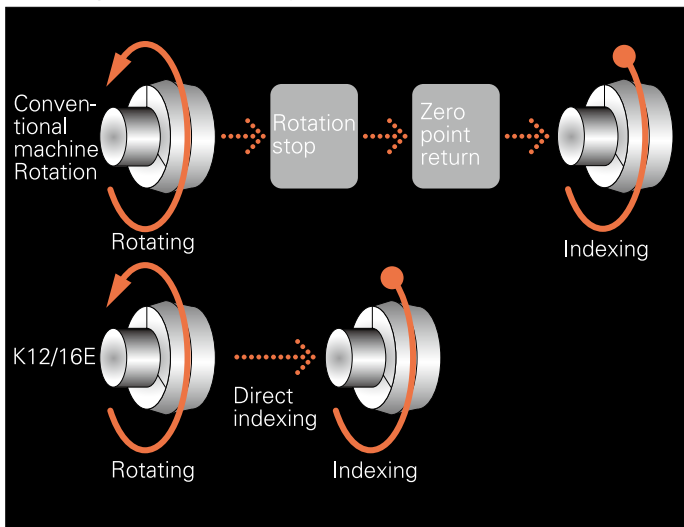
Tool Overlap Function

For front machining, the K12/16E is equipped with independently controlled gang tool holder and opposed tool holder. "Cincom Control" positions next tool holder while previous tool holder extracts.



Direct Spindle Indexing

The Direct spindle indexing function significantly reduces spindle indexing time. The spindle decelerates directly into the required index position, eliminating the time taken to stop, reference and index.

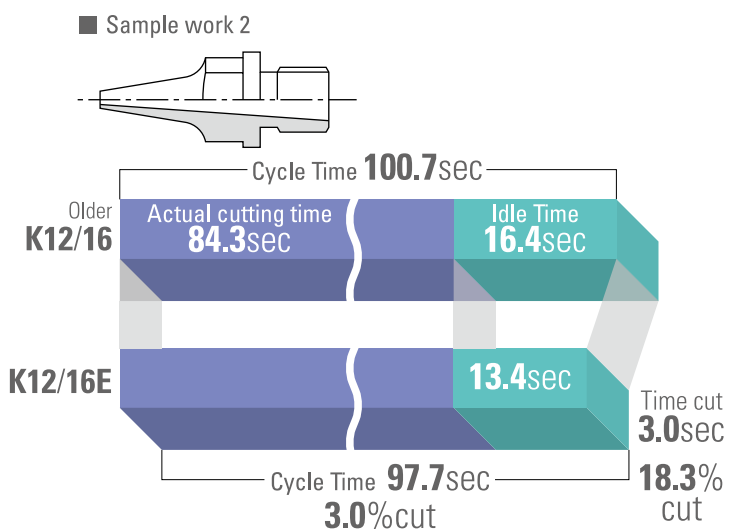
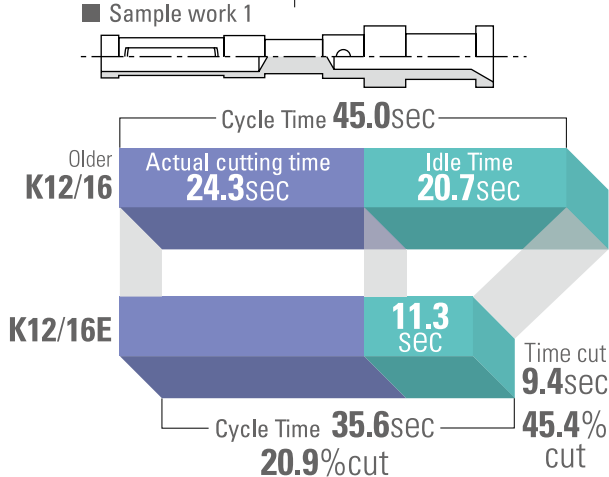
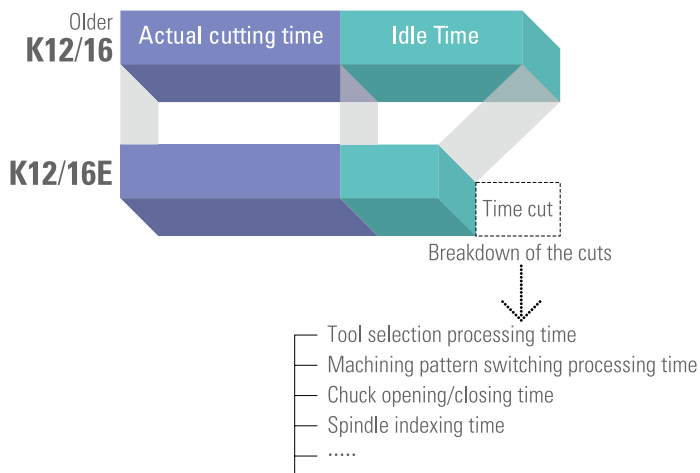


K12/16E Workpiece Examples



Idle Time Reduced Further

Even in comparison with the previous K series which substantially improved productivity, the K12/16E has slashed idle time still further and shortened cycle time.



Example targets for idle time cuts

Tool selection / machining pattern switching processing time

The processing speed in operations where a tool is called by a command such as T01** or operations where a machining pattern is declared by a command such as G610, has been speeded up by installing the latest NC unit and reviewing the macro processing.

Chuck opening/closing time

The chuck opening/closing operations of the front and back spindles have been speeded up by changing the chuck mechanism.

Spindle indexing time

Direct spindle indexing operation controlled by Cincom control has been speeded up by the installation of the latest NC unit.

* These are examples of comparison using samples, and the effects of reduction on idle time will vary depending on the workpiece being machined.

Efficient, fast and highly productive

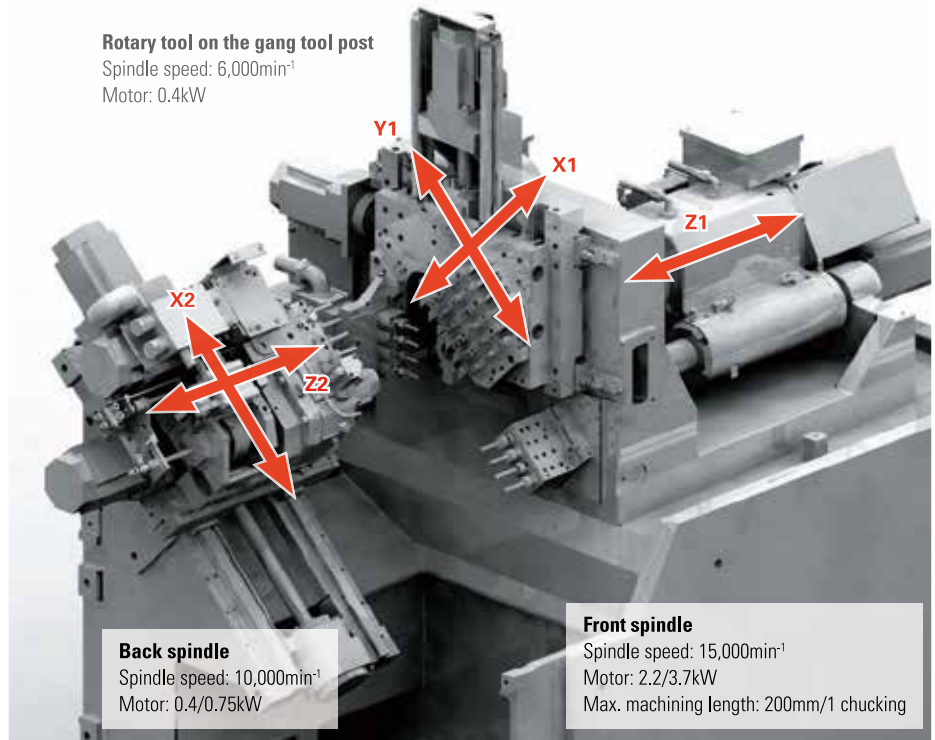
Covers wide range of complex machining needs and allows selection of the machine configuration to suit your applications.

Mixed production makes high demands on the flexibility, performance and efficiency of a machine. The Cincom K series proves its worth in every aspect. Its particular strength lies in the production of high-accuracy complex parts up to 16 mm diameter in small to medium batch sizes. Next to short set-up times, the K series also offers high productivity & efficiency thanks to faster rapid feed rates, improved axis deceleration/acceleration times of the axes, and faster program processing provided by the new control system.

A rigid machine bed combined with exceptional thermal stability ensures the precision of the machine. Due to the flexible modular tool holder system, holders for virtually any application are available. With its small footprint of just 1.13 x 1.88 m, this machine offers a very compact and space-saving design.

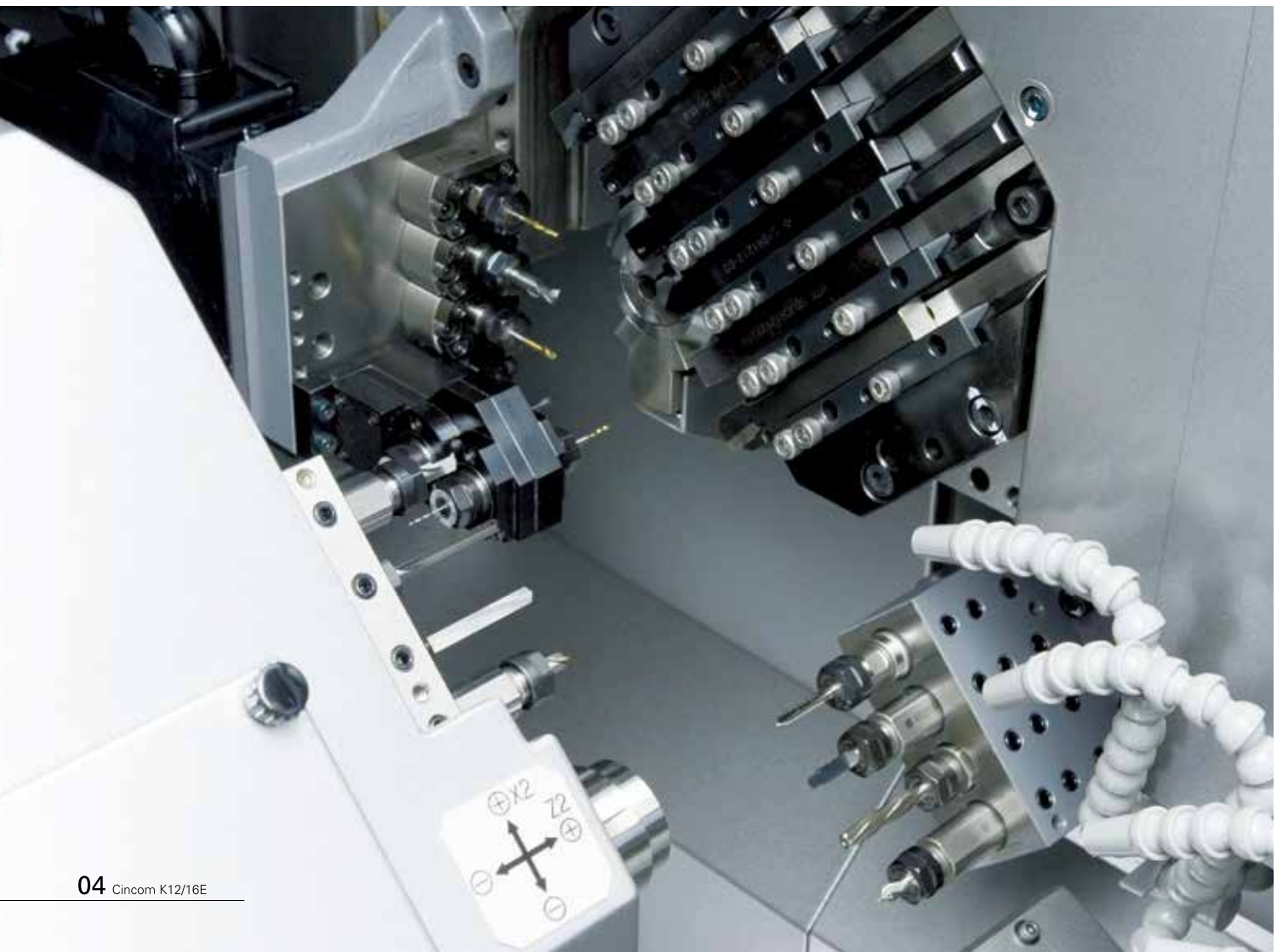
Citizen's renowned ease-of-use ensures fast set-ups and rapid changeovers.

Rotary tool on the gang tool post
Spindle speed: 6,000min⁻¹
Motor: 0.4kW



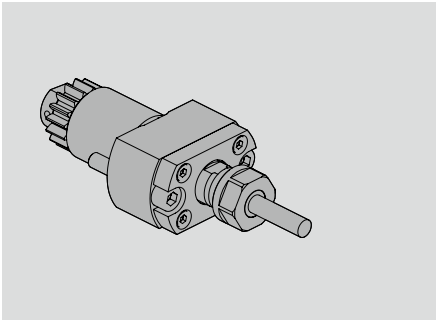
Back spindle
Spindle speed: 10,000min⁻¹
Motor: 0.4/0.75kW

Front spindle
Spindle speed: 15,000min⁻¹
Motor: 2.2/3.7kW
Max. machining length: 200mm/1 chucking



Wide range of tooling and accessories

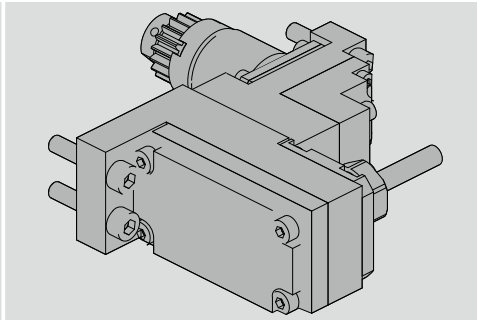
Outstanding versatility.



GSC807

Cross-drilling spindle

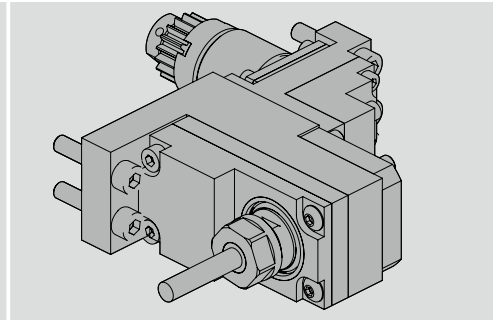
Used for cross drilling and D-cutting. Up to 4 spindles can be mounted on T11 to T14 in standard configuration. Chuck type:ER11



GSE2607

Front end-face drilling spindle

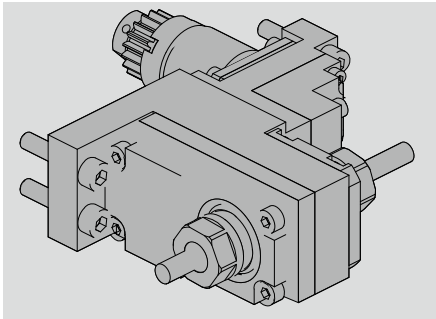
Used for eccentric drilling process to end face. This spindle can be mounted on T12 to T14. When one spindle is mounted, another spindle cannot be mounted at an adjacent station. Chuck type:ER11



GSE2707

Back end-face drilling spindle

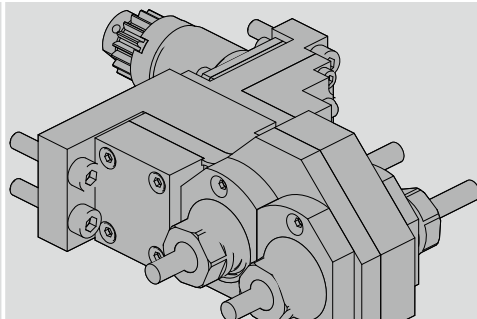
Used for eccentric drilling process to end face. This spindle can be mounted on T12 to T14. When one spindle is mounted, another spindle cannot be mounted at an adjacent station. Chuck type:ER11



GSE2807

Both-end drilling spindle

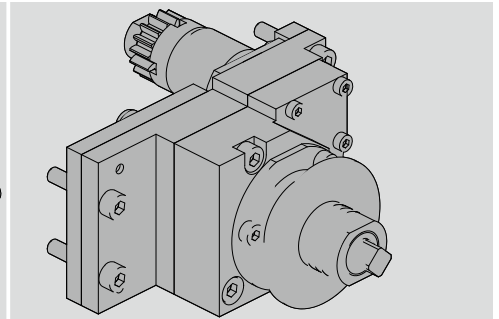
Used for eccentric drilling process to end face. This spindle can be mounted on T12 to T14. When one spindle is mounted, another spindle cannot be mounted at an adjacent station. Chuck type:ER11



GSE2507

Double both-end spindle

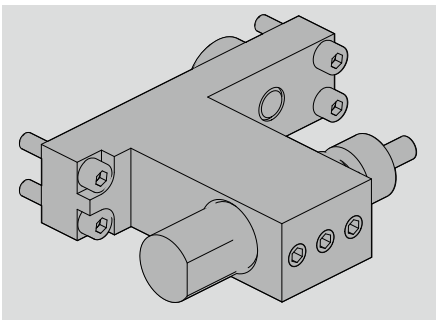
Used for eccentric drilling process to end face. This spindle can be mounted on T14 only. Chuck type:ER11



GSS950/1050

Slitting spindle

Used for slitting process. This spindle can be mounted on T13 only. Maximum cutter size is 50 mm in diameter.
GSS950: $\phi 50 \times 15.875 / 12.7 \text{mm}$
GSS1050: $\phi 50 \times 16 / 13 \text{mm}$



BDF103/104

1-tool sleeve holder

Used for drilling with drilling sleeve mounted. This holder can be mounted on T12 to T14.
BDF103: $\phi 19.05 \text{mm}$
BDF104: $\phi 20 \text{mm}$



Convenient operation, keeping you informed in real time

Support for the operator by displaying the screens that are needed, when they are needed



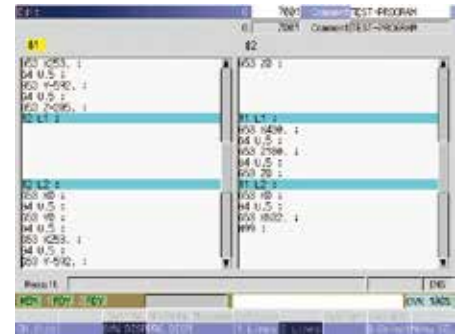
High-speed NC Installed

Because the latest CNC unit is used, the start-up time and screen switching times are considerably shorter than on other machines with similar functions. The result is a stress-free operating experience.



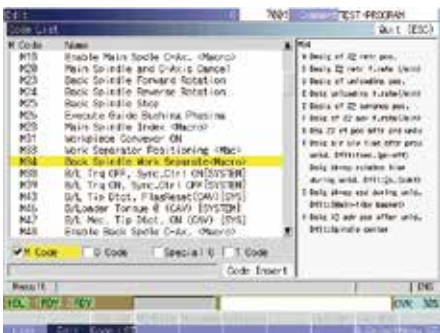
On-machine Program Check Function

This function allows program operation to be run forward or backward, and program editing and continuation of operation after a temporary stop. It is an effective aid to smooth programming. It also has a high speed program check function.



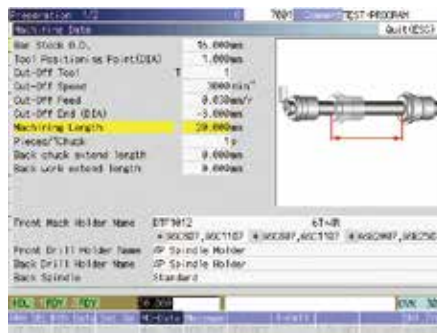
Program Editing

Easy to understand program editing can be performed by switching between the synchronized displays for two axis control groups, and copying and pasting between programs including MDI.



Code List Display

Another aid in programming is a list of G and M codes accompanied by pictorial explanations of their purpose.



Easy to understand Illustrations

An illustration is displayed for each item, so that it can be immediately visualised (the screen displaying the machining data).



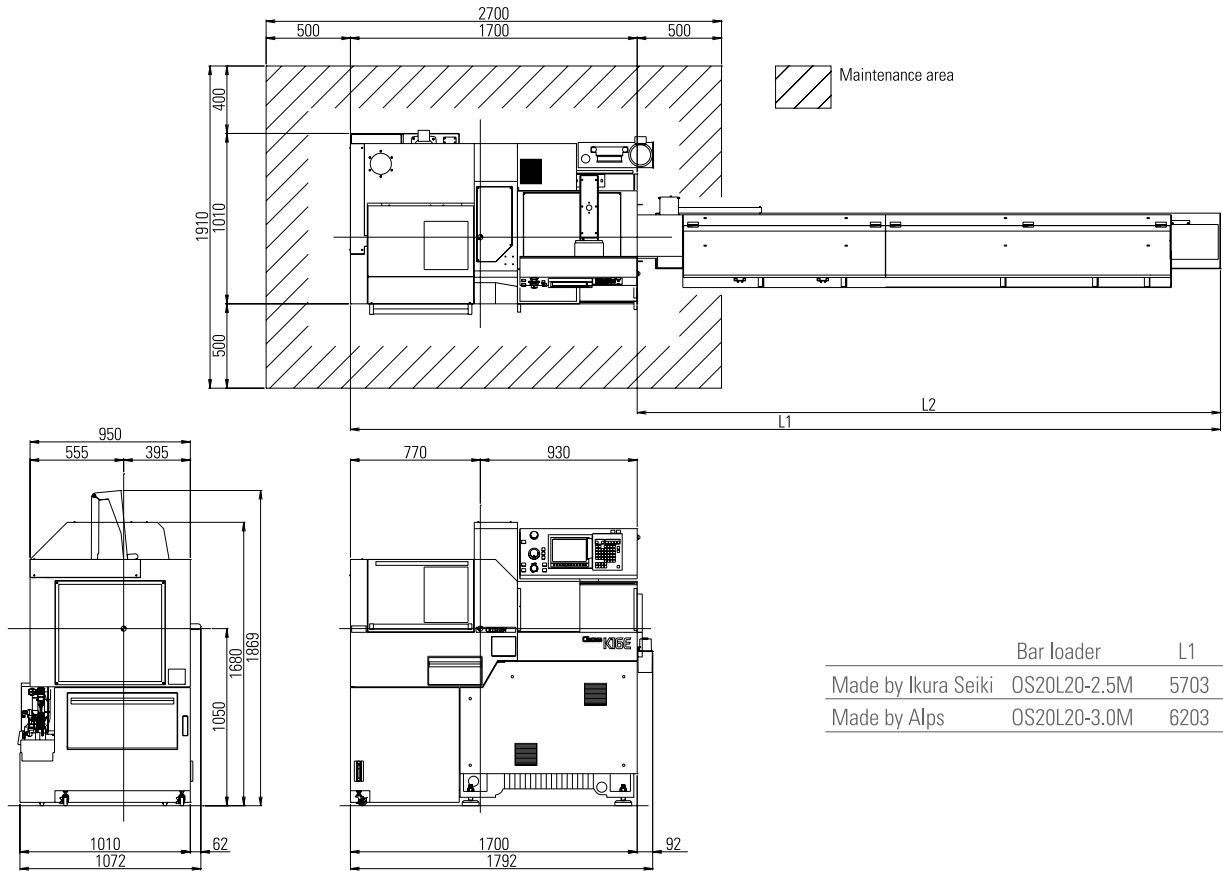
Remote diagnosis function

You can edit the NC program and input the offset by remote access with your office PC.

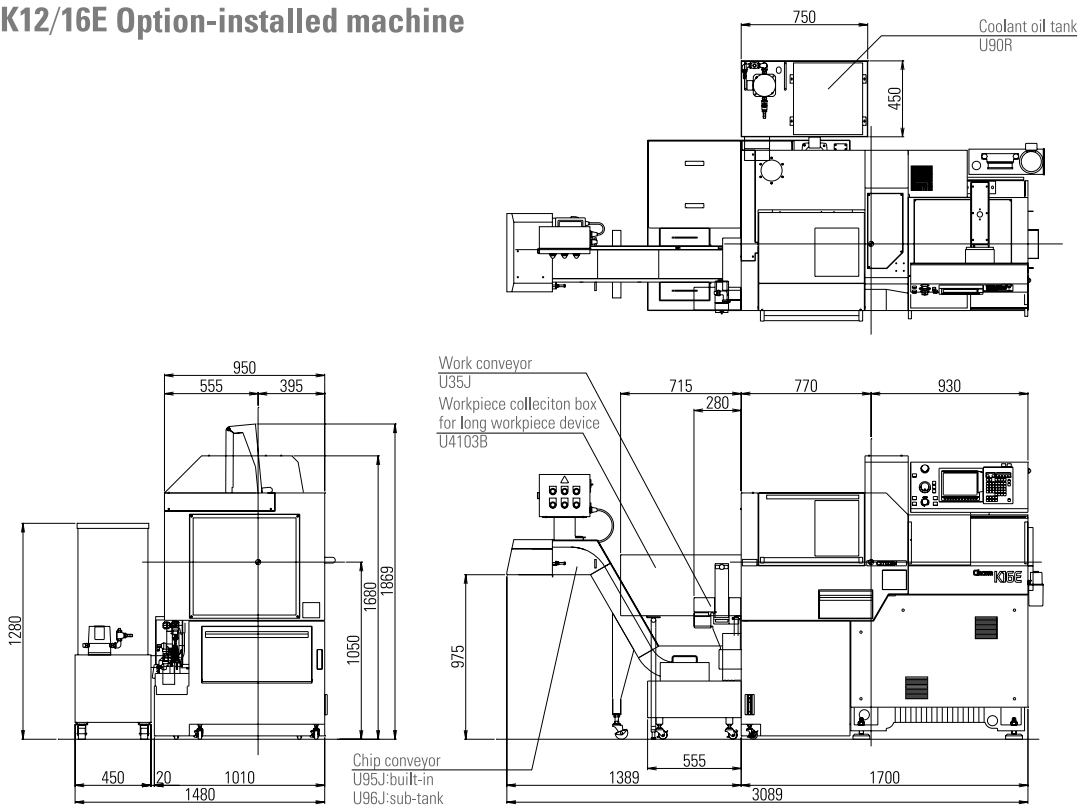


Machine Layout Drawing

■ K12/16E Standard machine



■ K12/16E Option-installed machine



Machine Specification

Item	K12E VII	K16E VII
	(K12E-1M7P)	(K16E-1M7P)
Maximum machining diameter (D)	φ12mm	φ16mm
Maximum machining length (L)	200mm/1chucking	
Maximum front drilling diameter	φ10mm	
Maximum front tapping diameter (tap, die)	M8	
Spindle through-hole diameter	φ16mm	φ20mm
Main spindle speed	15,000min ⁻¹	
Max. drilling diameter for the gang rotary tool	φ5mm	
Max. tapping diameter for the gang rotary tool	M4	
Spindle speed of the gang rotary tool (Rating)	6,000min ⁻¹ (Rating:4,500min ⁻¹)	
Max. chuck diameter of the back spindle	φ12mm	φ16mm
Max. protrusion length of the back spindle workpiece	40mm	
Maximum protrusion length	80mm	
Max. drilling diameter for the gang rotary tool	φ6mm	
Max.tapping diameter for the gang rotary tool	M5	
Back spindle speed	10,000min ⁻¹	
Max. drilling diameter for the back tool post rotary tool	φ5mm	
Max.tapping diameter for the back tool post rotary tool	M5	
Spindle speed of the back tool post rotary tool (Rating)	4,500min ⁻¹ (Rating:3,000min ⁻¹)	
Number of tools to be mounted	23 (Max)	
Turning tools on the gang tool post	6~7	
Cross rotary tools	4~8	
Rotary tools for front drilling	4	
Tools for front drilling	3~4	
Tool size		
Tool (gang tool post)	□12mm □10mm, □13mm	
Sleeve	φ20mm (φ19.05mm)	
Chuck and bushing		
Main spindle collet chuck	FC096-M	FC261-M
Back spindle collet chuck	FC096-M-K	FC261-M-K
Rotary tool collet chuck	ER11	
Chuck for drill sleeves	ER11, ER16	
Guide bushing	WFG541-M,WFG551-M	WFG660-M
Rapid feed rate		
X1 and Y1 axes	24m/min (Composite speed:34m/min)	
Z1, X2 and Z2 axes	32m/min	
Motors		
Spindle drive	2.2/3.7kW	
Gang tool post rotary tool drive	0.4kW	
Back spindle drive	0.4/0.75kW	
Back tool post rotary tool drive※	0.4kW	
Coolant oil	0.25kW	
Lubricating oil	0.003kW	
Center height	1050mm	
Rated power consumption	7kVA	
Full-load current	26A	
Main braker capacity	50A	
Air pressure and air flow rate for pneumatic devices	0.5MPa · 70NI/min	
Weight	2200kg	

※The back tool post rotary tool is an option.

Standard accessories

Main spindle chucking device	Lubricating oil supply unit (with level detector)
Back spindle chucking device	Machine relocation detector
Gang rotary tool driving devices	Door lock
Coolant device (with level detector)	

Special accessories

Rotary guide bushing device (motor-driven type)	Medium-pressure coolant device
Rotary guide bushing device (dog type)	Coolant flow rate detector
Cut-off tool breakage detector	Signal lamp
Knock-out jig for through-hole workpiece	3-color signal tower
Workpiece conveyor	Lighting
Chip conveyor	Workpiece separator

Standard NC functions

NC unit dedicated to the K1216	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	On-machine program check function
Product counter indication (up to 8 digits)	Chamfering, corner R
Spindle speed change detector	Back spindle chasing function

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.250KB)
Spindle C-axis function	External memory program driving
Milling interpolation	Submicrom commands
Back spindle 1° indexing function	User macros
Back spindle C-axis function	Helical interpolation function
Multiple repetitive cycle for turning	Inclined helical interpolation function
Canned cycle drilling	Hob function
Rigid tapping function	Polygon function
High speed rigid tapping function	Inch command
Differential speed rotary tool function	Sub inch command

CITIZEN MACHINERY CO., LTD.

CITIZEN

JAPAN	CITIZEN MACHINERY CO., LTD. 4107-6 Miyota, Miyota-machi, Kitasaku-gun, Nagano-ken, 389-0206, JAPAN	TEL.81-267-32-5901	FAX.81-267-32-5908
SOUTH ASIA / KOREA	CITIZEN MACHINERY CO., LTD. 4107-6 Miyota, Miyota-machi, Kitasaku-gun, Nagano-ken, 389-0206, JAPAN	TEL.81-267-32-5916	FAX.81-267-32-5928
TAIWAN	CINCOM MIYANO TAIWAN CO., LTD. 10FL., No.174, Fuh Sing N. Rd., Taipei, TAIWAN	TEL.886-2-2715-0598	FAX.886-2-2718-3133
CHINA	CITIZEN (CHINA) PRECISION MACHINERY CO., LTD. 10058, XINHUA ROAD OF ZHOUJUN, ZIBO, SHANDONG, P.R. CHINA	TEL.86-533-6150560	FAX.86-533-6161379
EUROPE-Germany	CITIZEN MACHINERY EUROPE GmbH Mettinger Strasse 11, D-73728 Esslingen, GERMANY	TEL.49-711-3906-100	FAX.49-711-3906-106
EUROPE-UK	CITIZEN MACHINERY UK LTD 1 Park Avenue, Bushey, WD23 2DA, UK	TEL.44-1923-691500	FAX.44-1923-691599
EUROPE-Italia	CITIZEN MACCHINE ITALIA s.r.l. Via Campo Romano 11/13 - 24050 Spirano (BG), ITALY	TEL.39-035-877738	FAX.39-035-876547
AMERICA	MARUBENI CITIZEN-CINCOM INC. 40 Bordline Road Allendale, NJ 07401, U.S.A.	TEL.1-201-818-0100	FAX.1-201-818-1877

URL:<http://cmj.citizen.co.jp/>

All specifications are subject to change without prior notice. This product is an export control item subject to the foreign exchange and foreign trade act. Thus, before exporting this product, or taking it overseas, contact your CITIZEN machine dealer. Please inform your CITIZEN machine dealer in advance of your intention to re-sell, export or relocate this product. For the avoidance of doubt products includes whole or part, replica or copy, technologies and software. In the event of export, proof of approval to export by government or regulatory authority must be evidenced to CITIZEN. You can operate the machines after the confirmation of CITIZEN. CITIZEN is a registered trademark of Citizen Watch Co., Japan.