CITIZEN

Cincom

L32

Sliding Headstock Type Automatic CNC Lathe

LASER CUTTING

ATC
AUTOMATIC TOOL CHANGING

EcoBalance Machine

LFV technology

Full Model Change for Cincom L32 with Introduction of the L32XIIB5 Capable of Simultaneous 5-Axis Control

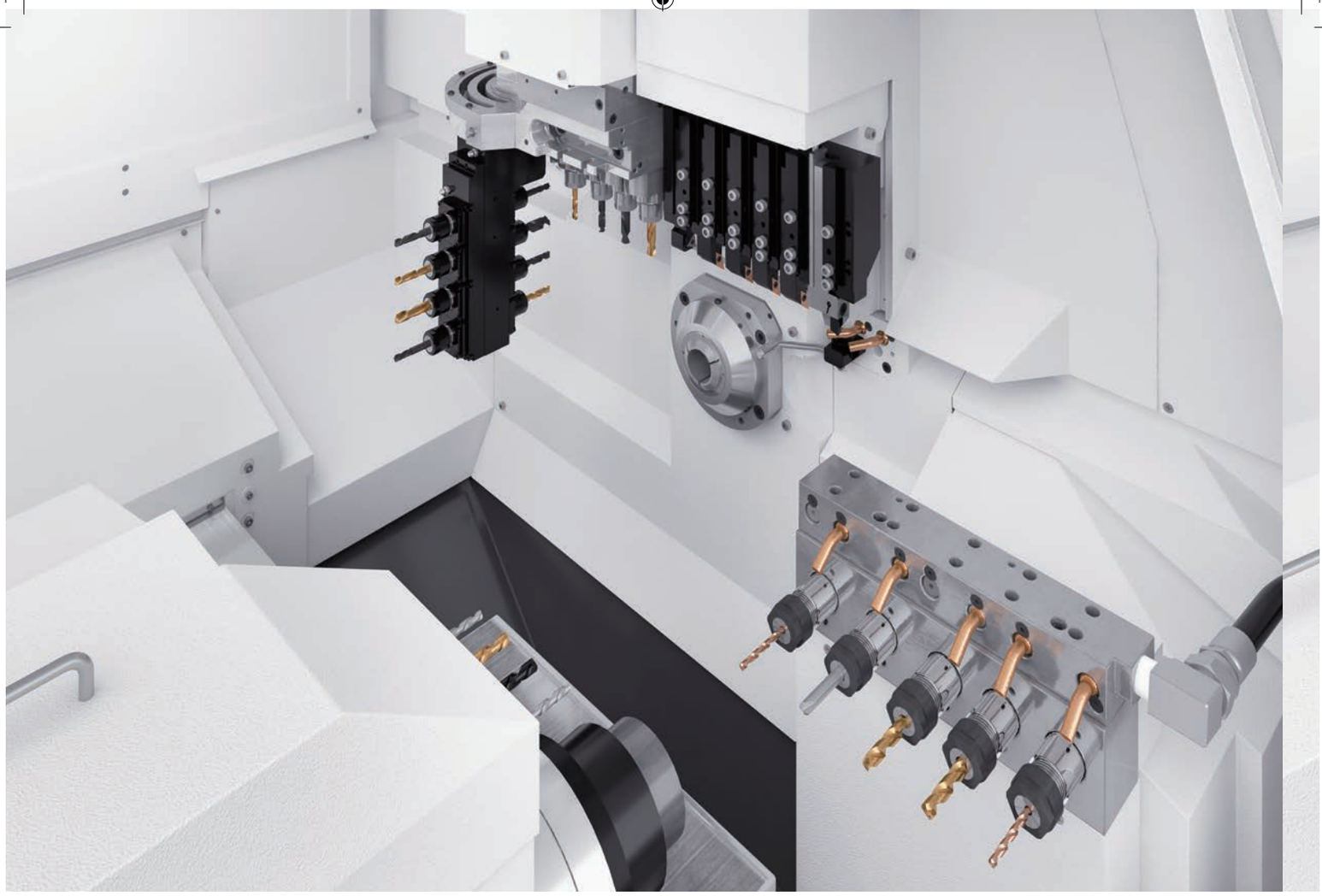
Basic performance and operability are improved, and a variety of optional devices and functions for automation and labour savings can be installed.
With the addition of XIIB5, which is capable of simultaneous 5-axis control, more complex workpieces can be machined efficiently using tool paths with a high degree of flexibility involving B-axis machining. In addition, since a loader unit and ATC unit can be installed at the same time, the B axis on the ATC unit can also be used for machining of formed materials, enabling efficient production of workpieces where the focus is on milling, which have conventionally been handled on a machining centre.

Machining Videos

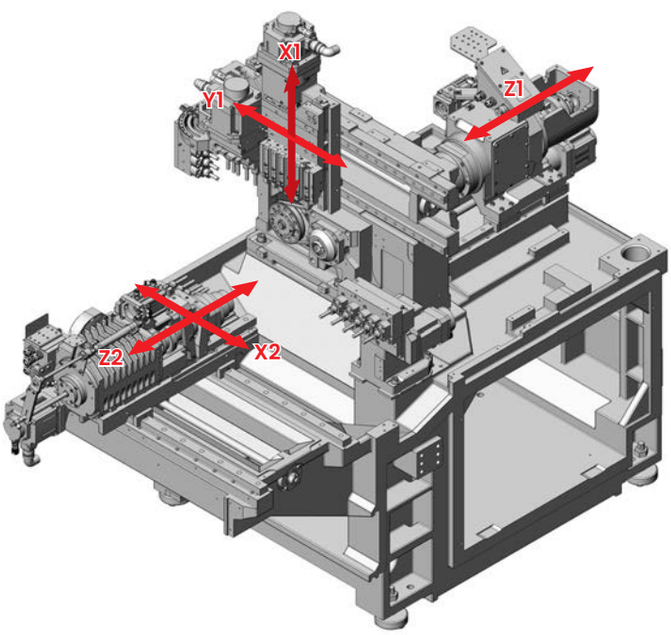

CITIZEN
EcoBalance Machine
L32VIII

EcoBalance Machine

We work to continuously enhance corporate value through “sustainable management” that takes into account social issues such as human rights and the global environment throughout the value chain, while at the same time promoting the provision of “sustainable products” such as our proprietary technologies, which include LFV (low-frequency vibration cutting) technology, the “FA-friendly” robot system, and “alkapplysolution” utilizing ICT technology, centring on the Cincom and Miyano brands.

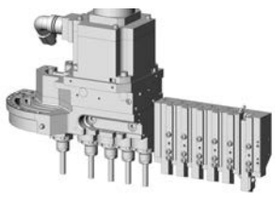


VIII



* When extended tooling is used on the back tool post, the number of tools that can be mounted on the opposite tool post is restricted to two.

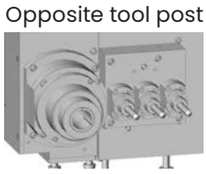
Gang tool post



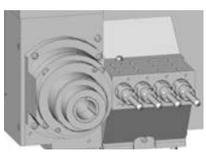
EN620000
5 rotary tools

GTF6316
6 turning tools

Opposite tool post

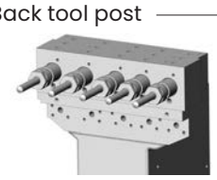


EN624000
Front 3-spindle holder
3 rotary tools

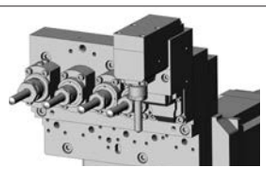


EN731000
Front 4-spindle holder
4 fixed tools

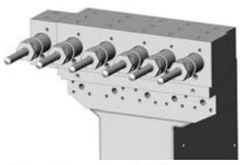
Back tool post



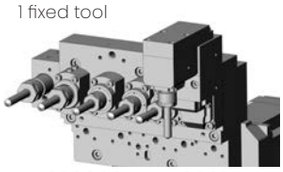
EN730000
Back 5-spindle holder
5 fixed tools



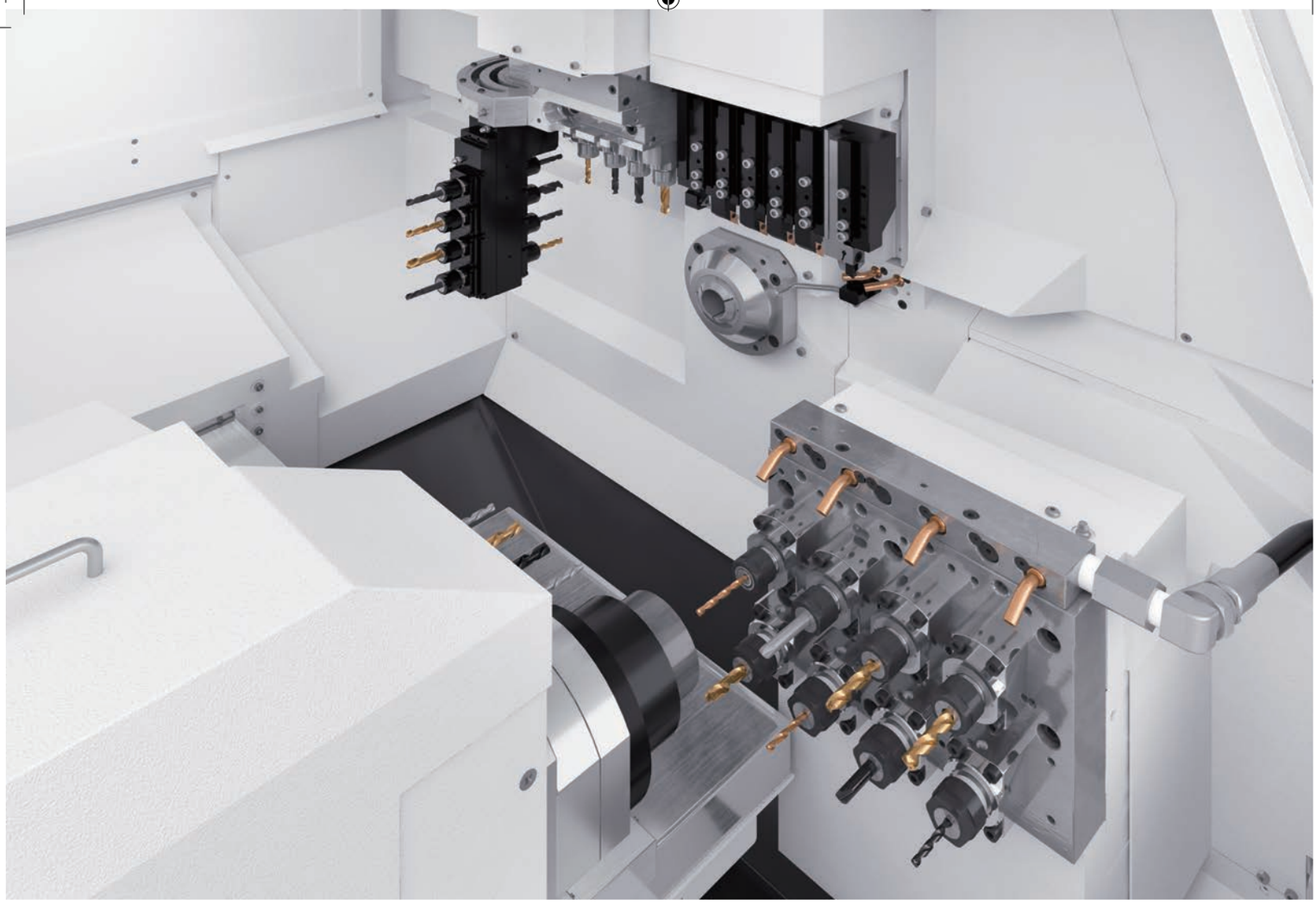
EN623000
Back 5-spindle holder
4 rotary tools
1 fixed tool



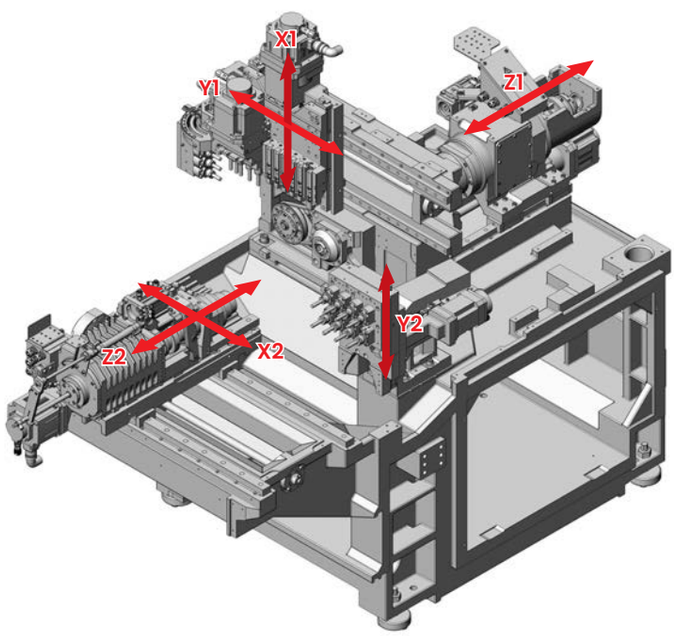
EN730000+GDF2001
Back 5-spindle holder
+ extended tooling*
5 + 1 fixed tools



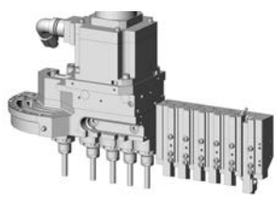
EN623000+GDF2001
Back 5-spindle holder
+ extended tooling*
4 rotary tools
1 + 1 fixed tools



X



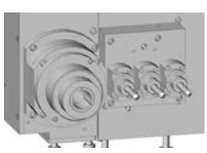
Gang tool post



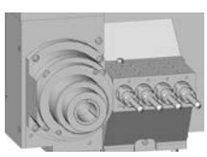
EN620000
5 rotary tools

GTF6316
6 turning tools

Opposite tool post

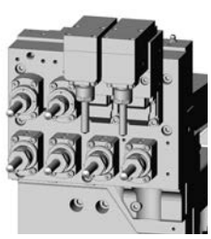


EN624000
Front 3-spindle holder
3 rotary tools

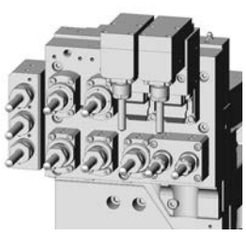


EN731000
Front 4-spindle holder
4 fixed tools

Back tool post

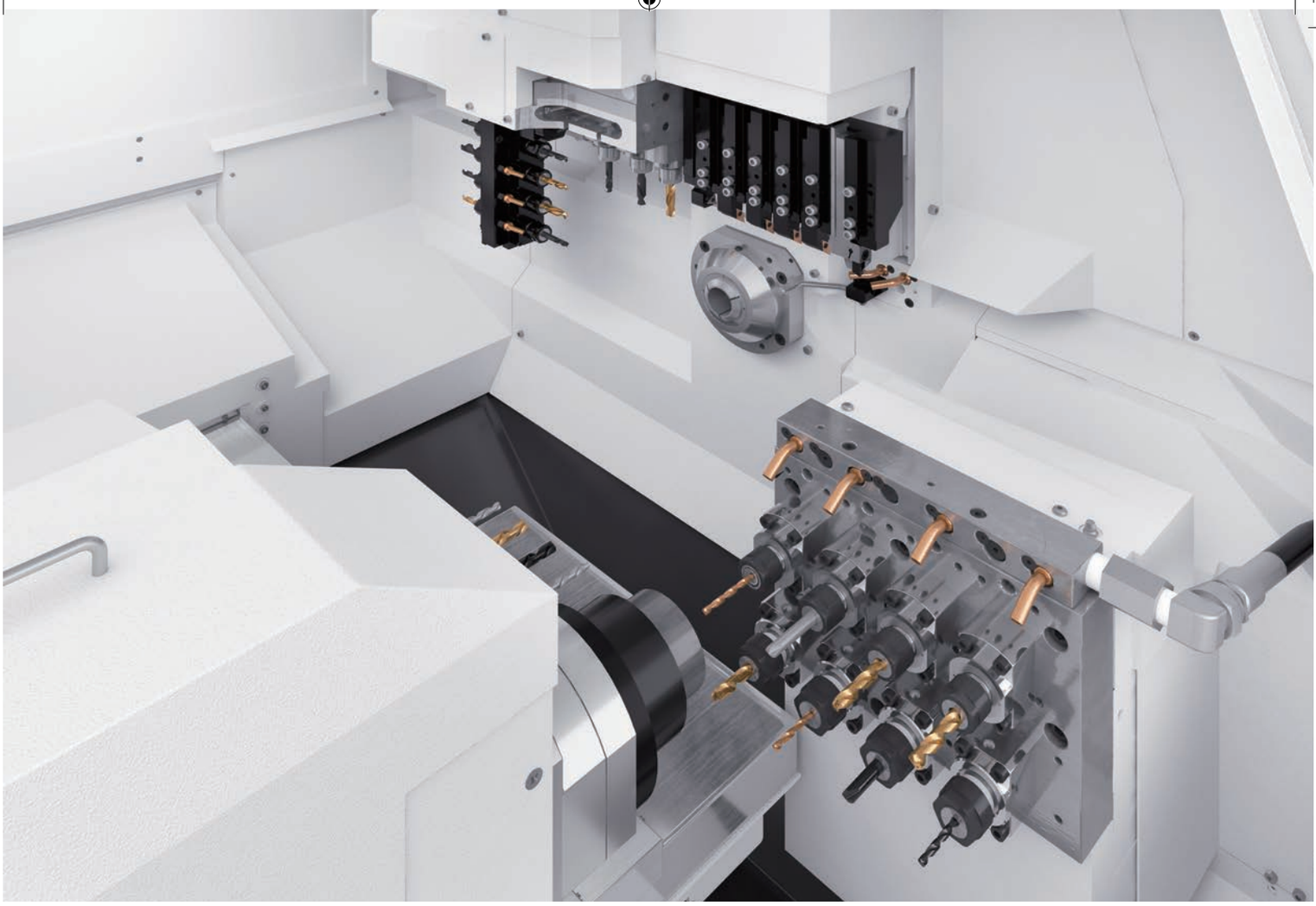


EN343000
Back rotary tool drive device
4 rotary tools
4 fixed tools



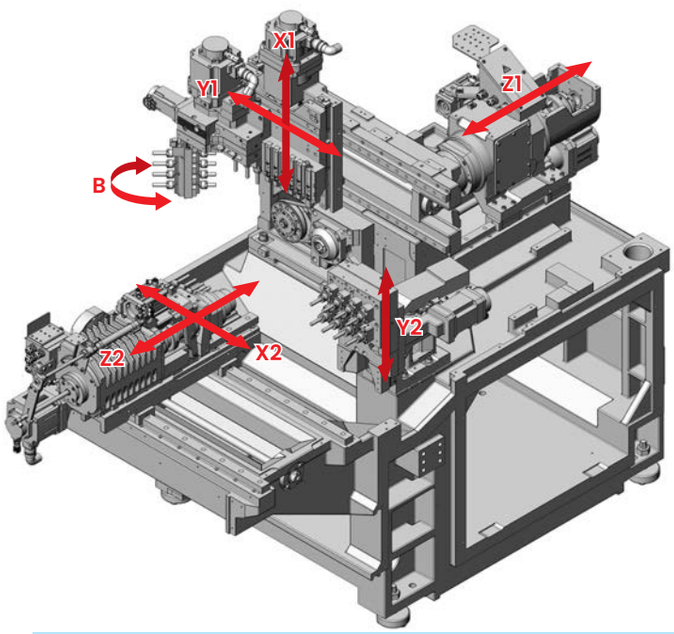
EN343000+GDF2201
Back rotary tool drive device
+ extended tooling*
4 rotary tools
4 + 3 fixed tools

* When extended tooling is used on the back tool post, the number of tools that can be mounted on the opposite tool post is restricted to two.

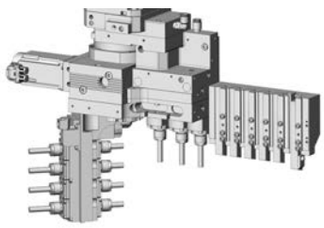


XII XIIB5

Simultaneous 5-axis control



Gang tool post

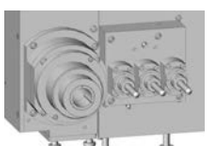


EN621000
3 rotary tools

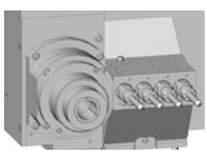
SEU1410
8 rotary tools

GTF6316
6 turning tools

Opposite tool post

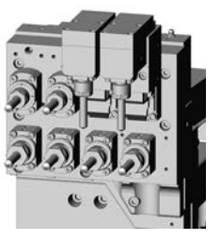


EN624000
Front 3-spindle holder
3 rotary tools

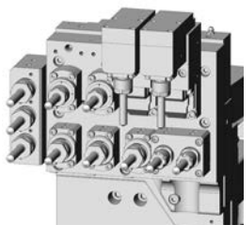


EN731000
Front 4-spindle holder
4 fixed tools

Back tool post



EN343000
Back rotary tool drive device
4 rotary tools
4 fixed tools

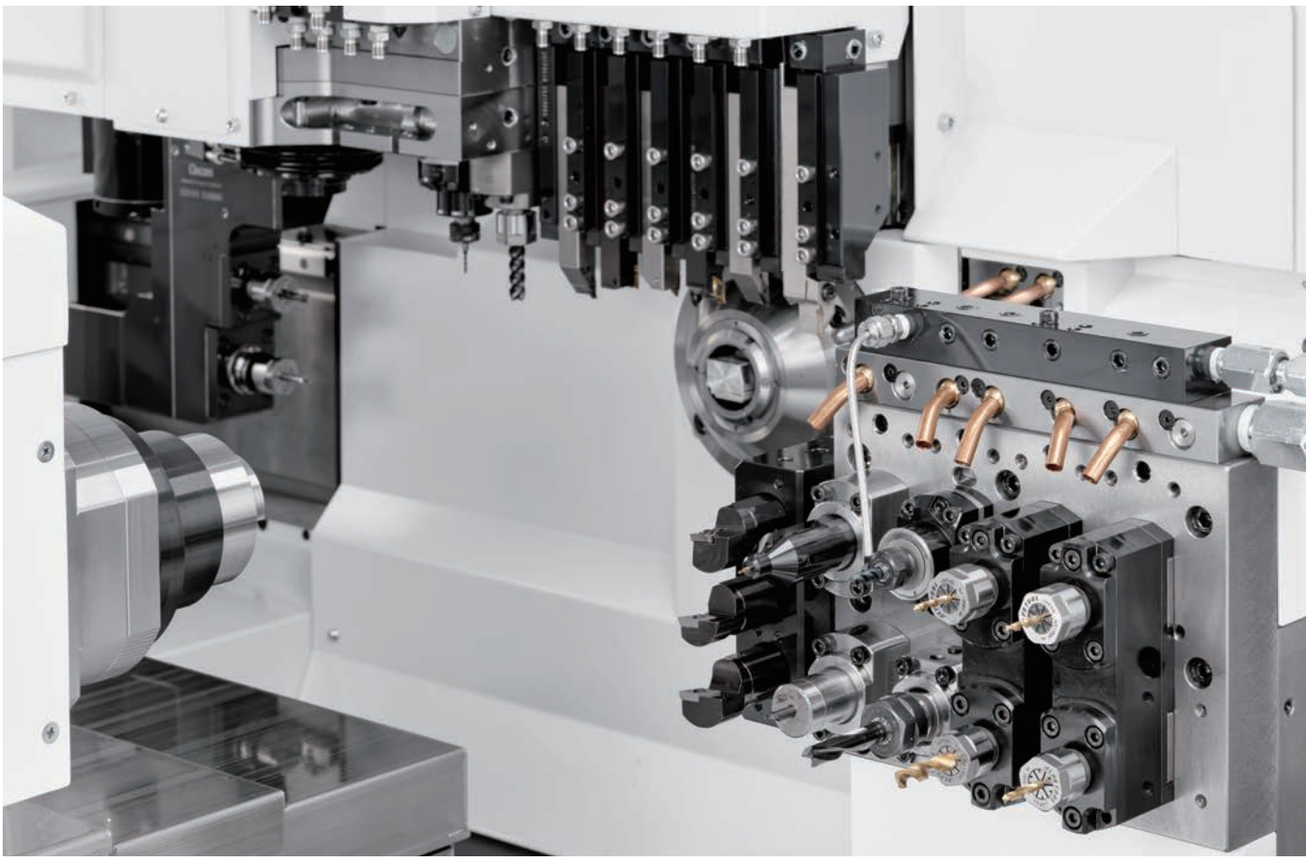


EN343000+GDF2201
Back rotary tool drive device
+ extended tooling*
4 rotary tools
4 + 3 fixed tools

* When extended tooling is used on the back tool post, the number of tools that can be mounted on the opposite tool post is restricted to two.

More tools and more efficient setup

Maximum of 53 simultaneously-mounted tools, with an expansion tool holder mountable on the back tool post to give it a capacity of up to 12 tools In addition to machining of complex-shaped workpieces, the wealth of tools makes it possible to reduce the frequency of setup changes even in high-mix production. Compatibility with tool holders that support through-spindle coolant and can therefore be mounted/removed without worrying about piping and with CIToolingSystem also cuts setup time.



Improved access to the machining chamber

The front door can now be fully opened, and a door is provided on the back of the machine to improve working convenience inside the machining chamber. In addition, the units inside the chamber have been made as compact as possible and the coolant nozzles have been arranged so that the machining chamber is bright and open, improving working convenience during setup changes and other operations.

Better operability

The latest Windows-based NC unit is equipped. The 15-inch touch panel screen has high visibility and has been designed for intuitive operation.

Technology Supporting “EcoBalance Machine”

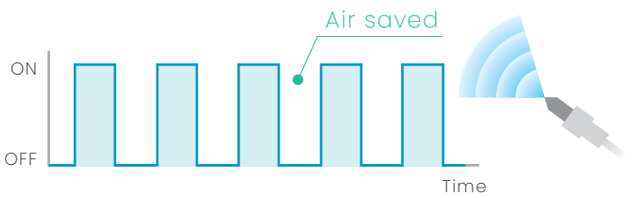
EcoBalance Machine

Idling stop function

Used to stop unnecessary machine operation in the standby status where no programmed operation is in progress, thereby reducing power consumption.

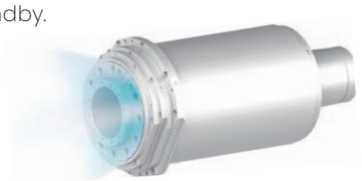
Air blow intermittent discharge function

Air consumption is reduced by approximately 60% while maintaining the effect and performance of the air blow.

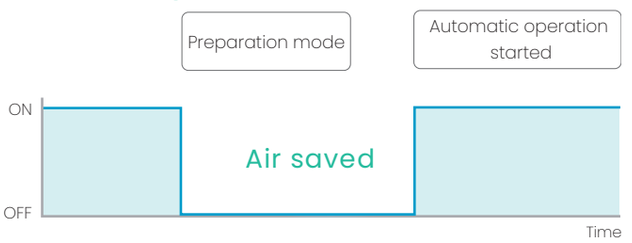


Air purge control function

Spindle air purging is shut off when the preset time has elapsed, thereby greatly reducing air consumption during standby.



Air purge OFF during setup or non-operation, and air purge ON during coolant discharge or machine operation

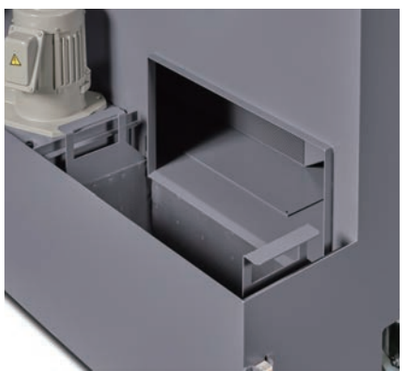


Eco II

“Eco II”, which supports customers’ efforts to save power, provides visibility into the power consumption, CO2 emissions, and reduction effects for each function. It facilitates efforts to reduce power consumption.

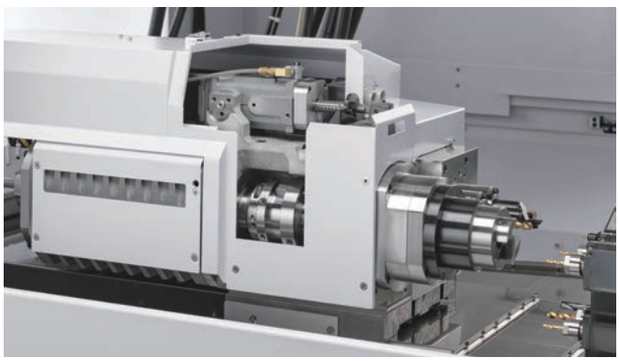
Improved chip disposal and workpiece collection capability

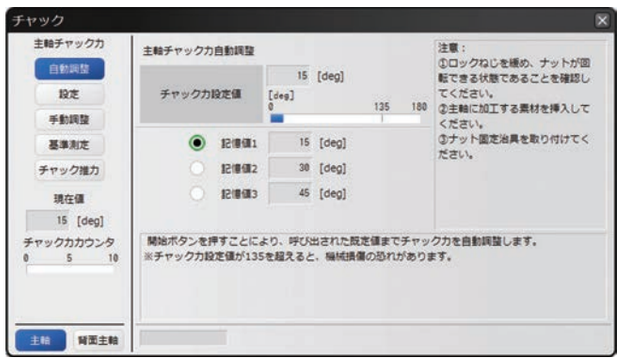
A design focusing on the flow of chips improves chip disposal performance. In addition, the width of the workpiece conveyor has been increased to 70 mm to improve the workpiece collection capability.



Automatic chucking force adjustment function

The angle of the chucking force adjustment nut of the spindle or back spindle can be saved after adjusting the chucking force. Anyone can easily reproduce the chucking force by calling the saved value.





Switching between guide bushing type and guide bushing-less type

The guide bushing can be fitted and removed in a short time and in a simple operation. The L32 is an automatic lathe that can play two roles in a single machine: it can be used as a regular guide bushing type automatic lathe when machining long thin workpieces, and as a guide bushing-less type machine when using cold drawn material and when aiming to leave short remnant bars.

Guide bushing-less type

Guide bushing type

Automatic in-machine measurement

Supports the stable production of workpieces by using the measurement results to determine whether workpieces are defective or not so that defective products can be avoided or excluded by correcting the workpiece coordinate system or stopping operation in an alarm status.

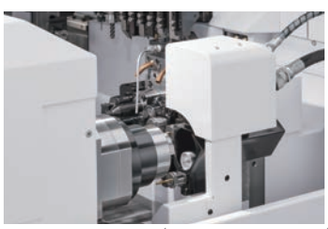
Optional support for bar stock up to ∅38 mm

Supply of bar stock up to ∅38 mm is also supported as an option. The machining length per chucking is 320 mm, the same as the standard specifications. A wide range of workpieces can be machined.

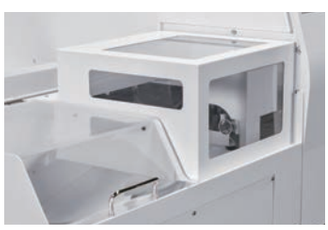
Loader and unloader

The loader and unloader contribute to automation and labor savings by machining of formed materials, preventing dents and transferring workpieces to the next process.

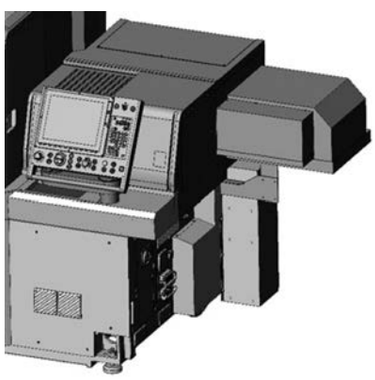
Product unloader (collection with hand)
EN940000



Product unloader (collection with basket)
EN940000+EN94A000



Product receiver shelf
(long workpiece device/unloader)
EN961000



Loader
EN941000

ATC (Automatic Tool Changer)

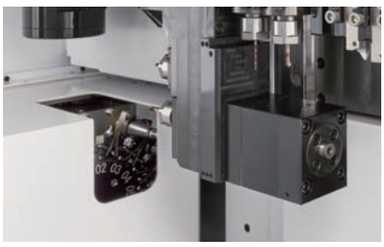
Citizen's unique, compactly designed B-axis ATC tooling system is incorporated in the gang tool post to enable use of a total of 13 B-axis tools, comprising 12 ATC tools for front machining and one tool built into the tooling system.

In addition to the capability for machining complex parts like medical parts, the ATC unit/tooling system provides an environment where the tool setting for machining several types of workpieces can be completed in a single setup.

In addition to B-axis machining, the ATC tooling can also be used in a wide range of applications such as those with cross machining/end face hole machining and slitting/hobbing, utilizing a wealth of tool variations.

A 2.2 kW motor used for the gang tool spindle. This gives rotary tools high torque and high speed performance.

During cutting using the B axis



Magazine

During B-axis tool change

ATC tools

Tool presetter

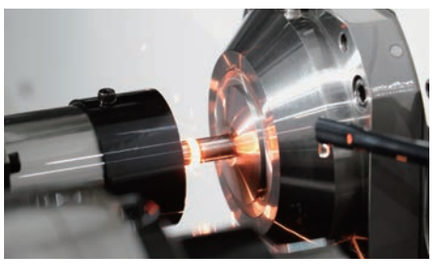
Specifications

ATC tooling maximum spindle speed	12,000 min^{-1}
Motor output	2.2 kW
Tool holder type	JBS-15T
B-axis tool storage capacity	12 (magazine) + 1 (built-in)

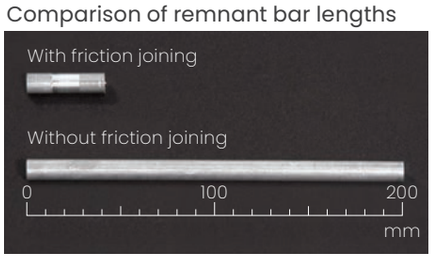
Total number of tools mountable on machine	35 tools maximum (B-axis tools included)
Tool change time (chip to chip)	4 sec
Maximum tool outer diameter	∅ 30 mm
Maximum tool gripping diameter	∅ 10 mm (ER16)

Remnant bar reducing function (option for types VIII, IX, X, XII and XIIB5)

A new function that reduces the "unmachinable material that had to be left" that was an issue for many years with sliding headstock type automatic lathes. This new, original technology from Citizen makes it possible to join a remnant bar to a new bar by "friction joining" and machine it in the same way as a new bar, and firm clamping of the material allows the application of optimal joining pressure to avoid slippage during the friction joining to achieve good joining quality. Remnant bars can be reduced to about one fifth of the conventional 200 mm to 300 mm. Utilizing material to the maximum extent greatly helps to reduce environmental impact and reduce costs in machining, particularly of high added value materials.



Comparison of remnant bar lengths



Machining Videos

Clamping device specifications

Applicable models	L32-2M8, L32-2M9, L32-2M10, L32-2M12, L32-2M12B5
Maximum joining diameter	∅25 mm
Maximum joinable remnant bar length	300 mm
Chuck type	FC925-M
Maximum chuck thrust resistance	10 kN
Mounted position	T23 (opposite tool post)

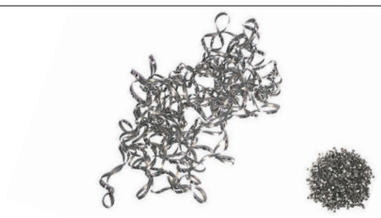
Comparison of remnant bar lengths

Item	Case 1		Case 2	
	Standard specification machine	Machine with remnant bar reducing function	Standard specification machine	Machine with remnant bar reducing function
Model	L32			
Bar length (mm)	2,500		2,000	
Bar diameter (mm)	20		16	
Workpiece length (mm)	100		120	
Cut-off tool width (mm)	2.0		2.0	
Cycle time (seconds)	90.0		120.0	
Number of machinable workpieces (per bar)	22	24 (+2 workpieces, +9.1%)	14	16 (+2 workpieces, +14.3%)
Remnant bar length (mm)	256	52 (-204mm, -79.7%)	292	48 (-244mm, -83.6%)
Production count (products/month)	15,000	15,000	10,000	10,000
Number of bars (per month)	682	625 (-57 bars, -8.4%)	715	625 (-90 bars, -12.5%)

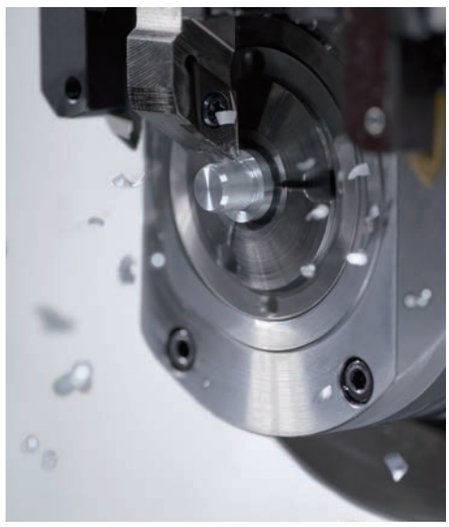
* These values are based on estimations and the actual reduction effect depends on the conditions. Also note that the remnant bar reduction effect cannot be guaranteed.

LFV (low-frequency vibration cutting) technology

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



Chips generated by conventional cutting　Chips with LFV



LFV* is a technology for performing machining while vibrating the X 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 and the machining of difficult-to-cut materials. Citizen's original technology realizes simultaneous 4-axis LFV machining. To improve cycle times, the maximum spindle speed for LFV machining with the back spindle has been increased to 6,140 min-1 and the maximum frequency to 51.2 Hz.

LFV mode 1

When you want to thoroughly break up chips

Method where the number of vibrations per revolution of the workpiece is specified

CG Videos　Machining Videos

LFV mode 2

When a surface speed is required, such as when machining thin workpieces or small-diameter deep holes

Method where the amount of workpiece rotation per vibration is specified

CG Videos　Machining Videos

LFV mode 3

When you want to break up chips in thread cutting

Method where machining is performed while changing the vibration timing every thread cutting pass

CG Videos　Machining Videos

Note 1　LFV machining is supported on the Z1, X1, X2 and Z2 axes.
Note 2　LFV machining cannot be performed with the Y axis.
Note 3　For LFV machining with rotary tools, the "LFV function" and "rotary tool feed per revolution" options are required.

CIToolingSystem

CIToolingSystem

CITIZEN Machinery's Quick Tool Change System "CIToolingSystem" Speed up tool changes without using wedges or bolts.
The tool layout remains the same, reducing the time spent on setups, ensuring tool nose position repeatability, and improving rigidity during machining.

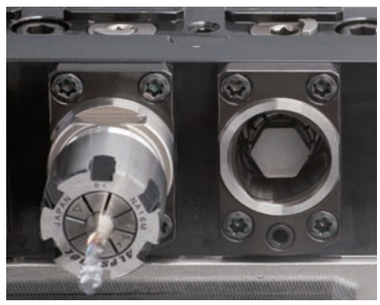
Videos

Time Shortened

With its unique coupling structure, the quick tool change function is achieved by only half-turning the wrench when removing or mounting a tool.
The tool change time is reduced by approximately 80% for reliable tool changes.

Repeatability

The two-face-constraint clamp unit with a polygon taper shank delivers a strong clamping force.
When mounting and dismounting, a high repeatability of ±2 μm is achieved in the radial, center, and longitudinal directions.

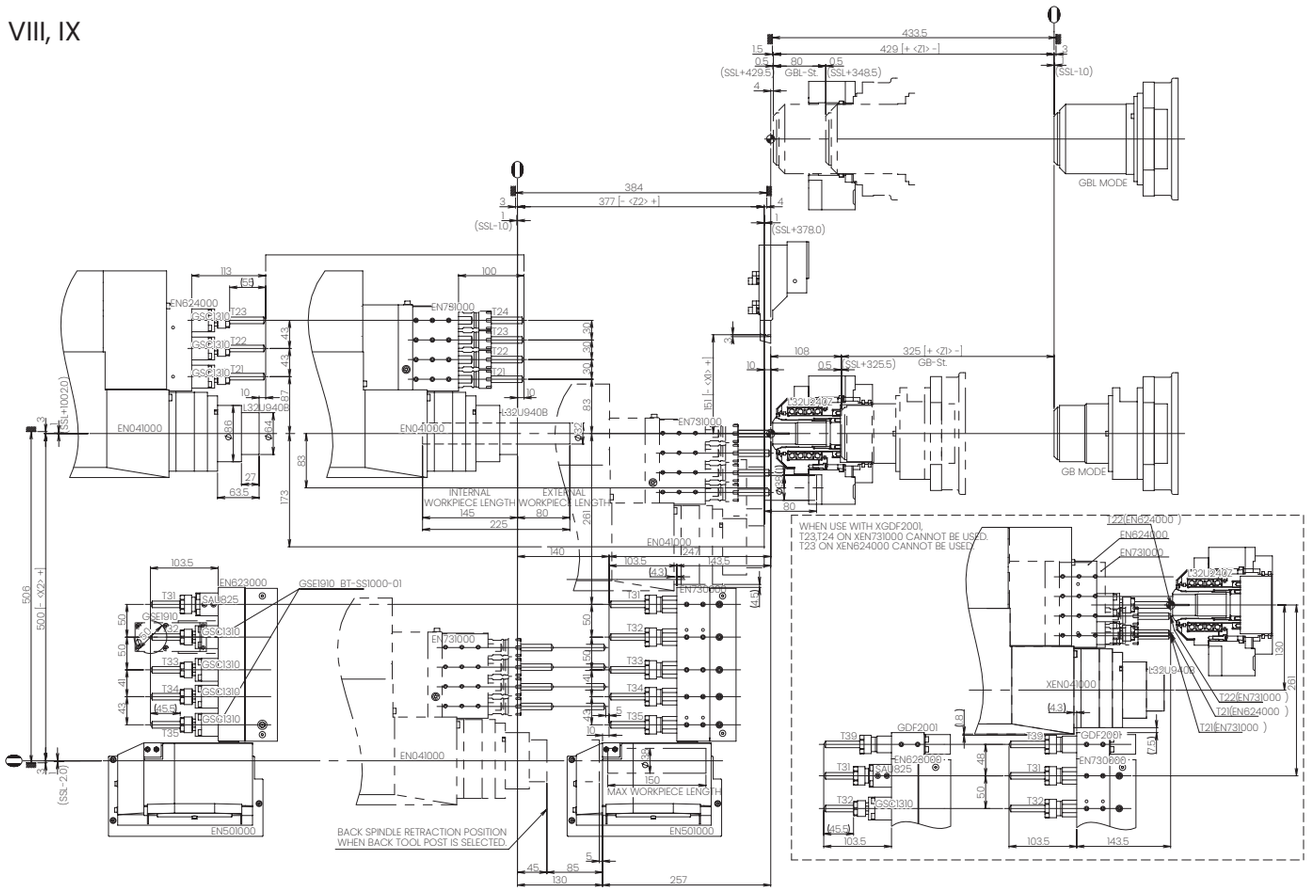


High Rigidity

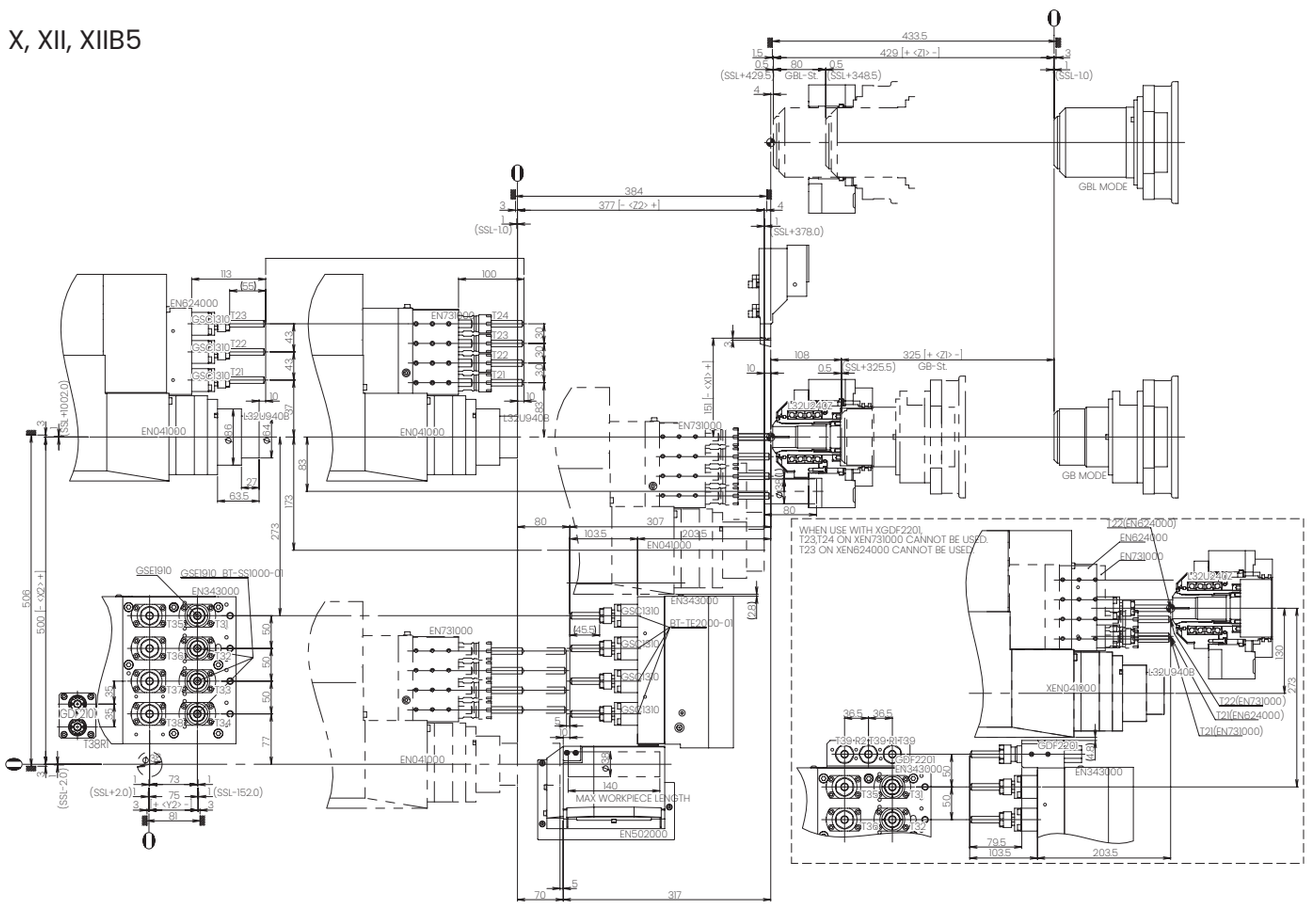
The same size as a 12 x 12 tool holder, but high rigidity is assured.
This reduces chattering at high loads, prolongs tool life, and stabilizes workpiece quality.

Stroke Diagrams

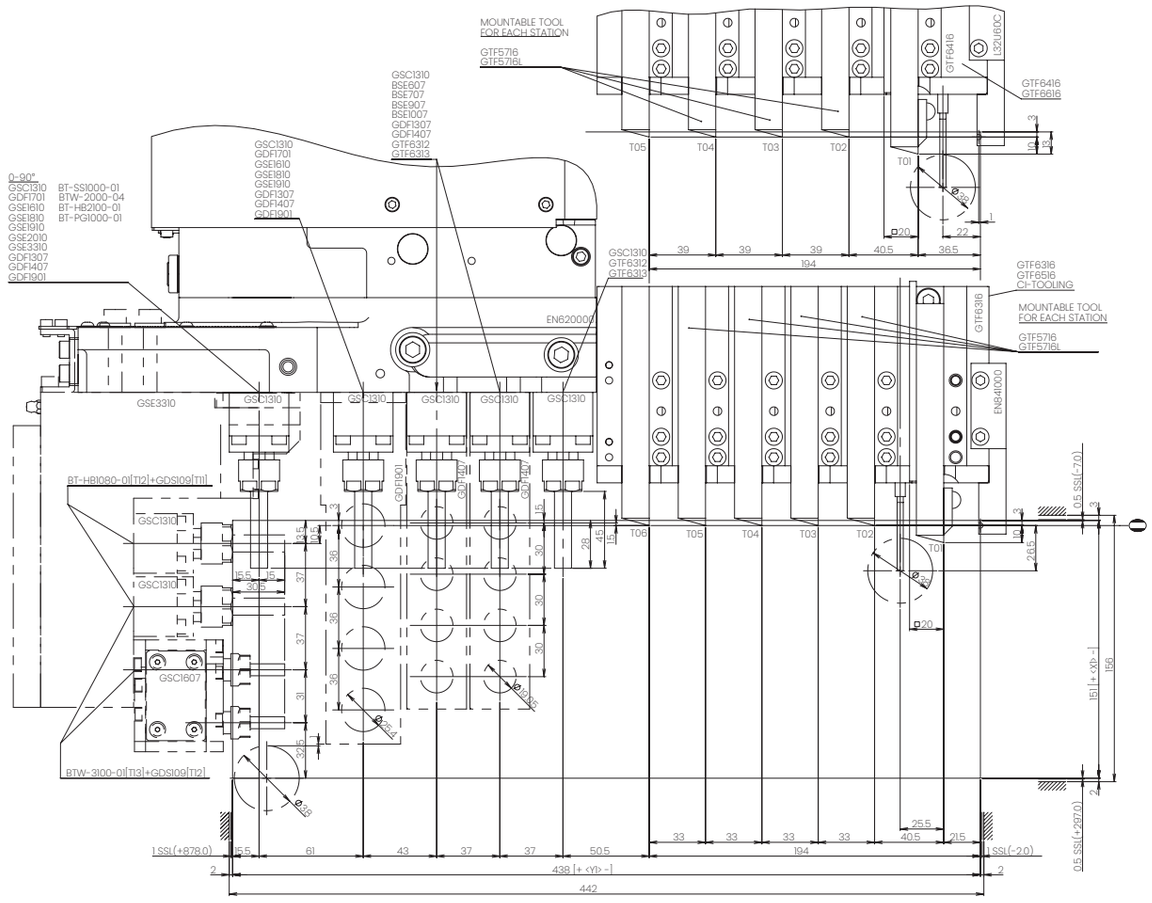
VIII, IX



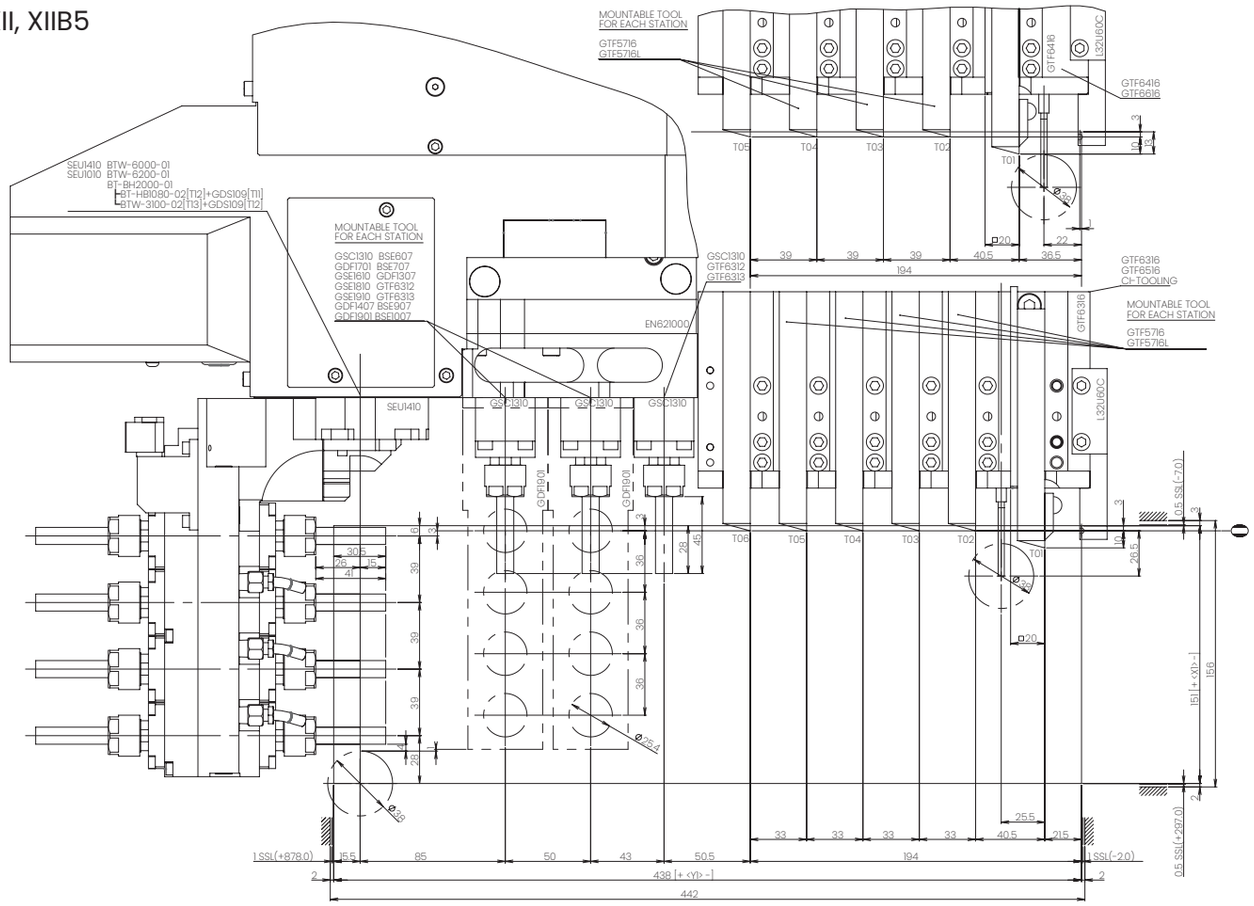
X, XII, XIIB5



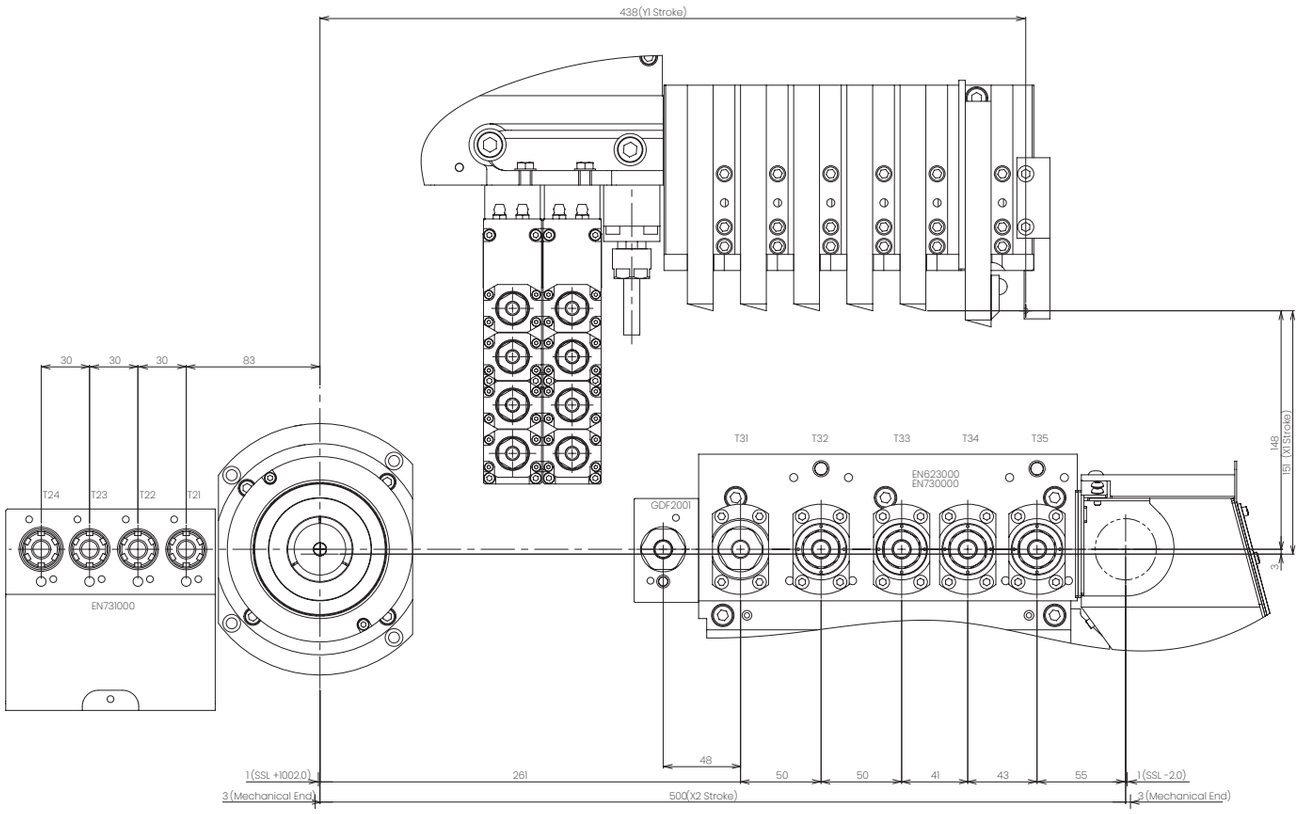
VIII, X



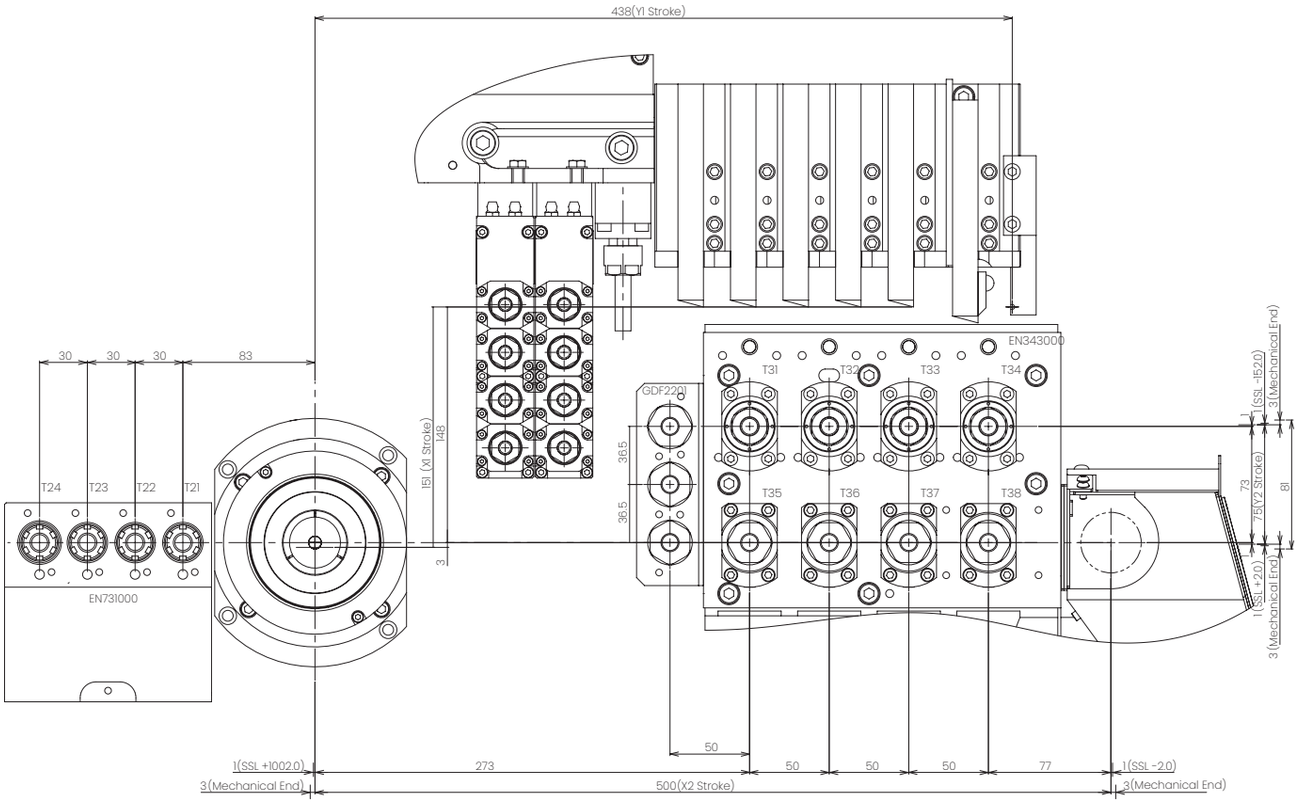
IX, XII, XIIB5



VIII, IX

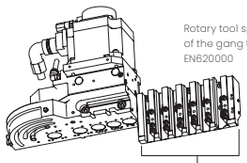


X, XII, XIIB5

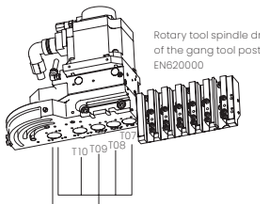


Tooling Diagrams

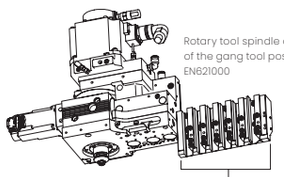
■ For gang tool post



Rotary tool spindle drive device
of the gang tool post
EN620000

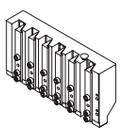


Rotary tool spindle drive device
of the gang tool post
EN620000

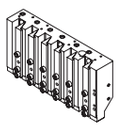


Rotary tool spindle drive device
of the gang tool post
EN621000

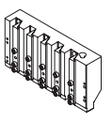
Tool holder



6-tool holder
GTF6316
[□16][□5/8"]

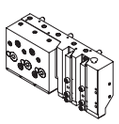


Internal coolant supply type
6-tool holder
GTF6516
[□16][□5/8"]



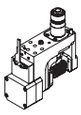
5-tool holder
GTF6416
[□16][□5/8"]

Internal coolant supply type
5-tool holder
GTF6616
[□16][□5/8"]

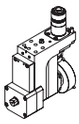


Internal coolant supply type tool holde
(2 turning tools + 3 CIToolingSystem tools)
CTF1132+CTF1032
[□16][□5/8"]
[PSC32]

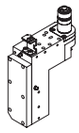
Rotary tool



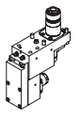
Hobbing spindle
BT-HB2100-01
EN620000用



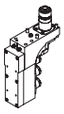
Polygon spindle
BT-PG1000-01
EN620000用



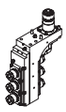
3-tool cross machining/
end face drilling spindle
GSE3310
Inner dia. ø31



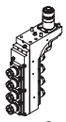
End-face drilling spindle
(1-tool)
GSE1910
[ER16][AR16]
T08, T09



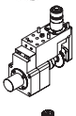
End face drilling spindle
(3-tool)
GSE1610
[ER16][AR16]
T08, T09



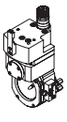
End face drilling spindle
(3-tool on both ends)
GSE1810
[ER16][AR16]
T08, T09



End face drilling spindle
(4-tool on both ends)
GSE2010
[ER16][AR16]
T11

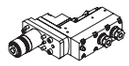


Slitting spindle
BT-SSI000-01
For EN620000
T11

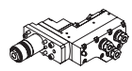


Thread whirling unit
BTW-2000-04
For EN620000
T11

Outer diameter milling spindle
GSC1310
[ER16][AR16]



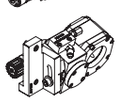
End face drilling spindle
(2-tool on both ends)
GSE3907
[ER11][AR11]



End face drilling spindle
(3-tool on both ends)
GSE4007
[ER11][AR11]

Idle gear unit
GSD109

Hobbing spindle
BT-HB1080-01

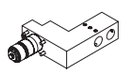


Thread whirling unit
BTW-3100-01

Outer diameter milling spindle
(2-tool)
GSC1607
[ER11][AR11]

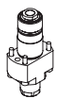
1-tool shift tool holder
GTF6312
[□12]

1-tool shift tool holder
GTF6313
[□13]

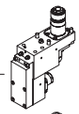


2-tool vertical sleeve holder
GDF508
[Sleeve dia. ϕ19.05]

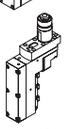
Rotary tool



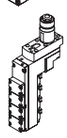
Outer diameter
milling spindle
GSC1310
[ER16][AR16]



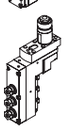
End-face drilling spindle
(1-tool)
GSE1910
[ER16][AR16]
T10, T11



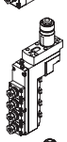
End face drilling spindle
(3-tool)
BSE607
[ER11][AR11]
T08, T09



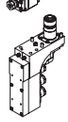
End face drilling spindle
(4-tool)
BSE907
[ER11][AR11]
T08, T09



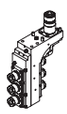
End face drilling spindle
(3-tool on both ends)
BSE707
[ER11][AR11]
T08, T09



End face drilling spindle
(4-tool on both ends)
BSE1007
[ER11][AR11]
T08, T09

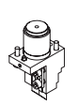


End face drilling spindle
(3-tool)
GSE1610
[ER16][AR16]
T10, T11

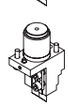


End face drilling spindle
(3-tool on both ends)
GSE1810
[ER16][AR16]
T10, T11

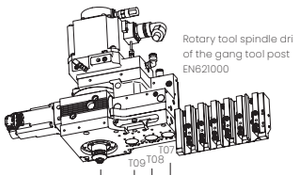
1-tool holder



1-tool shift tool holder
GTF6312
[□12]
T07 - T09



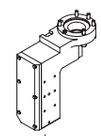
1-tool shift tool holder
GTF6313
[□13]
T07 - T09



Rotary tool spindle drive device of the gang tool post
EN621000

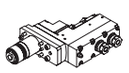
T07 T09 T08

Rotary tool

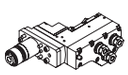


3-tool cross machining/ end face drilling spindle
BT-BH2000-01
Inner dia. ø31
For EN621000

Outer diameter milling spindle
GSC1310
[ER16][AR16]

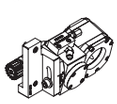


End face drilling spindle
(2-tool on both ends)
GSE3907
[ER11][AR11]



End face drilling spindle
(3-tool on both ends)
GSE4007
[ER11][AR11]

Idle gear unit
GSD109

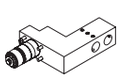


Thread whirling unit
BTW-3100-01

Outer diameter milling spindle
(2-tool)
GSC1607
[ER11][AR11]

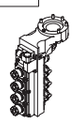
1-tool shift tool holder
GTF6312
[□12]

1-tool shift tool holder
GTF6313
[□13]



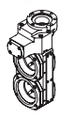
2-tool vertical sleeve holder
GDF508
[Sleeve dia. ϕ19.05]

Rotary tool

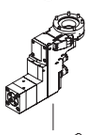


Drilling spindle
(4-tool on both ends)
SEU1410
[ER16][AR16]
For EN621000

Thread tooling unit
BTW-6000-01
For EN621000



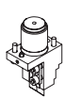
Thread tooling unit (2-tool)
BTW-6200-01
For EN621000



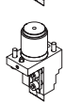
ATC spindle (2-tool at front)
SEU1010
[ER16][AR16]
For EN621000

Tool holder (JBS-15T)
GDS610
[ER16][AR16]

1-tool holder

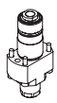


1-tool shift tool holder
GTF6312
[□12]
T7

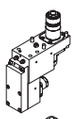


1-tool shift tool holder
GTF6313
[□13]
T7

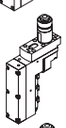
Rotary tool



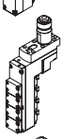
Outer diameter milling spindle
GSC1310
[ER16][AR16]
T07 - T09



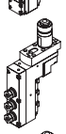
End-face drilling spindle
(1-tool)
GSE1910
[ER16][AR16]
T08, T09



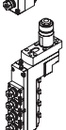
End face drilling spindle
(3-tool)
BSE607
[ER11][AR11]
T08, T09



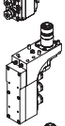
End-face drilling spindle
(4-tool)
BSE907
[ER11][AR11]
T08, T09



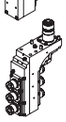
End face drilling spindle
(3-tool on both ends)
BSE707
[ER11][AR11]
T08, T09



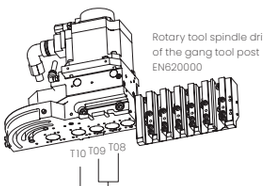
End face drilling spindle
(4-tool on both ends)
BSE1007
[ER11][AR11]
T08, T09



End face drilling spindle
(3-tool)
GSE1610
[ER16][AR16]
T08, T09



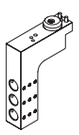
End face drilling spindle
(3-tool on both ends)
GSE1810
[ER16][AR16]
T08, T09



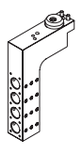
Rotary tool spindle drive device of the gang tool post
EN620000

T10 T09 T08

Sleeve holder ϕ19.05

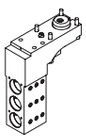


3 vertical sleeve holder
GDF1207
[Sleeve dia. ϕ19.05]
T08, T09

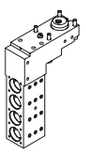


4 vertical sleeve holder
GDF1407
[Sleeve dia. ϕ19.05]
T08, T09

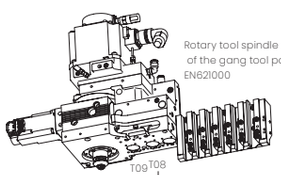
Sleeve holder ϕ25.4



3 vertical sleeve holder
GDF1701
[Sleeve dia. ϕ25.4]
T10



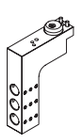
4 vertical sleeve holder
GDF1901
[Sleeve dia. ϕ25.4]
T10



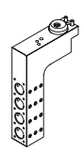
Rotary tool spindle drive device of the gang tool post
EN621000

T09 T08

Sleeve holder ϕ19.05

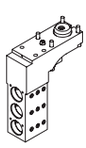


3 vertical sleeve holder
GDF1207
[Sleeve dia. ϕ19.05]
T08, T09

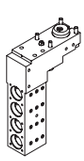


4 vertical sleeve holder
GDF1407
[Sleeve dia. ϕ19.05]
T08, T09

Sleeve holder ϕ25.4



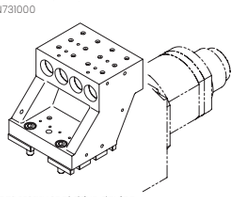
3 vertical sleeve holder
GDF1701
[Sleeve dia. ϕ25.4]
T08, T09



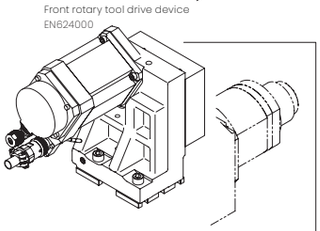
4 vertical sleeve holder
GDF1901
[Sleeve dia. ϕ25.4]
T08, T09

■ For front machining

Front 4-spindle holder
[Sleeve dia. ϕ25.4]
EN731000



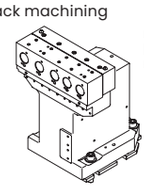
Front rotary tool drive device
EN624000



Rotary tool

Outer diameter milling spindle
GSC1310
[ER16][AR16]

■ For back machining



Back 5-spindle holder
[Sleeve dia. ϕ25.4]
EN730000

Back rotary tool drive device
EN623000

T31 T32 T33 T34 T35

Rotary tool

End-face milling spindle
GSC1310
[ER16][AR16]

Slitting spindle
GSE1910
[ER16][AR16]
T32, T35

Slitting spindle
BT-SSI000-01
[ER20][AR20]
T32, T35

Slitting spindle
EN343000

Rotary tool

End-face milling spindle
GSC1310
[ER16][AR16]

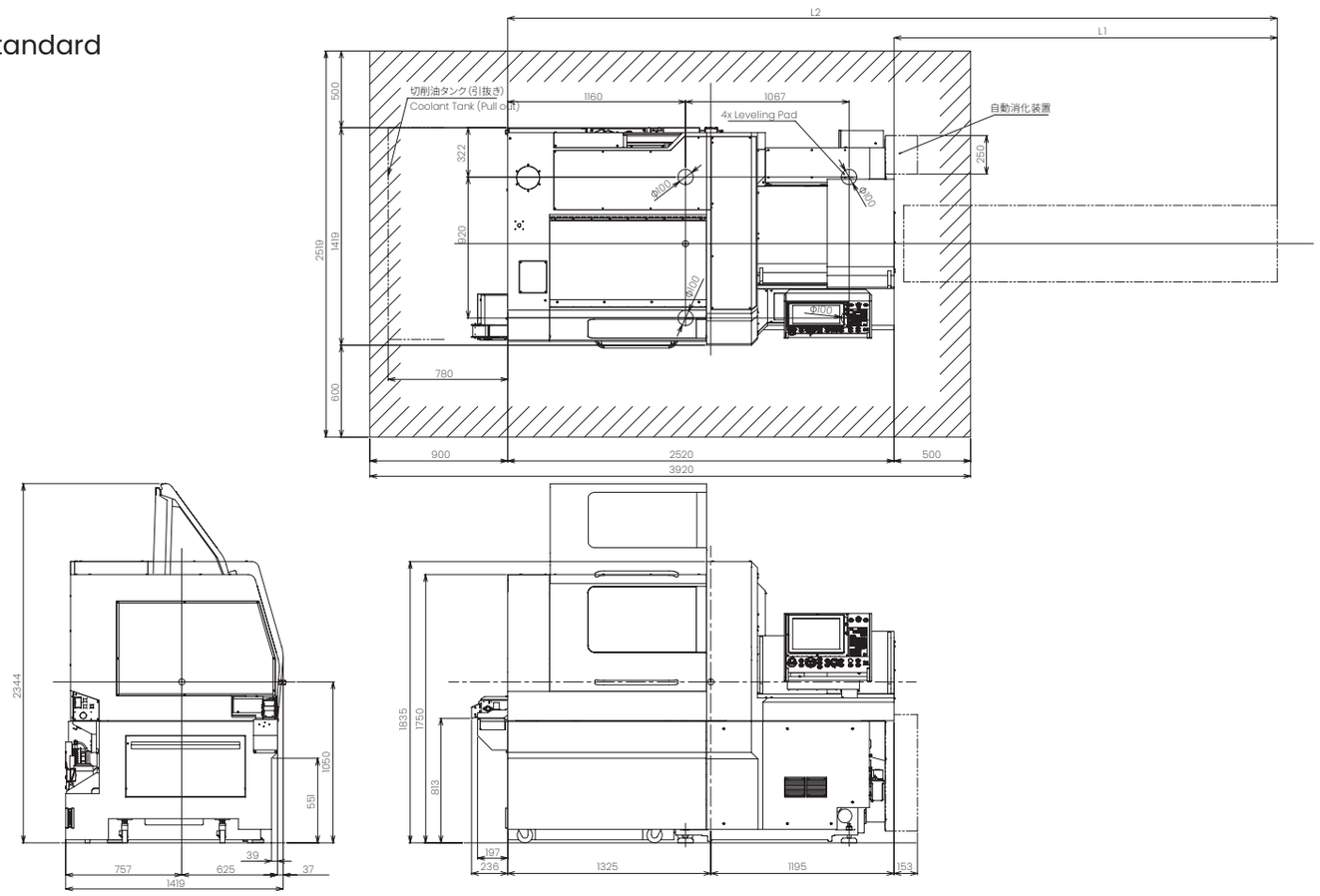
Slitting spindle
GSE1910
[ER16][AR16]

Slitting spindle
BT-SSI000-01
[ER20][AR20]

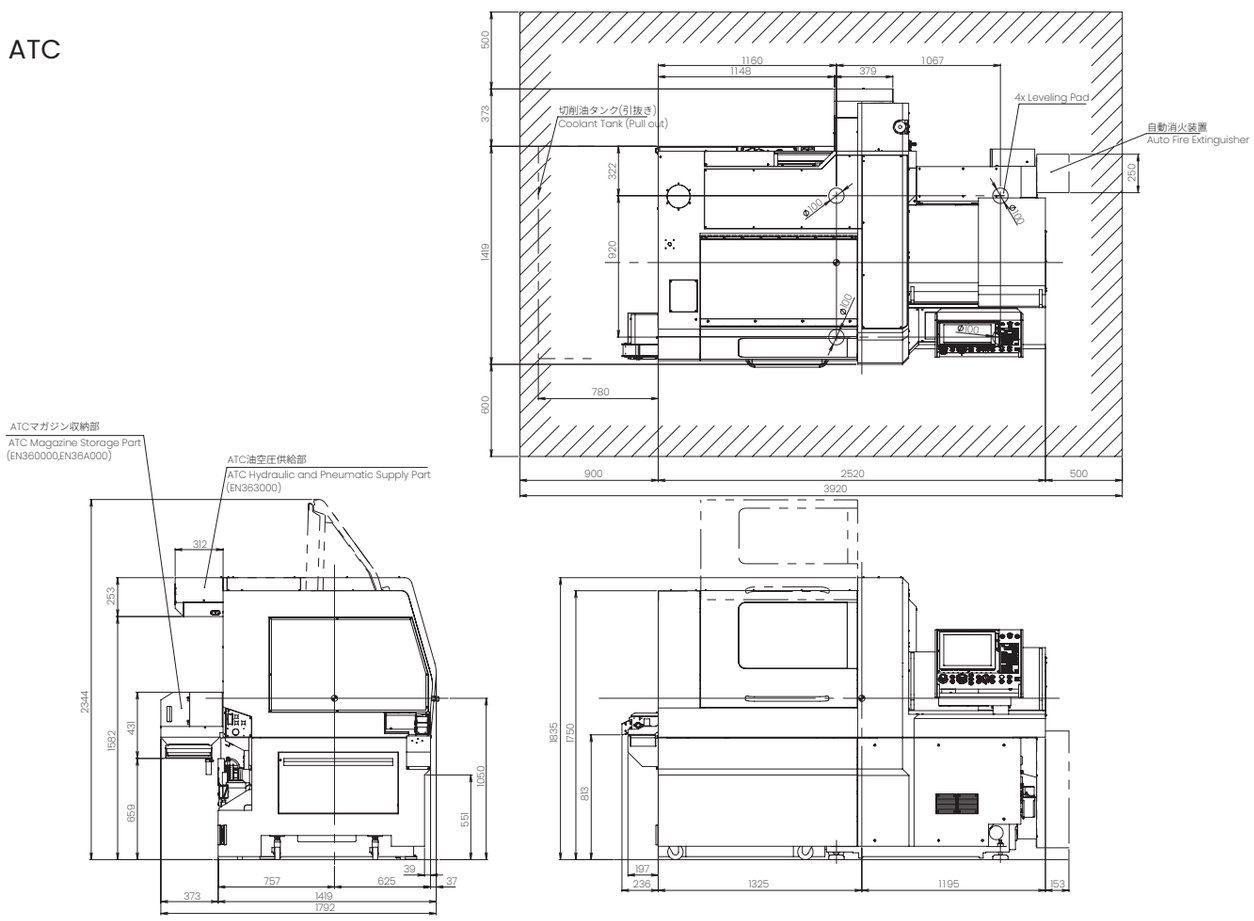
End-face drilling spindle (2-tool)
BT-TE2000-01
[ER16][AR16]

External view

Standard



ATC



Machine Specifications

Item	L32 - 2M8	L32 - 2M10	L32 - 2M12	L32 - 2M12B5
Max. machining diameter (D)	ø32 mm (ø38 mm OP)			
Max. machining length (L)	GB: 320 mm / 1 Chuck, GBL: 80 mm			
Max. front drilling diameter	ø12 mm			
Max. front tapping diameter	M12 (cutting tap)			
Spindle through-hole diameter	ø39 mm			
Spindle speed	Max.8,000 min^{-1}			
Max. chuck diameter for the back spindle	ø32 mm (ø38 mm OP)			
Max. collectable product length	80 mm			
Max. workpiece protrusion length of back spindle	80 mm	65 mm		
Max. collectable product length	150 mm	140 mm		
Max. drilling diameter in back machining	ø10 mm			
Max. tapping diameter in back machining	M10 (cutting tap)			
Back spindle speed	Max. 8,000 min^{-1}			
Rotary tools on the gang tool post				
Max. drilling diameter	ø10 mm			
Max. tapping diameter	M8 (cutting tap)			
Spindle speed	Max. 6,000 min^{-1} (rated speed: 4,500 min^{-1})			
	S3 high-power motor specifications: Max9,000 min^{-1} (rated speed: 9,000 min^{-1}) (OP)			
Back rotary tool				
Max. drilling diameter	OP	ø8 mm		
Max. tapping diameter	OP	M6 (cutting tap)		
Spindle speed	OP	Max. 6,000 min^{-1} (rated speed: 3,000 min^{-1})		
Rotary tool on the opposite tool post (optional)				
Max. drilling diameter	ø8 mm			
Max. tapping diameter	M6 (cutting tap)			
Spindle speed	Max. 6,000 min^{-1} (rated speed: 3,000 min^{-1})			
Max. number of mountable tools	48	40	53	56
Turning tools on the gang tool post	6	6	6	6
Rotary tools on the gang tool post	33	25	33	25
Front drilling tool	4	4	4	4
Back drilling tool	6	6	12	12
Tool size				
Turning tool	ø16 mm ×130 mm (Cut-off, 20 mm)			
Sleeve	ø25.4 mm			
Chuck/ bushing				
Front spindle collet chuck	FC081-M (FC251-M: ø38 mm)			
Back spindle collet chuck	FC081-M (FC251-M: ø38 mm)			
Rotary tool collet chuck	ER11, ER16			
Chuck for drill sleeve	ER11, ER16			
Guide bushing	FG531-M (FG581-M: ø38 mm)			
Rapid feed rate				
X1, Y1, Z1, X2, Z2 axes	32 m / min			
Y2 axis	-	24 m / min		
Motor				
For front spindle drive	5.5/ 7.5/ 7.5 kW (Continuous/40%ED/10%ED ratings)			
For back spindle drive	3.7/ 5.5 kW (Continuous/40% ED rating)			
For driving rotary tools on the gang tool post	1.0 kW			
	S3 high-power motor specifications:2.2 kW (OP)			
For front rotary tool drive (optional)	1.0 kW			
For back rotary tool drive (optional)	1.0 kW			
For coolant	0.4 kW			
For lubrication oil	0.003 kW			
Rated power consumption	16.9 kVA			
Load operation average power consumption	10.0 kVA			
Total load current	71.2 A			
Main breaker capacity	100 A			
Power supply voltage	AC 200V ± 10%			
Pneumatic device Required pressure	0.5 MPa			
Centre height	1,050 mm			
Machine body dimensions	W3,246 × D1, 438 × H1,835 mm			
Mass	3,500 kg			

Main Standard Accessory Devices	
Spindle chucking device	Back spindle chucking device
Rotary tool spindle drive device of the gang tool post	Back rotary tool drive device (X, XII, XIIB5)
Rotary guide bushing drive unit	Cut-off tool breakage detector
Coolant tank (with level detector)	Central lubrication device (with level detector)
Air-driven back spindle knock-out device	Machine relocation detector
Spindle cooling device	Automatic fire extinguisher
Workpiece conveyor	

Special Accessories	
Knock-out device for through-hole workpieces	Motor-driven back spindle knock-out device
Rotary guide bushing device	Long workpiece device
Unloader	Servo-driven chucking device
Opposite tool post rotary tool drive device	Back rotary tool drive device (VIII, IX)
Chip conveyor	Medium-pressure coolant device
High-pressure coolant device	Coolant flow rate detector
3-color signal tower	Servo-driven chucking device
Loader	LFV
ATC unit	Extended coolant tank unit
Automatic in-machine measurement	CIToolingSystem

Standard NC Functions	
CINCOM SYSTEM M850LUC-V Product of Mitsubishi Electric: XIIB5	
CINCOM SYSTEM M820LUC-V Product of Mitsubishi Electric: VIII, IX, X, XII	
15-inch XGA touch panel	rogram storage capacity: 1200 m (480 kB)
Tool offset pairs: 99 pairs	Product counter: max. 8 digits
User disk space: 100 MB	Preparation functions
Operating time display	Machine operation information display
B-axis control function	Back machining program skip function
Interference check	Collision detection function
Spindle speed fluctuation detection function	Spindle constant surface speed control function
Automatic power-off function	Spindle 1° indexing function
On-machine program check function	Tool nose radius compensation function
ECO II function	Corner chamfering/ Corner rounding
Multiple repetitive cycle for turning	USB slot and SD card slot
Automatic chucking force adjustment function	Chucking force monitoring function (servomotor type only)

Special Additional NC Functions	
Variable lead thread cutting	Circular thread cutting
3D chamfering function	Geometric command function
Spindle synchronised function	Spindle C-axis function
Milling interpolation function	Back spindle 1° indexing function
Back spindle C-axis function	Back spindle chasing function
Canned drilling cycle	Synchronised tapping phase adjustment function
Synchronised tapping function	High-speed synchronised tapping function
Differential speed rotary tool function	Optional block skip: 9 sets
Tool life management I	Tool life management II
Program storage capacity: 240000 m (960 kB)	External memory program operation
Sub-microns command	User macro
Helical interpolation function	Inclined helical interpolation function
Inclined helical interpolation function	Polygon machining function
Hobbing function	Sub-inch specifications
Inch specifications	RS-232C connector
alkarttransfer	Tool monitoring function
Rotary tool feed per revolution	

Environmental information

Approach to environmental issues	Recycling	Indication of the material names of plastic parts	Covered in the Parts List (separate volume) *7
	Environmental management		-We have obtained ISO14001 certification. -We pursue "Green Procurement", whereby we make our purchases while prioritizing goods and services that show consideration for the environment.

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