

CITIZEN

**Cincom**

**M32**

Sliding Headstock Type CNC Automatic Lathe



## The M32 - The market leader re-defined

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- more tools
- more functions
- more flexibility
- higher productivity
- same floor space
- more value

The M32 is renowned for its leading capability for 3 tool simultaneous machining in a compact floor space. The all round combination of flexible tooling, large tool capacity, and outstanding ease of use has made the M32 our success story in the new century.

The next generation M32 increases the 3 tool simultaneous machining abilities with a new Y3 axis on the back tool post which carries up to 9 tools (up to 6 driven). New advanced functions include a B axis on the gang tool post with 4 axis simultaneous containing control.

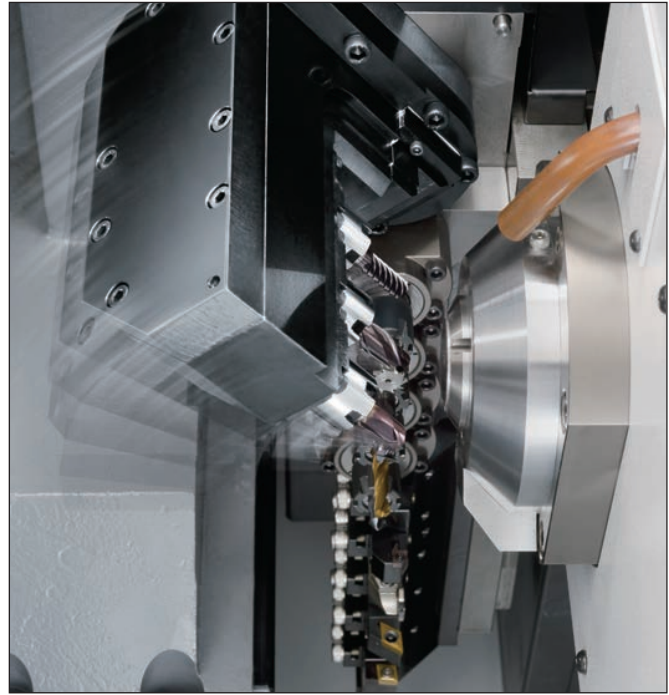




### Y axis on the back tool post

(types VIII)

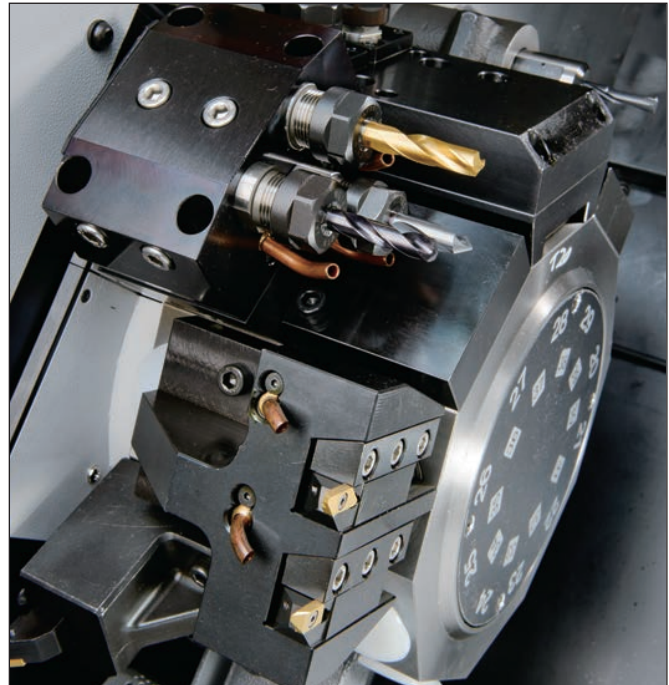
The back tool post can accommodate holders in 3 rows (two rows for rotary tools and one for fixed tools) and up to nine tools can be used. All 3 rows are under Y3 axis control. The specifications of the outer diameter milling spindle (GSC1110), 3-drilling spindle (GSE1510) and 3-sleeve holder (GDF1501) are common to those used on the gang tool post and they can be used both on the gang tool post and the back tool post.



### B axis with 3 rotary tools on the gang tool post

(type VIII)

The B axis is the slant axis in reference to the Y1 axis. When drilling a slant hole on a conventional machine, an adjustable angle spindle on the turret was required, but now rotary tools incorporating a B axis can be used to change the angle by program command, enabling slanted holes at a number of angles. Contouring with simultaneous 4-axis control is also possible (the angle range is  $-10^{\circ}$  to  $95^{\circ}$ ).



### Improved turret capability

The turret geometry is carried over from the previous generation to deliver tool holder compatibility. An improved Z2 axis stroke allows simultaneous machining with opposed turning tools or rotary tools on the gang tool post thus enabling pinch/balanced turning and pinch/balanced cross drilling and milling. Turret indexing can take place in any position which reduces cycle time.

## Choice of 2 models

### With and without B axis

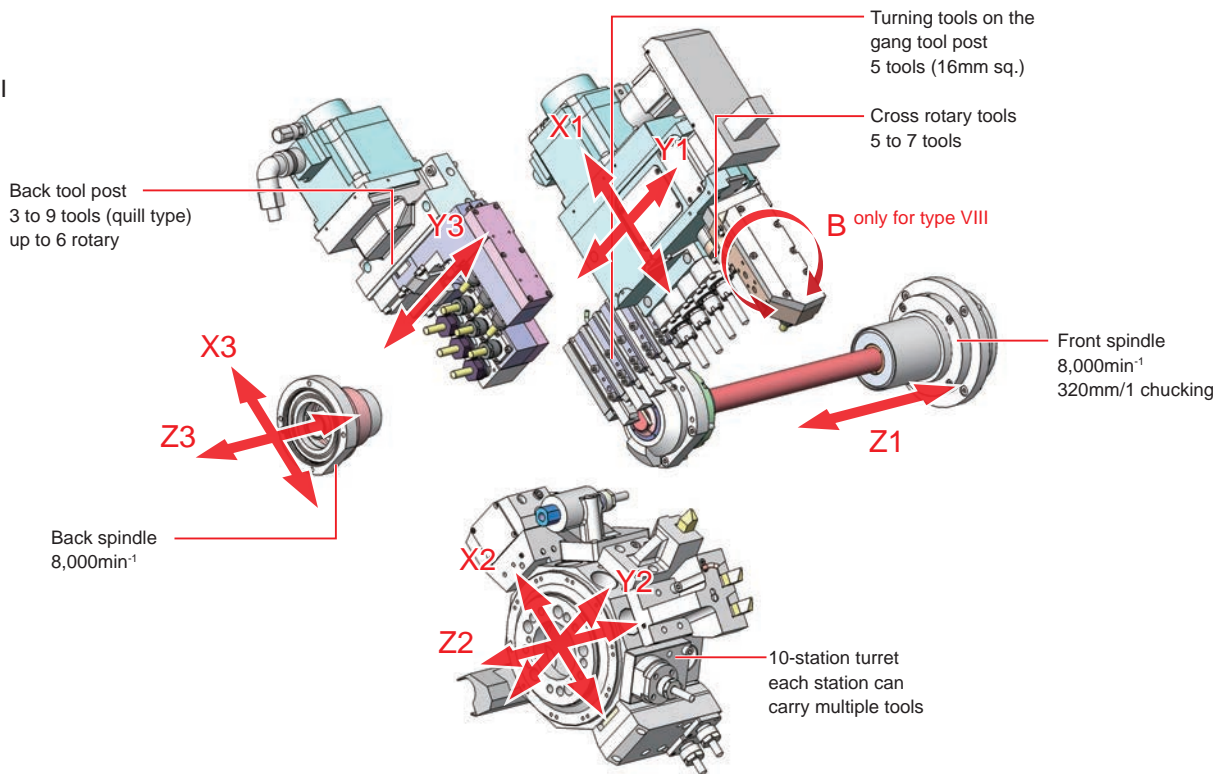
The M32-V has Y2 axis to the turret and the M32-VII adds the new Y3 axis and the 9 position back tool post with 6 driven and 3 fixed tool positioning.

The M32-VIII has all 3 Y axes and the B axis fully programmable 3 rotary tool holder on the gang tool post.

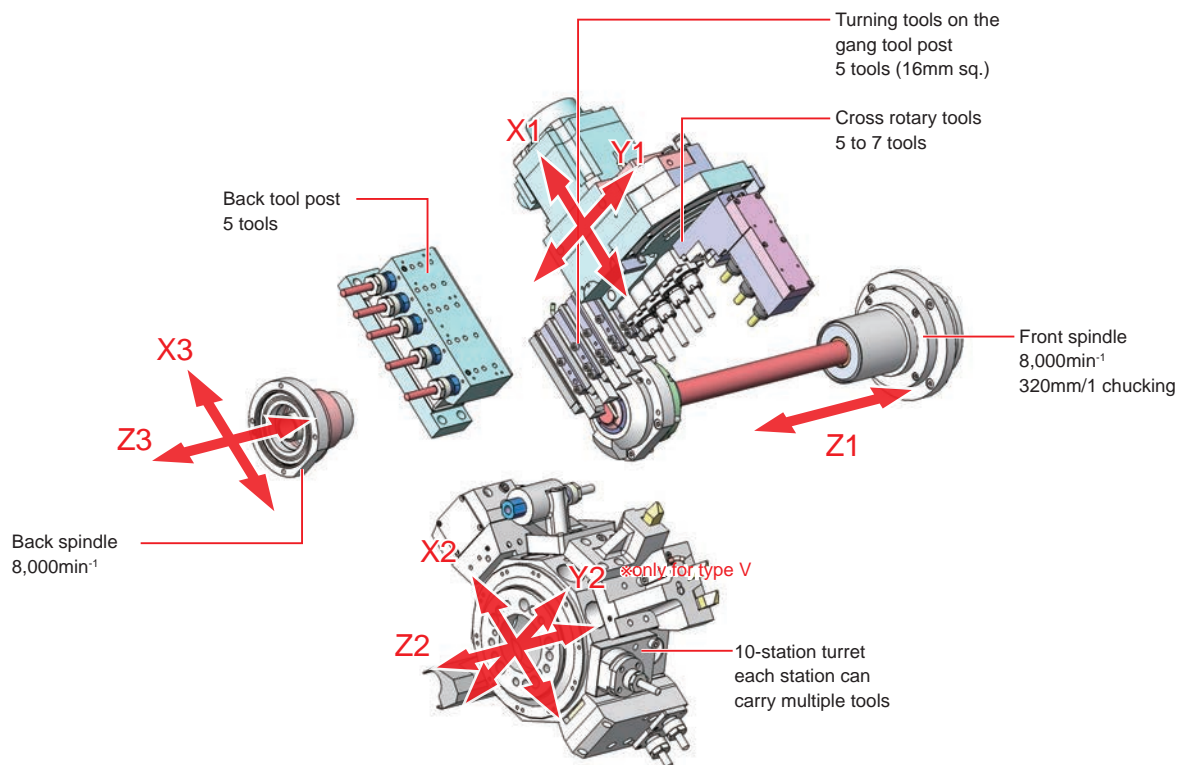
### Machine configuration by M32 type

	V	VIII
Y2 axis (turret Y axis)	Available	Available
Y3 axis (back tool post Y axis)	N/A	Available
B axis (rotary tools on the gang tool post)	N/A	Available

M32 type VIII

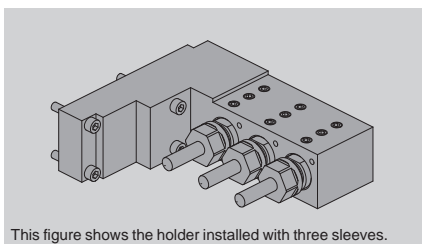


M32 type V



# Tooling options for endless machining possibilities

## Flexible multiple tooling combinations



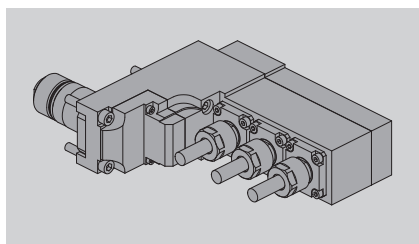
This figure shows the holder installed with three sleeves.

### GDF1501

#### 3-tool sleeve holder

Up to three fixed drill sleeves can be carried. The GDF1501 is mountable in one of the rotary tool positions of the gang tool post, U34B, of type V, or in back rotary tool drive device U152B of type VII and VIII machines.

Sleeve dia: 25.4 mm Dia.



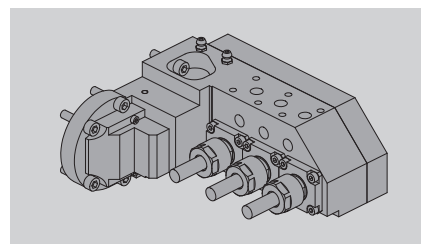
### GSE1510

#### 3-tool drilling spindle

Used for drilling and end milling. Mountable in the 5th rotary position of the gang tool post, U34B, of type V, or in back rotary tool drive device U152B of type VIII machines. When mounted in U34B, the angle can be manually adjusted between 0° and 90°.

Max. chuck dia: 10 mm Dia.

Chuck model: ER16



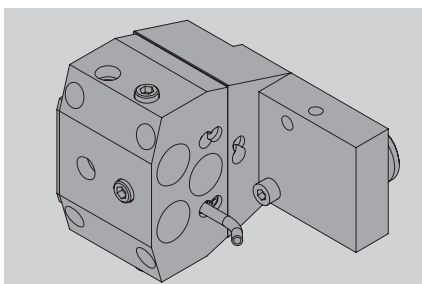
### SEU810

#### 3-tool drilling spindle

Used for face, cross or angle drilling/milling. Mountable in the 5th rotary position of the gang tool post, U33B, of type VIII models. The angle can be designated by B axis command -10° to +95°. Simultaneous 4 axis contouring is possible.

Max. chuck dia: 10 mm Dia.

Chuck model: ER16

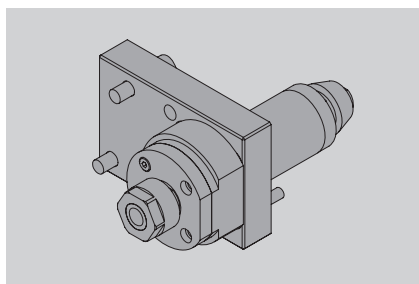


### CDF901

#### Fixed type sleeve holder (Triple sleeve)

Up to three fixed drill sleeves can be mounted on one turret position. Including coolant nozzle.

Sleeve dia: 25.4 mm Dia.



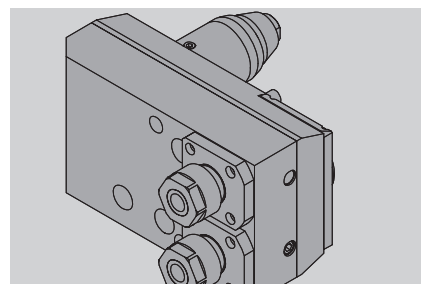
### KSC110

#### Cross drilling spindle

Turret mounted holder used for drilling and end milling in the cross machining direction. Suitable for pinch/balanced cross drilling in conjunction with rotary tools on gang tool post.

Max. chuck dia: 10 mm Dia.

Chuck model: ER16



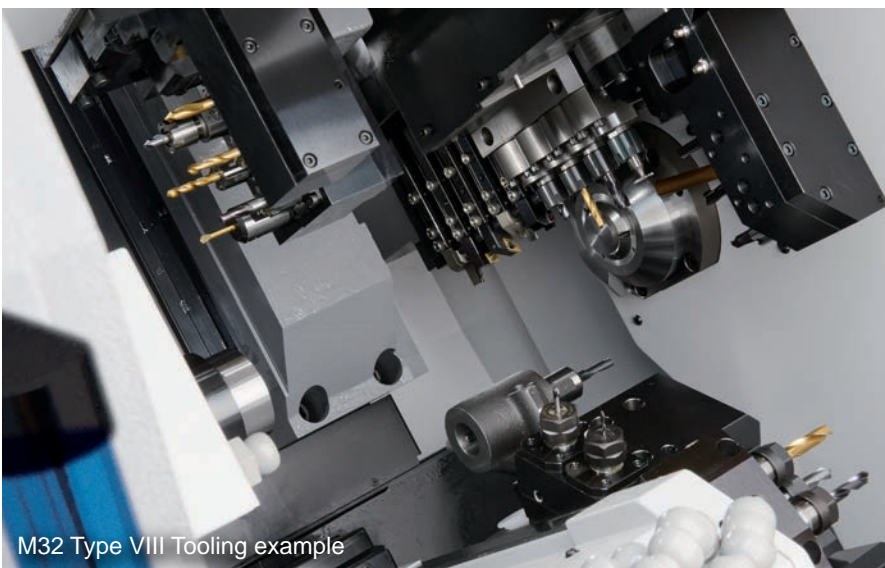
### KSC510

#### Cross drilling spindle (Double)

Turret mounted holder used for drilling and end milling in the cross machining direction. Suitable for pinch/balanced cross drilling in conjunction with rotary tools on gang tool post.

Max. chuck dia: 10 mm Dia.

Chuck model: ER16



M32 Type VIII Tooling example

## Making operation easier for you

### You can add the product unloader device and chip conveyor



#### Latest high speed CNC unit

Start-up time, screen switching and processing times are considerably shorter. 'Cincom Control' is adopted to further reduce cycle times.



#### 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.

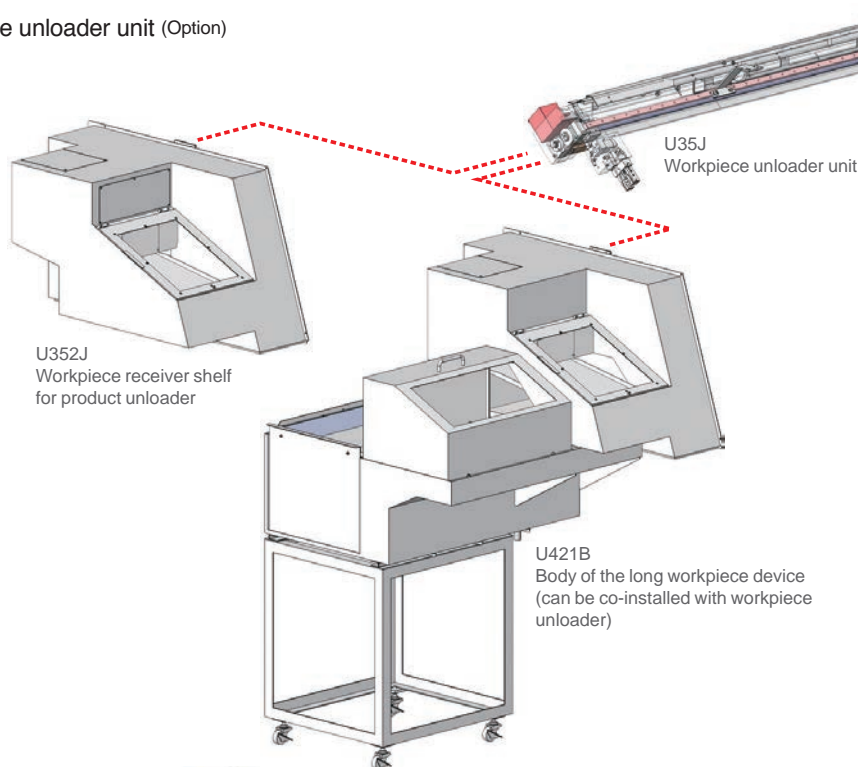


#### Product collection

The workpiece is ejected from the back spindle into the product chute or optional workpiece conveyor for collection. See below for optional fully programmable workpiece unloader unit which offers the advantage of controlled removal of the workpiece from the back spindle.

## Optional attachment

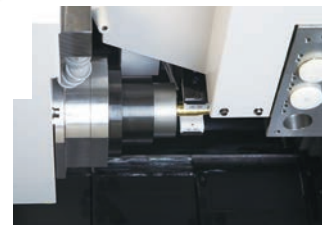
Workpiece unloader unit (Option)



U352J  
Workpiece receiver shelf  
for product unloader

U35J  
Workpiece unloader unit

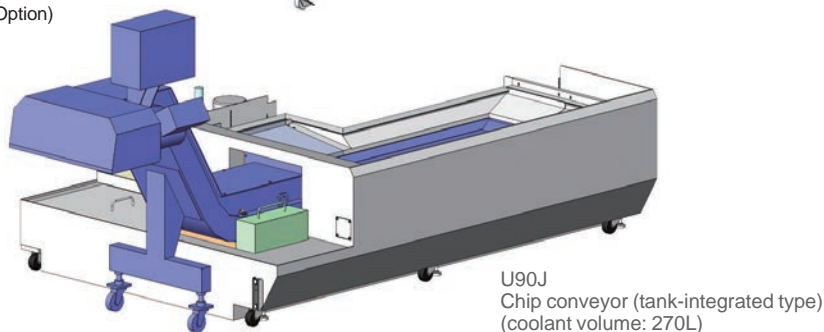
U421B  
Body of the long workpiece device  
(can be co-installed with workpiece  
unloader)



Workpiece collection with hand

Maximum workpiece collection length  
when using U35J  
Type III and V  
225mm (with hand)  
\*Up to 315 mm possible with the knock-out device re  
110mm (with basket U351J)  
Types VII and VIII  
195mm (with hand)  
110mm (with basket U351J)  
U35J longitudinal motion is programmable; hand clasp  
unclamp by M code.

Chip Conveyor (Option)

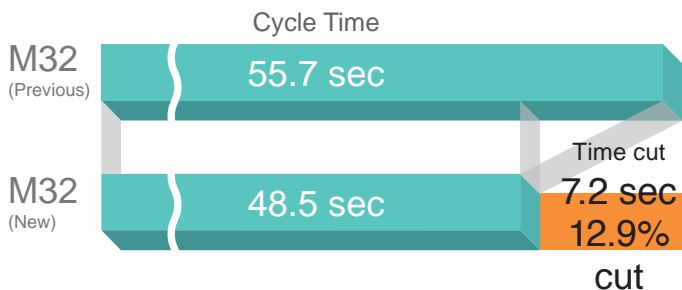


U90J  
Chip conveyor (tank-integrated type)  
(coolant volume: 270L)

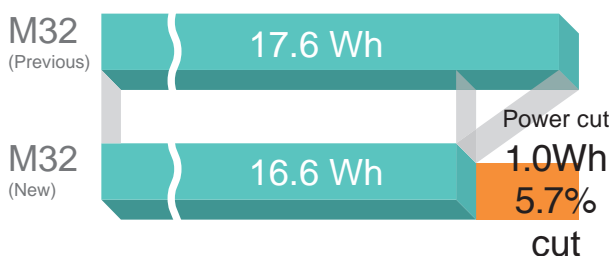
# Environmentally friendly products

## Reducing not only cycle time but also power consumption

Cycle time and Power consumption  
Comparison with previous model



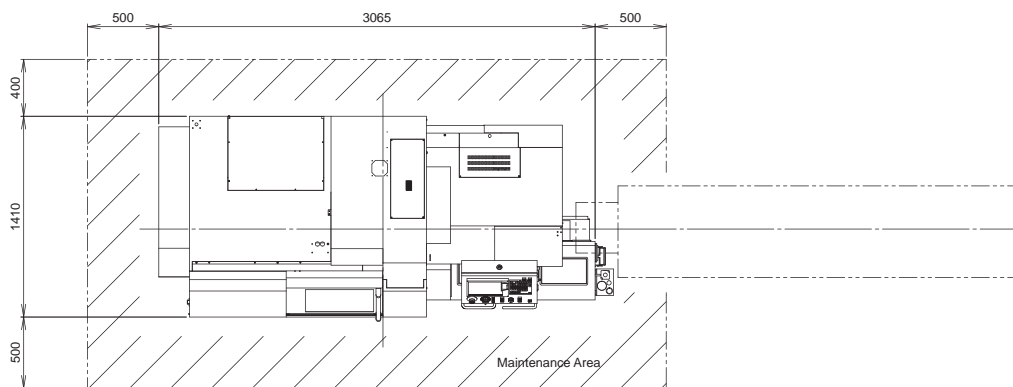
Average power consumption per component



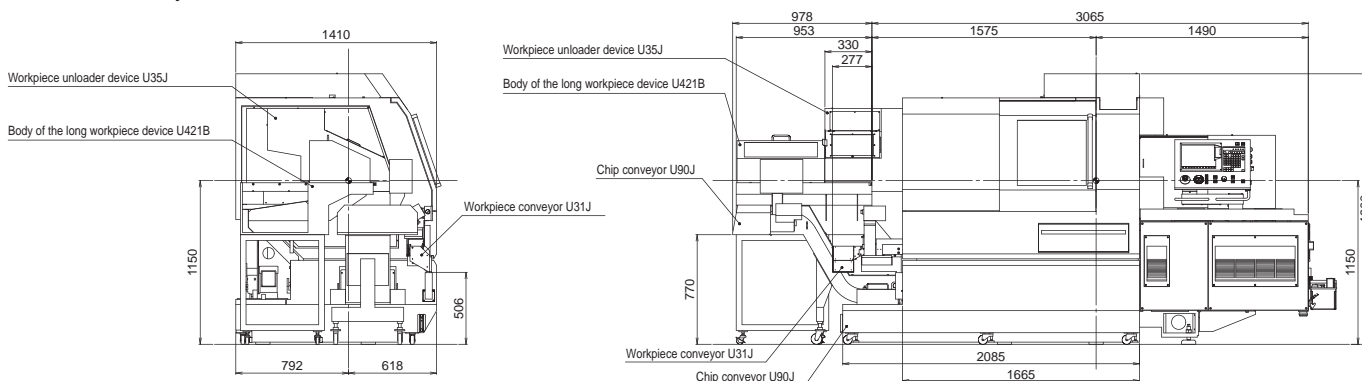
Citizen has developed a new control system for high-speed, smooth axis motion. "Cincom Control" reduces not only cycle time but also power consumption. Consideration has been given to saving energy and resources by adopting control methods that reduce power consumption, such as the idling stop function, and by optimizing consumption of oil/air for lubrication. Consideration has also been given to the environment by using materials that are easy to recycle, increasing the percentage of recyclable materials used, and eliminating hazardous substances in conformity with the RoHS Directive.

## Machine layout

M32 Machine Layout with options



M32 Machine Layout



# Machine specification

Item	M32		Standard accessories
	Type V	Type VIII	
	M32-4M5	M32-4M8	Main spindle chucking unit
Max. machining diameter (D)	32mm dia. (35mm <sup>OP</sup> )		Workpiece separator
Max. machining length (L)	320mm/1 chucking		Rotary guide bushing unit
Spindle through-hole diameter	36mm dia.		Machine relocation detector
Main spindle speed	8,000min <sup>-1</sup>		Back spindle chucking unit
Spindle speed of the gang rotary tool	6,000min <sup>-1</sup> (Rating 4,500min <sup>-1</sup> )		Door lock
Spindle speed of the turret rotary tool	6,000min <sup>-1</sup>		Gang rotary tool driving unit
Back spindle speed	8,000min <sup>-1</sup>		Lighting
Max. drilling diameter for the back tool post rotary tool	---	8mm dia.	Coolant unit (with level detector)
Max. tapping diameter for the back tool post rotary tool	(Option)	M6	Lubricating oil supply unit (with level detector)
Spindle speed of the back tool post rotary tool	---	6,000min <sup>-1</sup>	Air-driven knock-out device for back machining
Max. chuck diameter of the back spindle	32mm dia.		<b>Special accessories</b>
Max. protrusion length of the back spindle workpiece	65mm		Cut-off tool breakage detector
Max. protrusion length	145mm		Workpiece conveyor
Number of tools to be mounted	25+a	31+a	Long workpiece unit
Gang tool post	5		Chip conveyor
Gang rotary tool	5	4	Product unloader
Gang B axis rotary tool	0	3	Signal lamp
Number of turret station	10		Coolant flow rate detector
Back tool post	5	9	3-color signal tower
Tool size			Medium-pressure coolant unit
Tool (gang tool post)	16mm sq.		Knock-out jig for through-hole workpiece
Sleeve	25.4mm dia.		Motor-driven knock-out device for back machining
Chuck and bushing			Gang Rotary tool driving unit power-up
Main spindle collet chuck	F37		<b>Standard NC functions</b>
Back spindle collet chuck	F37		NC unit dedicated to the M32 (M730LPC-4VS)
Guide bushing	N229		10.4 inch color liquid crystal display (LCD)
Rapid feed rate			Program storage capacity : 40m (Approx.16KB)
All axes (except X2 & Y2)	32m/min		Tool offset pairs : 40
X2 axis	18m/min		Product counter indication (up to 8 digits)
Y2 axis	---	8m/min	Operating time display function
Y3 axis	---	32m/min	Spindle speed change detector
Motors			Constant surface speed control function
Spindle drive	3.7/7.5kW		Spindle C-axis function
Back spindle drive	2.2/5.7kW		Automatic power-off function
Gang tool post rotary tool drive	1.0kW		On-machine program check function
Turret rotary tool drive	0.75/1.5kW		Nose radius compensation
Back tool post rotary tool drive	---	1.0kW	Chamfering, corner R
Coolant oil	0.4kW		Format check function
Lubricating oil	0.003kW		Alarm block display function
Centre height	1150mm		Eco display
Rated power consumption	14.5kVA		Machine operation information display
Full-load current	53A		<b>Special NC functions</b>
Main braker capacity	75A		Variable lead thread cutting
Weight	3500kg	3550kg	Tool offset pairs: 80
			Arc threading function
			Tool life management I
			Geometric function
			Tool life management II
			Spindle synchronized 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
			Differential speed rotary tool function
			Optional block skip (9 sets)
			Back machining program skip function
			Program storage capacity: 1200m (Approx.480KB)
			Inch command
			Sub inch command
			3D camfering function

# CITIZEN

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