CITIZEN

Cincom M32

Sliding Headstock Type CNC Automatic Lathe

M32 Reborn...

- Single drive for rotary tools on turret tool post
- Higher torque and output for all motors
- Higher rigidity
- New functions
- New design

Ultimate Gang + Turret Configuration Machine

While inheriting the proven configuration of "gang tool post + turret," the new M32 combines the optimal balance of strength and weight through structural analysis, and greatly improves the rigidity that is the cornerstone of machining.

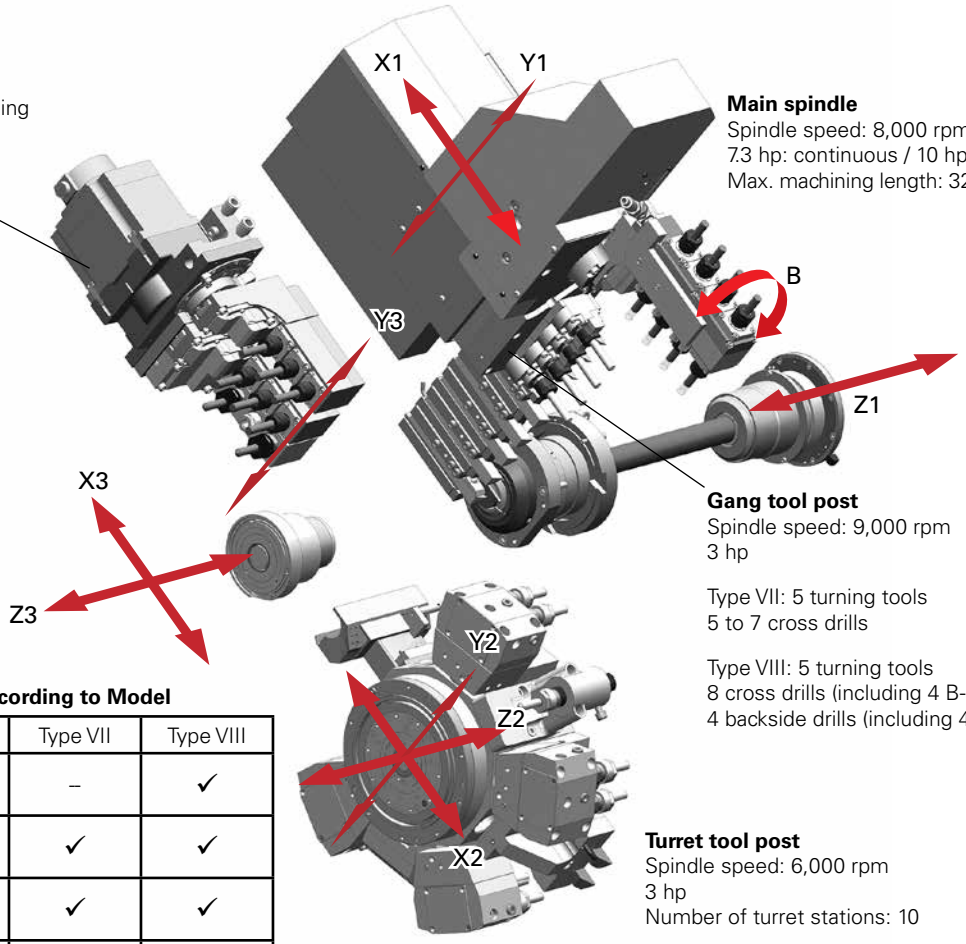
In addition, a single drive mechanism is introduced for rotary tools on the turret tool post, together with updated tooling. The rotary tool drive motor on each tool post has also been enhanced. 7.3/10 hp high-power spindle motors are utilized for both front and back spindles, achieving powerful machining and high acceleration/deceleration.

The gang tool post features a B-axis spindle (Type VIII) that supports contouring through 5-axis control. The back tool post is equipped with an adjustable angle type spindle for more complex machining in combination with the Y-axis. The degree of freedom in the allocation of machining processes is increased by enhanced back machining capability.

The 38mm oversized specification option is also supported as well as the ability to switch between guide bushing and guide bushing-less types.

Basic Structure

Back tool post
Spindle speed: 6,000 rpm
1.3 hp
Drilling tools: Max. 9 (including 3 adjustable angle drills)



Main spindle
Spindle speed: 8,000 rpm
7.3 hp: continuous / 10 hp: 15 minutes rate
Max. machining length: 320mm/1 chucking (GB)

Back spindle
Spindle speed: 8,000 rpm
7.3 hp: continuous
10 hp: 15 minutes rate

Gang tool post
Spindle speed: 9,000 rpm
3 hp

Type VII: 5 turning tools
5 to 7 cross drills

Type VIII: 5 turning tools
8 cross drills (including 4 B-axis drills)
4 backside drills (including 4 B-axis drills)

Turret tool post
Spindle speed: 6,000 rpm
3 hp
Number of turret stations: 10

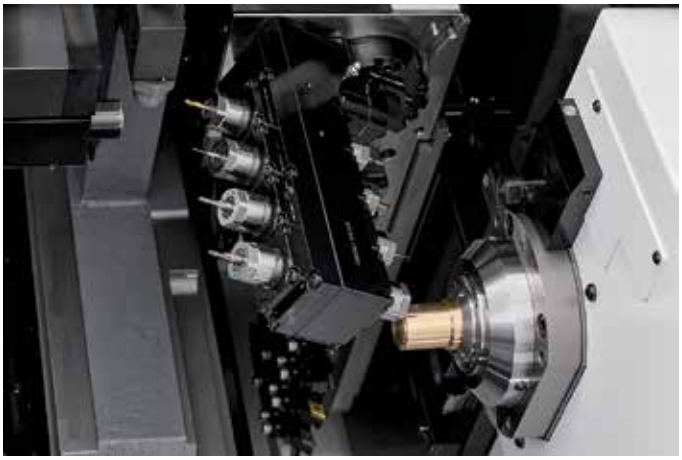
Machine Configuration According to Model

	Type VII	Type VIII
B-axis (gang rotary tools)	–	✓
Y3-axis (back tool post Y-axis)	✓	✓
Spindle speed of the back tool post rotary tool	✓	✓
Total number of tools	23 to 40 + α	30 to 36 + α

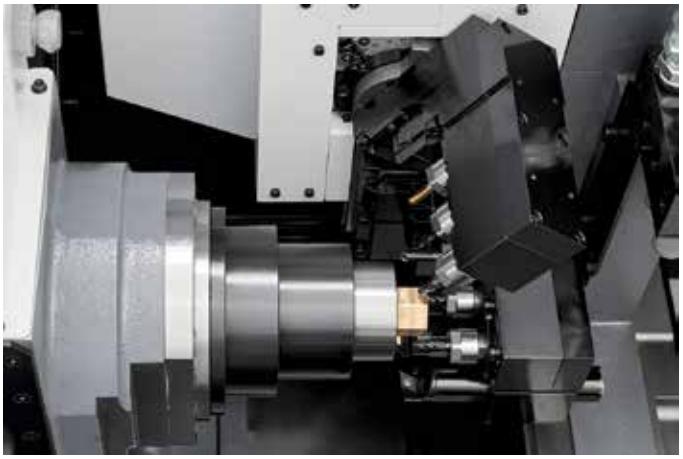
B-axis Machining for More Complex Shapes, Back Face Inclined Machining

The gang tool post features a programmable B-axis on Type VIII (back face 45°, front face 105°). The back tool post on both the Type VII & VIII features a 3-tool adjustable angle type spindle.

Equipping a Y-axis on the back tool post and a B-axis on rotary tools on the gang tool post supports complex machining while also broadening the range of machining with the back spindle. It also increases the degree of freedom in the allocation of machining processes, which tended to be biased toward the front spindle. This helps increase productivity.



B-axis rotary tools on the gang tool post



3-tool angle adjusting type spindle

New Single Drive Turret

Employed for the first time with Cincom, a single drive mechanism whereby only the selected rotary tool rotates.

Elimination of wasted rotation of non-selected tools enables powerful machining with high accuracy while suppressing heat generation, vibration and loss of power.

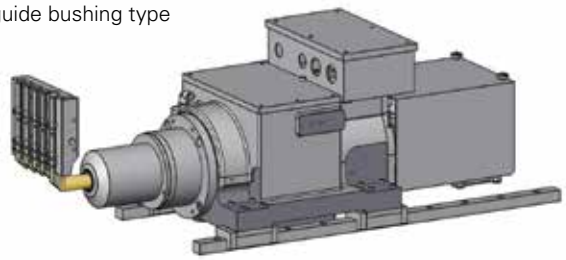
It also extends the lives of gears and bearings, and reduces running costs.

Furthermore, the increased rigidity of the internal gears and bearings enables high-torque transmission with the installation of a motor with high torque of 3 hp/22Nm (which is more than twice the torque of the previous M32) for driving rotary tools on the turret tool post.

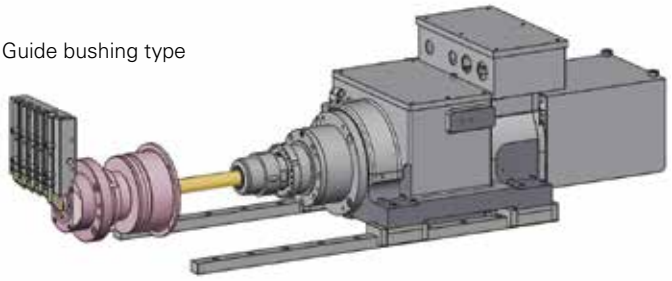
Switching Between Guide Bushing and Non-guide Bushing Type

When machining long, thin workpieces, the machine is used as a guide bushing type. When using cold drawn material and when the aim is to leave short remnant bars, it is easily switched to a non-guide bushing type.

Non-guide bushing type



Guide bushing type



Double Speed Rotary Tool

For rotary tools on the turret tool post, high-speed models of end face drilling spindles and cross drilling spindles are available.

The maximum spindle speed has been increased to 12,000 rpm, supporting machining with small diameter tools.

Operation Panel with New HMI (Human Machine Interface)

The operation panel featuring the new HMI (human machine interface) is equipped with a 15-inch touch panel, improving machine operating convenience for the operator. In addition, the universal design concept is applied to the color scheme of the operation panel for the first time. It considers the fact that colors may appear different to different people and makes the information easy to see and understand for everyone.

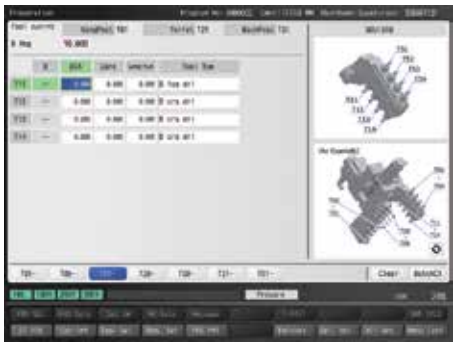
*Certification has been acquired from the Media Universal Design Association (MUD Association).

Working Efficiency Improved

The door is 165% larger than on conventional machines, providing increased work efficiency.

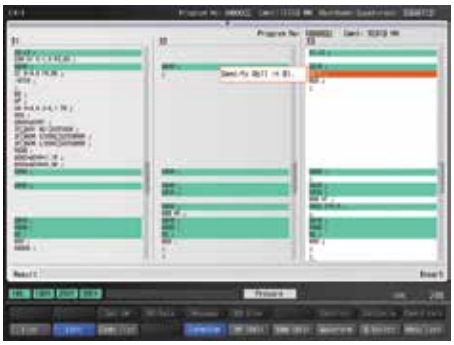
The expanded size of the window also allows improved visibility when the door is closed.

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.



Tool selection screen
The selected tool moves to the waiting point.

Code list
The function displays the list of G and M codes including explanations of the arguments to support programming.



Format check
The customer can check whether there are any syntax errors in the program on the edit check screen before running it.

High-speed program check
Programs can be checked at high speed without operating the machine (machine lock status).

On-machine program check
This runs the machining program at high speed without operating the machine and detects program errors. It also allows you to measure the approximate cycle time.

Rapid feed override
It is also possible to control only the rapid feed rate in accordance with the setting of the override dial while fixing the override for the cutting feed rate.

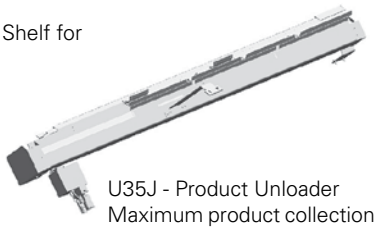
Turret tool post tool setting
In-machine tool setting is possible for the turret tool post as well as for the gang tool post.

Machine operating status
This screen classifies the operating status as five items – automatic operation time, alarm stop time, setup time, non-operating time, and power OFF time – and displays graphs for each of these items or in a time series.

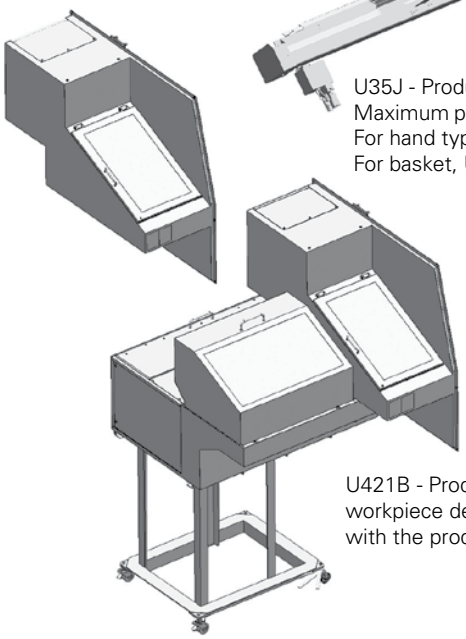
Product Unloader

Installing the product unloader eliminates the time for collection by the turret, shortening cycle times. The product receiver shelf for product unloader is a shelf for receiving unloaded products. Using the product receiver shelf of long workpiece device makes it possible to combine product unloading with a function for ejecting long workpieces from the rear of the back spindle.

U352J - Product Receiver Shelf for product unloader



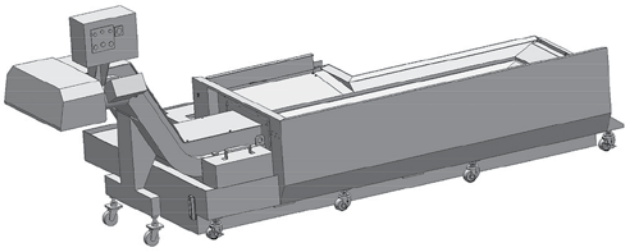
U35J - Product Unloader
Maximum product collection length
For hand type: 195 mm
For basket, U351J: 110 mm



U421B - Product receiver shelf of long workpiece device (used in combination with the product unloader)

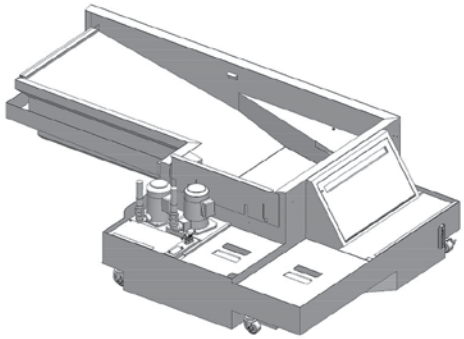
Chip conveyor

The chip conveyor is used in combination with the U12R extended coolant tank unit.



Extended coolant tank

With a coolant capacity of 78 gallons, this is used in combination with the chip conveyor/high pressure coolant unit.



High pressure coolant device

This contributes to effective chip removal and the improvement of machining accuracy / tool life.

Workpiece conveyor switch box

This allows manual operation (selection of continuous running or intermittent running) close to the workpiece ejection port.

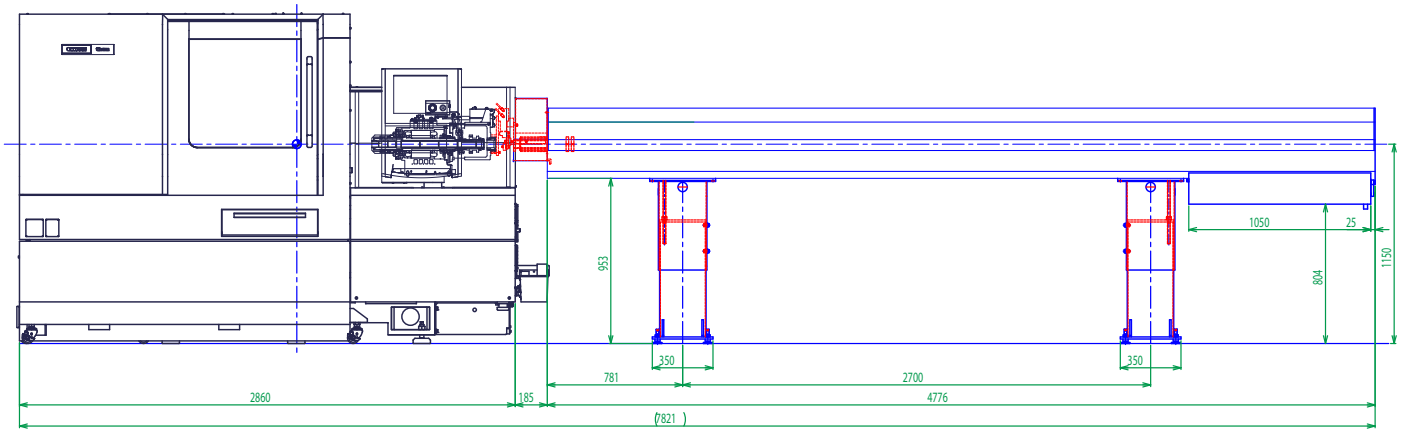
Workpiece conveyor

A workpiece conveyor can be equipped to facilitate the efficient mass production of workpieces. The cover over the unloading route can also be opened easily giving good maintainability.

In addition, periodic cleaning of the chip collector basket is no longer necessary due to the improvement of the structure.

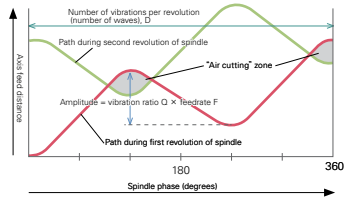
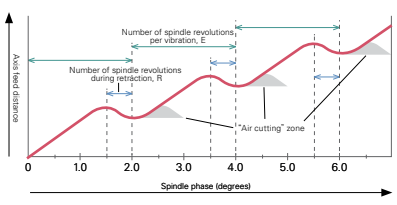
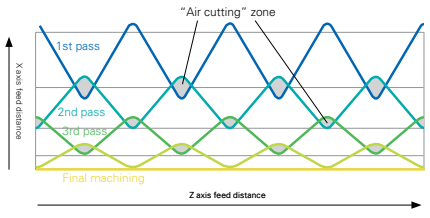
CAV32-M5E Bar Loader

The CAV32-M5E bar loader is perfectly configured to the speeds, torque, power and axis movements of the Cincom M32, allowing it to respond with the precise movements needed for optimum precision, performance and productivity.



LFV (Low Frequency Vibration)

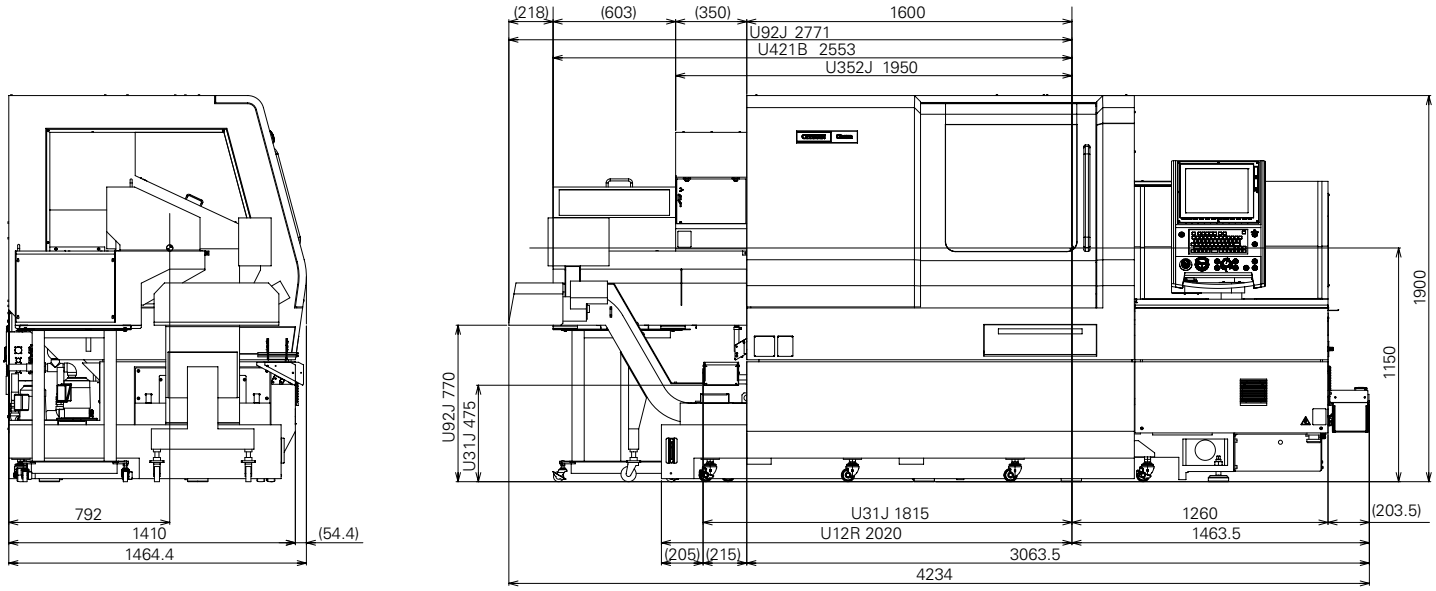
LFV by Citizen is a technology for performing machining while vibrating the X and Y servo axes in the cutting direction in synchrony with the rotation of the spindle. It reduces various problems caused by chips entangling with the product or tool, and is effective for small-diameter deep hole machining and the machining of difficult-to-cut materials.

	LFV mode 1	LFV mode 2	LFV mode 3
Operation	Multiple vibrations per spindle revolution	Multiple spindle revolutions per vibration	Vibration threading
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.	A vibrating behavior is applied in the direction of the cutting (notching) during threading with the timing of this vibration changing with each pass in relation to the rotary phase of the spindle to provide "air-cutting" during the machining and break up chips.
Application	Ideal for outer/inner diameter machining and groove machining	Ideal for micro-drilling, where peripheral speed is required	Optimal for threading of internal and external diameters
Waveform			

Model	Front side LFV	Back side LFV	LFV mode 1	LFV mode 2	LFV mode 3
VII	X1, Z1	X3, Z3	✓	✓	✓
VIII			✓	✓	✓

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
Note 4: LFV mode 1/mode 2 and LFV mode 3 are optionally available. It is not possible to purchase LFV mode 3 alone

Machine Dimensions



Environmental Information

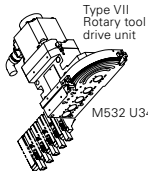
The M32 has undergone Citizen's "environmentally friendly product assessment." The use of easily recyclable materials and the reduction of environmentally hazardous substances has made the products more eco-friendly.

Basic Information	Energy usage	Supply voltage	AC200V
		Electrical poser requirement	VII: 24 kVA; VIII: 25 kVA
		Required pneumatic pressure	0.5 MPa
Environmental Performance Information	Power consumption	Standby power	0.779 kW
		Power consumption with model workpiece*1	0.0217 kWh/cycle
		Power consumption value above converted to a CO2 value *2	10.3 g/cycle
	Air consumption	Required air flow rate	65NL/min (power ON), 110 NL/min (normal), 175 NL/min (with air blow)
	Lubricating oil consumption	At power ON	5.5 cc/30min
	Noise level	Value measured based on JIS	72 dB
Approach to Environmental Issues	Recycling	Indication of the material names of plastic parts	Detailed in the part list *3
	Environmental management		CMJ pursues Green Procurement by making purchases while prioritizing goods and services that show consideration for the environment.

1. 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.
2. This is the value converted in accordance with the CHUBU Electric Power CO2 emissions coefficient for 2017 as published by the Ministry of the Environment.
3. 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.

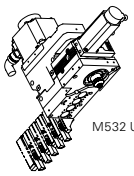
Tooling System

for Gang tools



Type VII
Rotary tool spindle
drive unit

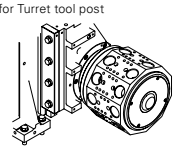
M532 U34B



Type VIII
Rotary tool spindle
drive unit

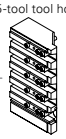
M532 U33B

for Turret tool post



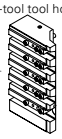
Tool holder

5-tool tool holder



GTF6116
[□ 5/8"]

Internal lubrication type
5-tool tool holder

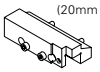


GTF6216
[□ 5/8"]

1-tool shift tool holder
(5-mm shift)

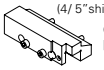
GTF6313
[□ 1/2"]

Shift tool holder
(20mm shift, adapter type)



GTF5716
[□ 5/8"]

Shift tool holder
(4/ 5"shift, adapter type)



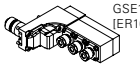
GTF5716L
[□ 5/8"]

Rotary tool

GSC1310
[ER16] [AR16]

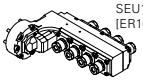
Idle gear unit
GSD107

3-tool drilling spindle



GSE1610
[ER16] [AR16]

[Dedicated toU33B] Drilling spindle
(4-tool on both ends)



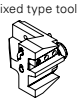
SEU1310
[ER16] [AR16]

Short nut
DNU110
[ER16] [AR16]

Tool holder

Turning/cutting off

Fixed type tool holder(double tool)



CTF1116
[16×16×90mm]
[5/ 8×5/ 8×3-1/2"]

Fixed type tool holder(single tool)

CTF1216
[16×16×90mm]
[5/ 8×5/ 8×3-1/2"]

Fixed type tool holder (reverse rotation)

CTF1316
[16×16×90mm]
[5/ 8×5/ 8×3-1/2"]

Sleeve holder

Triple-tool sleeve holder

CDF1101
[Ø 1"]

Sleeve holder (oil blow)

CDF1201
[Ø 1"]

Sleeve holder (machining at
both ends)

CDF1301
[Ø 1"]

Sleeve holder (oil hole)

CDF1401
[Ø 1"]

Rego type chuck sleeve
(up to Ø 10, oil hole)

ADS1310
[ER16] [AR16]

Boring sleeve (Ø 4)

ABS104

Boring sleeve (Ø 8)

ABS108

Boring sleeve (Ø 10)

ABS110

for Tapping and die machining

Tap sleeve

ATS112
[ER16] [AR16]

Die sleeve

AUS106
[Ø 20×7mm]

Die sleeve

AUS106L
[Ø 3/ 4"×1/ 4"]

Die sleeve

AUS110
[Ø 25×9mm]

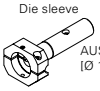
Die sleeve

AUS110L
[Ø 1"×11/ 32"]

Die sleeve

AUS112
[Ø 38×13mm]

Die sleeve



AUS112L
[Ø 1-1/ 2"×1/ 2"]

End face drilling spindle (double-speed spindle)

KSE1410
[ER16] [AR16]

End face drilling spindle (double
double-speed spindle)

KSE1510
[ER16] [AR16]

Slitting spindle

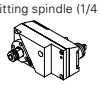
Slitting spindle (1/8 reducation)

KSS960
[Ø 60×Ø 15.875]

Slitting spindle (1/8 reducation)

KSS963
[Ø 63×Ø 16]

Slitting spindle (1/4 reducation)



KSS1060
[Ø 63×Ø 15.875]

Slitting spindle (1/4 reducation)

KSS1063
[Ø 63×Ø 16]

Hobbing spindle

Hobbing spindle (17/54 reduction)

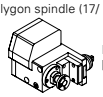
KSH332
[Ø 32×Ø 10]

Hobbing spindle

KSH432
[Ø 32×Ø 10]

Rotary tool

Polygon spindle (17/ 54 reduction)



KSP580
[Ø 80×Ø 15.875]

Polygon spindle

KSP680
[Ø 80×Ø 15.875]

Adjustable angle spindle

Adjustable angle spindle (0 to 30°)

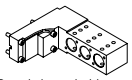
KSA507
[ER11] [AR11]

Adjustable angle spindle (30 to 90°)

KSA607
[ER11] [AR11]

sleeve holder

[Dedicated to U34B]



3-tool sleeve holder
[Sleeve diameter Ø 1"]
GDF1701

Sleeve

for Boring and drilling

Rego type chuck sleeve (up to Ø 10)

ADS110
[ER16] [AR16]

Rego type chuck short sleeve (up to Ø10)

ADS410
[ER16] [AR16]

Rego type chuck sleeve (up to Ø16)

RDS110
[ER25] [AR25]

Drill sleeve (up to Ø10)

GDS310
[ER16] [AR16]

Tapered socket (MT1)

ADS112
[MT1]

Tapered socket (MT2)

ADS212
[MT2]

for Tapping

Tapping sleeve (~Ø 7)
Short type

ATS210
[ER11] [AR11]

sleeve

for boring drilling

Rego type chuck sleeve (up to Ø 10)

ADS110
[ER16] [AR16]

Rego type chuck sleeve (up to Ø 10, long)

ADS210
[ER16] [AR16]

Rego type chuck sleeve (up to Ø 10, long)

ADS410
[ER16] [AR16]

Drill chuck sleeve

ADS206
[M1]

Tapered stocket (MT1)

ADS112
[MT1]

Tapered stocket (MT2)

ADS212
[MT2]

Both-ends chuck sleeve (up to Ø 10)

ADS310
[ER16] [AR16]

Rego type chuck short sleeve
(up to Ø 10, oil hole)

ADS1210
[ER16] [AR16]

Rotary tool

Cross drilling spindle

Cross drilling spindle

KSC113
[ER20] [AR20]

Cross drilling spindle

KSC213
[ER20] [AR20]

Cross drilling spindle (double spindle)

KSC313
[ER20] [AR20]

Cross drilling spindle(double double-speed spindle)

KSC1210
[ER16] [AR16]

End face drilling spindle

End face drilling spindle

KSE113
[ER20] [AR20]

End face drilling spindle

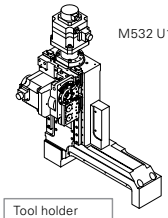
KSE213
[ER20] [AR20]

End face drilling spindle
(double spindle)

KSE313
[ER20] [AR20]

Short nut
DNU113
[ER20] [AR20]

for Back tool post



M532 U152B

Rotary tool

Outer diameter milling spindle
GSC1310
[ER16] [AR16]

3-tool drilling spindle
GSE1610
[ER16] [AR16]

Short nut
DNU110
[ER16] [AR16]

Tool holder

1-tool shift tool holder (5-mm shift)

GTF6313
[□1/2"]

Sleeve

for Boring and drilling

Rego type chuck sleeve (up to Ø 10)

ADS110
[ER16] [AR16]

Rego type chuck sleeve
(up to Ø 10, long)

ADS210
[ER16] [AR16]

Rego type chuck short sleeve
(up to Ø 10)

ADS410
[ER16] [AR16]

Rego type chuck sleeve (up to Ø 16)

RDS116
[ER25] [AR25]

Drill sleeve (up to Ø 10)

GDS310
[ER16] [AR16]

Tapered socket (MT1)

ADS112
[MT1]

Tapered socket (MT2)

ADS212
[MT2]

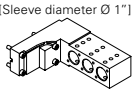
for Tapping

Tapping sleeve (up to Ø 7)
Short type

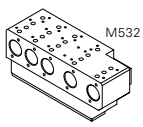
ATS210
[ER11] [AR11]

Sleeve holder

[Dedicated to U152B]
3-tool sleeve holder
[Sleeve diameter Ø 1"] GDF1701



for Back tool post



M532 U150B

Sleeve

for Boring and drilling

Rego type chuck sleeve
(up to Ø 10)

ADS110
[ER16] [AR16]

Rego type chuck sleeve
(up to Ø 10, long)

ADS210
[ER16] [AR16]

Rego type chuck short sleeve
(up to Ø 10)

ADS410
[ER16] [AR16]

Drill chuck sleeve

ADS206
[MT1]

Tapered socket (MT1)

ADS112
[MT1]

Tapered socket (MT2)

ADS212
[MT2]

Rego type chuck short sleeve
(up to Ø 10, oil hole)

ADS1210
[ER16] [AR16]

Rego type chuck sleeve
(up to Ø 10, oil hole)

ADS1310
[ER16] [AR16]

Rego type chuck sleeve
(up to Ø 16)

RDS116
[ER25] [AR25]

Drill sleeve (up to Ø 10)

GDS310
[ER16] [AR16]

Boring sleeve (Ø 4)

ABS104

Boring sleeve (Ø 8)

ABS108

Boring sleeve (Ø 10)

ABS110

for tapping and die machining

Tap sleeve

ATS112
[ER16] [AR16]

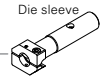
Die sleeve

AUS106
[Ø 20×7mm]

Die sleeve

AUS106L
[Ø 3/4"×1/ 4"]

Die sleeve



AUS106L
[Ø 25×9mm]

Die sleeve

AUS110L
[Ø 1"×11/ 32"]

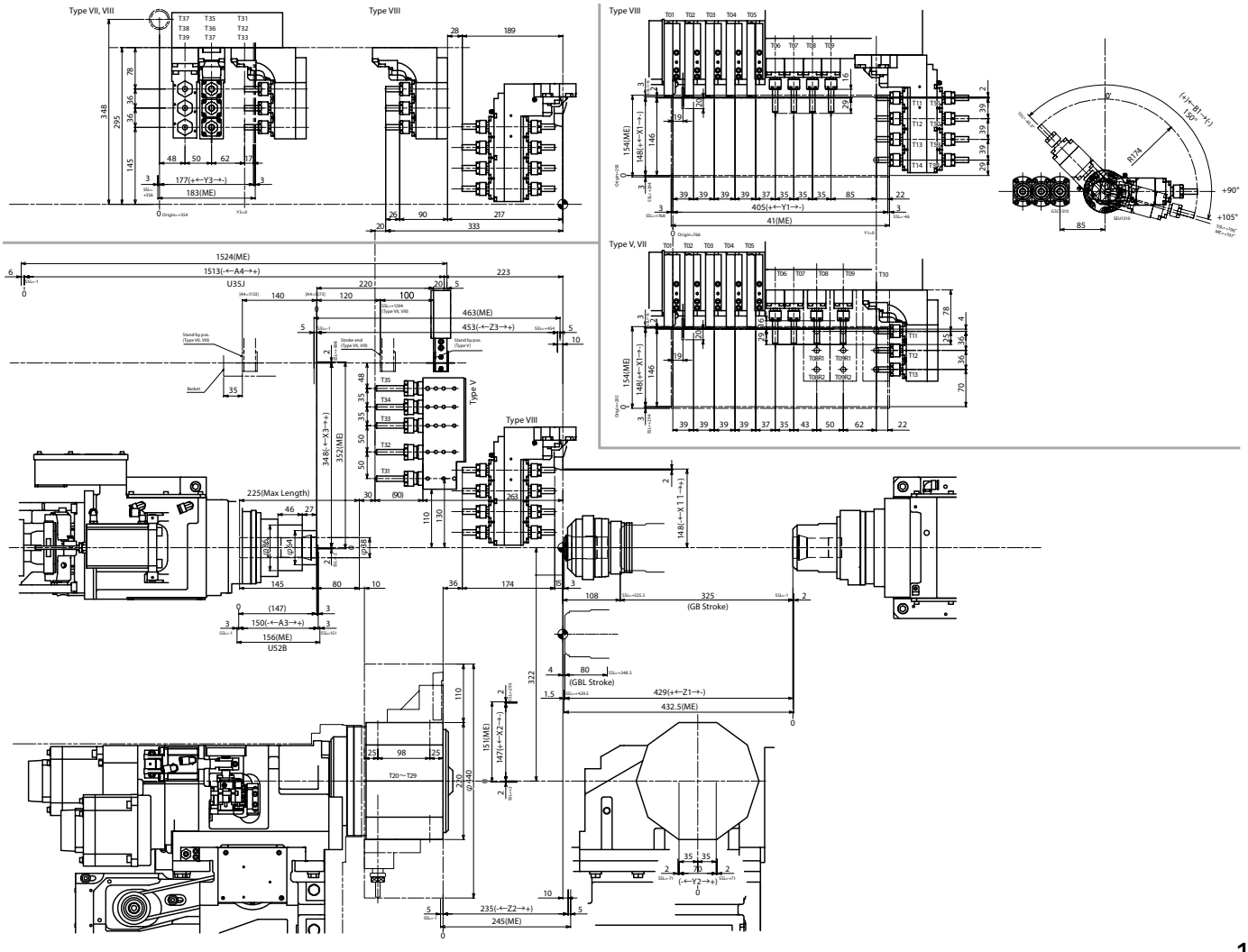
Die sleeve

AUS112
[Ø 38×13mm]

Die sleeve

AUS112L
[Ø 1-1/ 2"×1/ 2"]

Tooling Area



Machine Specifications

Item	Type VII	Type VIII
	M32-5M7	M32-5M8
Max. machining diameter (D)	Ø32 mm dia. (Ø38 mm as oversize option)	
Max. machining length (L)	320 mm/1chucking	
Max. front drilling diameter	Ø12 mm	
Max. tapping diameter for front spindle	M12 (Cutting tap)	
Main spindle speed	Max. 8,000 rpm	
Max. chuck diameter for the back spindle	32 mm dia. (38 mm as oversize option)	
Max. drilling diameter for the back spindle	Ø12 mm	
Max. tapping diameter for the back spindle	M12 (Cutting tap)	
Max. length of back spindle workpiece	145 mm (by standard work ejection)	
Back spindle speed	Max. 8,000 rpm	
Gang rotary tools		
Max. drilling diameter	Ø8 mm	
Max. tapping diameter	M8 (Cutting tap)	
Main spindle speed	Max. 9,000 rpm	
Turret rotary tools		
Max. drilling diameter	Ø12 mm	
Max. tapping diameter	M12 (Cutting tap)	
Main spindle speed	Max. 6,000 rpm	
Back rotary tools		
Max. drilling diameter	Ø8 mm	
Max. tapping diameter	M6 (cutting tap)	
Main spindle speed	Max. 6000 rpm	
Number of tools	23 to 40 + α	30 to 36 + α
Turning tools	5	
Cross drills	5 to 7	8 (including 4 B-axis drills)
Gang tool post backside drills	—	4 (including 4 B-axis drills)
Number of turret stations	10	
Back tool post drills	Max. 9	
Tool size		
Turning tool	□ 5/8" and 3/4" (cut off)	
Sleeve diameter	1" dia.	
Chuck and bushing		
Main spindle collet chuck	TF37SP (TF43 for 38 mm oversize option)	
Back spindle collet chuck	TF37SP (TF43 for 38 mm oversize option)	
Guide bushings	TD32 (STB38 for 38 mm oversize option)	
Rapid feed rate		
X1, Y1, Z1, Z2, X3, Y3, Z3	32 m / min	
X2	18 m / min	
Y2	12 m / min	
B1	—	50 rpm
Motors		
Front spindle drive	7.3 hp: continuous / 10 hp: 15 minutes rate	
Back spindle drive	7.3 hp: continuous / 10 hp: 15 minutes rate	
Gang rotary tool drive	3 hp	
Turret rotary tool drive	3 hp	
Back rotary tool drive	1.3 hp	
Pneumatic unit required pressure and flow rate	0.5 MPa at 110 NL/min. (when stationary)	
Machine main unit dimensions	(W) 2,860 x (D) 1,465 x (H) 1,900 mm	
Weight	9,480 lbs.	
Power supply voltage	AC200V ± 10%	

Standard accessories

- Main spindle chucking unit
- Gang rotary tool driving unit
- Turret rotary tool driving unit
- Rotary guide bushing unit
- Coolant unit (with level detector)
- Air-driven knock-out device for back machining
- Machine relocation detector
- Door lock
- Back spindle chucking unit
- Back rotary tool driving unit
- Rotary guide bushing drive unit
- Concentrated lubricating oil supply unit (with level detector)
- Workpiece separator
- Spindle cooling unit
- Machine internal lighting

Optional accessories

- Knock-out jig for through-hole workpiece
- Cut-off tool breakage detector
- Product unloader
- Chip conveyor
- High-pressure coolant unit
- 3-color signal tower
- Motor-driven knock-out device for back machining
- Long workpiece unit
- Workpiece conveyor
- Rotary parts carousel
- Coolant flow rate detector
- M32 special tool

Standard NC functions

- CINCOM SYSTEM M830W (Mitsubishi Electric) *Type VII
- CINCOM SYSTEM M850W (Mitsubishi Electric) *Type VIII
- 15-inch XGA touch panel
- USB slot
- Program storage capacity 160m (approx. 64 KB)
- Tool offset pairs: 99
- Product counter indication (up to 8 digits)
- Preparing operation functions
- Operating time display function
- Machine operation information display
- B-axis control function *Type VIII
- Back machining program skip function
- Obstruction check
- Impact detection function
- Spindle speed change detector
- Constant surface speed control function
- Automatic power-off function
- On-machine program check function
- Nose radius compensation
- Eco display
- Variable lead thread cutting
- Chamfering/Corner R function
- Geometric command function
- Spindle synchronized function
- Milling interpolation function
- Spindle C-axis function
- Back spindle C-axis function
- Canned cycle for drilling
- Synchronized tapping phase adjustment function
- High-speed synchronized tapping function
- Differential speed tapping function
- Tool life management I
- Tool life management II
- External memory program running
- User macros
- Inclined helical interpolation function
- Polygon function
- RS232C connector
- Circular threading function
- Back spindle chasing function
- Sub-inch designation minimum increment: 0.00001 inch
- Helical interpolation
- Hob function
- Network I/O function

Optional NC functions

- Program storage capacity: 4800m (1,920 KB)
- Optional block skip (9 sets)
- Tool Monitor

Marubeni Citizen-Cincom Inc.

40 Boroline Road
Allendale, NJ 07401
201-818-0100

2316 Touhy Avenue
Elk Grove Village, IL 60007
847-364-9060

17815 Newhope Street, Suite P
Fountain Valley, CA 92708
714-434-6224

68 Moylan Lane
Agawam, MA 01001
413-786-6655

www.marucit.com

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