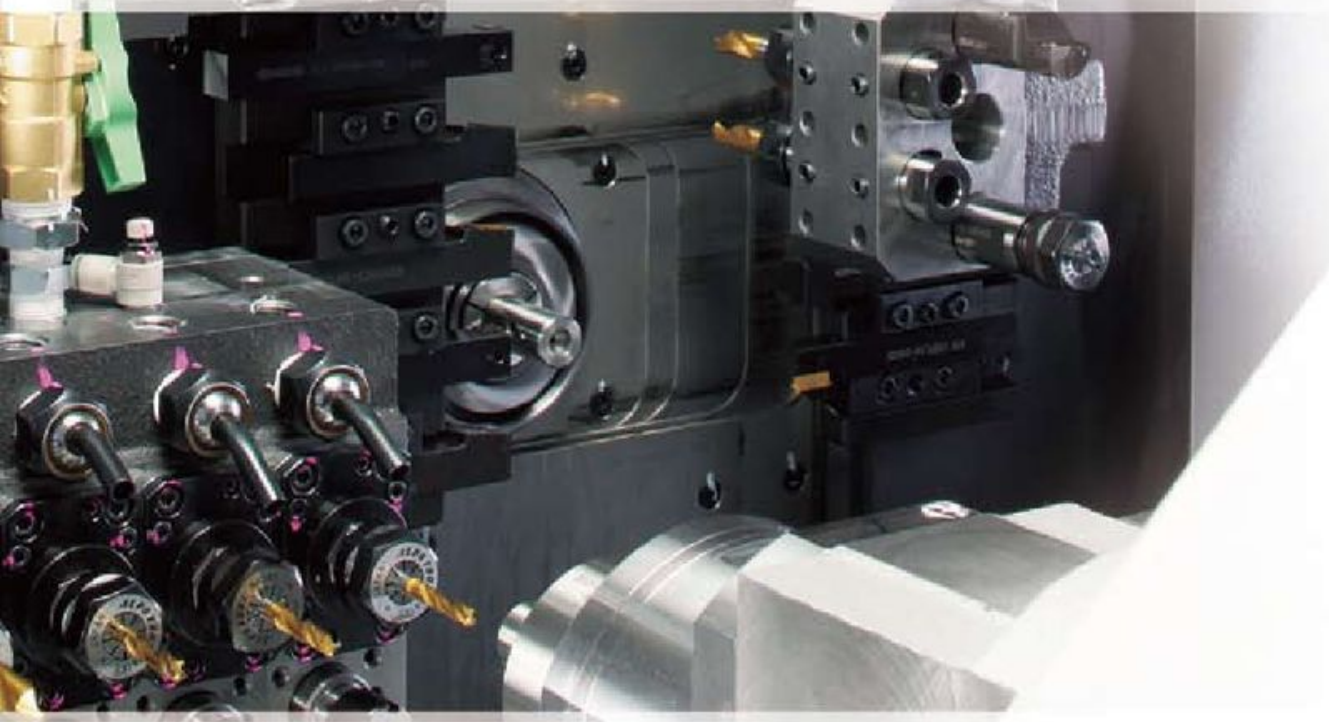
PRECISION TSUGAMI

CNC Precision Automatic Lathe

BO Series

BO73-Ⅱ/BO123-Ⅱ/BO203-Ⅱ
BO74-Ⅱ/BO124-Ⅱ/BO204-Ⅱ
BO125-Ⅱ/BO205-Ⅱ/BO126-Ⅱ/BO206-Ⅱ
BO265-Ⅱ/BO325-Ⅱ/BO265B-Ⅱ/BO325B-Ⅱ/BO266-Ⅱ/BO326-Ⅱ
BO385/BO385L



Wide selection of Swissturn lathes

Completed B series line-up and corresponding from 7mm to 38mm dia.

Enhanced variation and rich options covers diversified workpieces.

B073-II/123-II/203-II

B074-II/124-II/204-II

B0126-II/206-II

B0266-II/326-II

best suit to your application

BO125-II/205-II

BO265-II/265B-II/325-II/325B-II

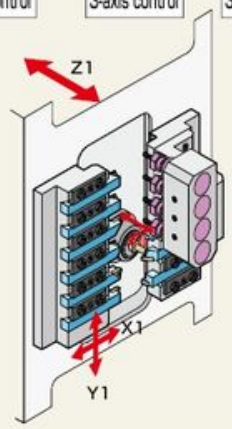
BO385

BO385L

Basic machines provide maximum profits by the minimal investment.

B073-Ⅱ/123-Ⅱ/203-Ⅱ

φ7 mm 3-axis control | φ12 mm 3-axis control | φ20 mm 3-axis control

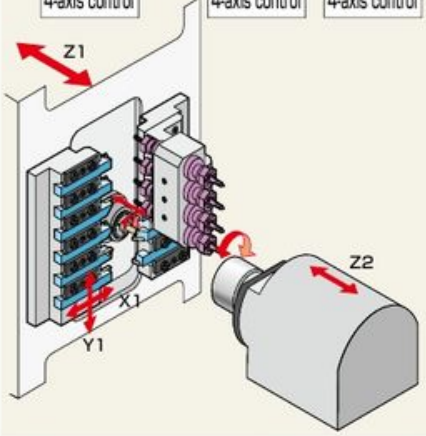


Front & back simultaneous machining		–
Back spindle		–
Cross rotary tool		OP.
Guide-bush-less kit		OP.
Direct-drive guide bushing		OP.
C-axis		OP.
Cross rigid tap		OP.
Number of tools		
OD tool storage capacity		9
Cross-rotary		OP.
Front	Fixed	4
	Rotary	–
Back	Fixed	–
	Rotary	–
Total tool storage capacity		13

Built-in back spindle

B074-Ⅱ/124-Ⅱ/204-Ⅱ

φ7 mm 4-axis control | φ12 mm 4-axis control | φ20 mm 4-axis control

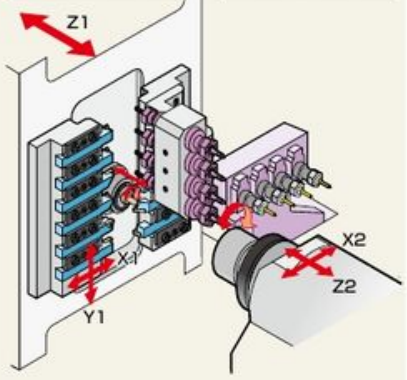


Front & back simultaneous machining		–
Back spindle		○
Cross rotary tool		OP.
Guide-bush-less kit		OP.
Direct-drive guide bushing		OP.
C-axis		OP.
Cross rigid tap		OP.
Number of tools		
OD tool storage capacity		9
Cross-rotary		OP.
Front	Fixed	4
	Rotary	–
Back	Fixed	4
	Rotary	–
Total tool storage capacity		17

Front & back simultaneous machining

B0125-Ⅱ/205-Ⅱ

φ12 mm 5-axis control | φ20 mm 5-axis control



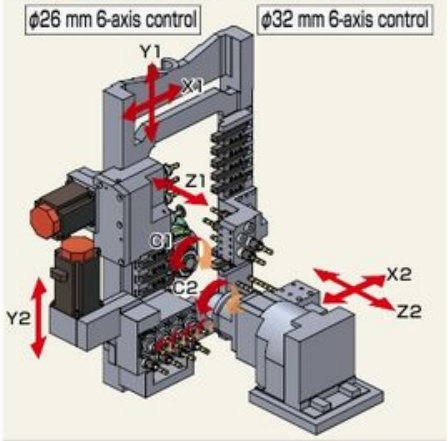
Front & back simultaneous machining		○
Back spindle		○
Cross rotary tool		OP.
Back rotary tool		OP.
Guide-bush-less kit		OP.
Direct-drive guide bushing		OP.
C-axis		OP.
Cross rigid tap		OP.
Back rigid tapping		OP.
Number of tools		
OD tool storage capacity		9
Cross-rotary		OP.
Front	Fixed	4
	Rotary	–
Back	Fixed	8, OP. (6)
	Rotary	OP. (2)
Total tool storage capacity		21

Note that the combination of C-axis and rotary tool has restrictions.

Front and back simultaneous processing including milling thanks to the Y2 axis control

B0266-Ⅱ/B0326-Ⅱ

φ26 mm 6-axis control | φ32 mm 6-axis control



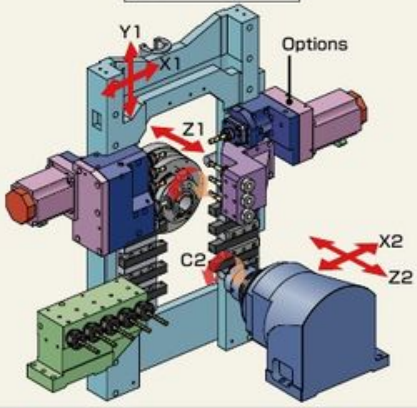
Front & back simultaneous machining		○
Back spindle		○
4-spindle cross rotary tool		○
Back rotary tool		○
Guide-bush-less kit		OP.
Direct-drive guide bushing		OP.
C-axis		○
Cross rigid tap		OP.
Back rigid tapping		OP.
Number of tools		
OD tool storage capacity		12
4-spindle cross-rotary		4
Front	Fixed	7
	Rotary	OP.
Back	Fixed	4
	Rotary	4
Total tool storage capacity		31 (Standard)

※Tool spindle (Back tool post) is optional.

Front & back simultaneous machining

B0385

φ38 mm 5-axis control



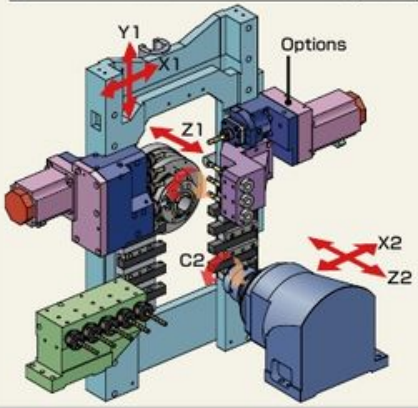
Front & back simultaneous machining		○
Back spindle		○
4-spindle cross rotary tool		○
Back rotary tool		OP.
Guide-bush-less kit		–
Direct-drive guide bushing		–
C-axis		○
Cross rigid tap		OP.
Back rigid tapping		OP.
Number of tools		
OD tool storage capacity		8
4-spindle cross-rotary		4
Front	Fixed	3
	Rotary	OP.
Back	Fixed	8
	Rotary	OP.
Total tool storage capacity		23 (Standard)

Note that the combination of C-axis and rotary tool has restrictions.

Front & back simultaneous machining

B0385L

φ38 mm 5-axis control Guide Bushless Configuration



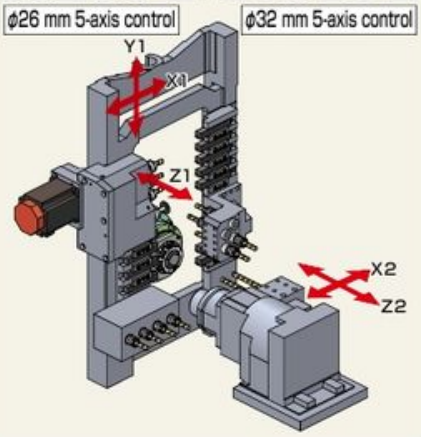
Front & back simultaneous machining		○
Back spindle		○
4-spindle cross rotary tool		○
Back rotary tool		OP.
Guide-bush-less kit		○
Direct-drive guide bushing		–
C-axis		○
Cross rigid tap		OP.
Back rigid tapping		OP.
Number of tools		
OD tool storage capacity		8
4-spindle cross-rotary		4
Front	Fixed	3
	Rotary	OP.
Back	Fixed	8
	Rotary	OP.
Total tool storage capacity		23 (Standard)

Note that the combination of C-axis and rotary tool has restrictions.

Front & back simultaneous machining

BO265-II/BO325-II

φ26 mm 5-axis control | φ32 mm 5-axis control

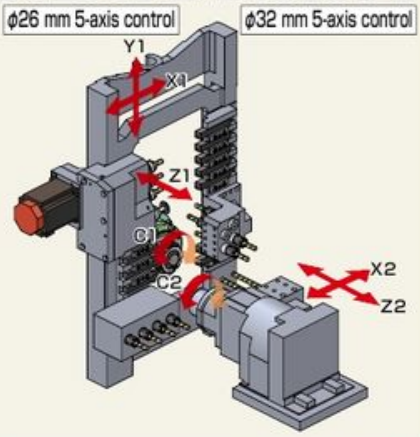


Front & back simultaneous machining		○
Back spindle		○
4-spindle cross rotary tool		○
Back rotary tool		OP.
Guide-bush-less kit		OP.
Direct-drive guide bushing		OP.
C-axis		OP.
Cross rigid tap		OP.
Back rigid tapping		OP.
Number of tools		
OD tool storage capacity		12
4-spindle cross-rotary		4
Front	Fixed	7
	Rotary	OP.
Back	Fixed	4
	Rotary	OP.
Total tool storage capacity		27 (Standard)

Front & back simultaneous machining

BO265B-II/BO325B-II

φ26 mm 5-axis control | φ32 mm 5-axis control

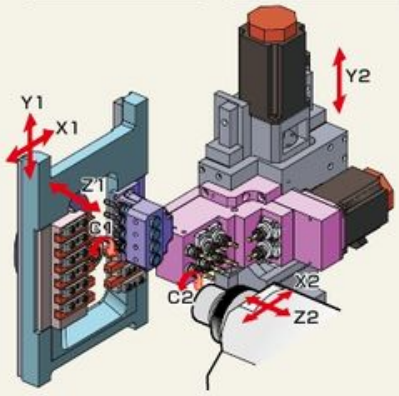


Front & back simultaneous machining		○
Back spindle		○
4-spindle cross rotary tool		○
Back rotary tool		OP.
Guide-bush-less kit		OP.
Direct-drive guide bushing		OP.
C-axis		○
Cross rigid tap		OP.
Back rigid tapping		OP.
Number of tools		
OD tool storage capacity		12
4-spindle cross-rotary		4
Front	Fixed	7
	Rotary	OP.
Back	Fixed	4
	Rotary	OP.
Total tool storage capacity		27 (Standard)

Front and back simultaneous processing including milling thanks to the Y2 axis control

BO126-II/206-II

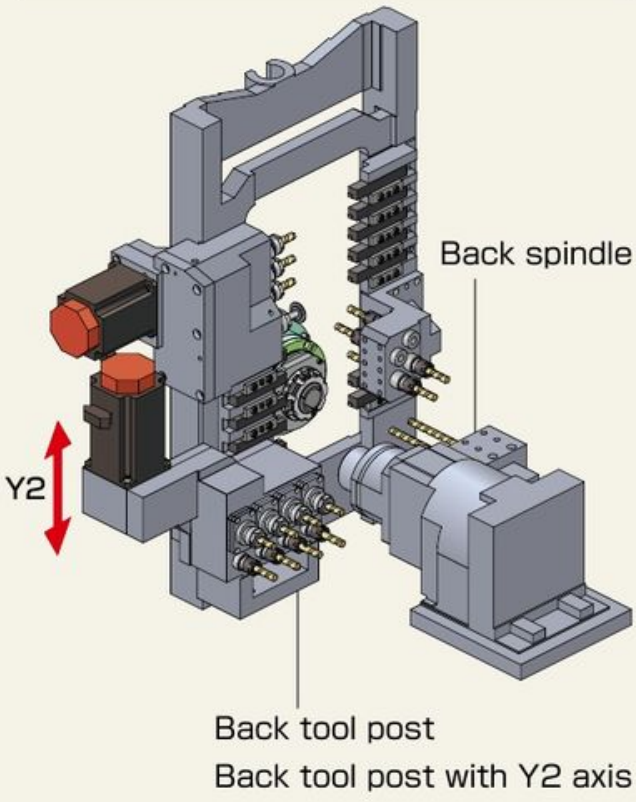
φ12 mm 6-axis control | φ20 mm 6-axis control



Front & back simultaneous machining		○
Back spindle		○
Cross rotary tool		OP.
Back rotary tool		○
Guide-bush-less kit		OP.
Direct-drive guide bushing		OP.
C-axis		○
Cross rigid tap		OP.
Back rigid tapping		OP.
Number of tools		
OD tool storage capacity		9
Cross-rotary		OP.
Front	Fixed	4
	Rotary	–
Back	Fixed	8
	Rotary	Front2/Cross2
Total tool storage capacity		25

Note that the combination of C-axis and rotary tool has restrictions.

Controllable linear axis and functions



	3-axis	4-axis	5-axis	6-axis
Back spindle	—	○	○	○
Back tool post	—	—	○	—
Back tool post with Y2 axis	—	—	—	○

3-axis control: Dedicated front side machining only, without back spindle

4-axis control: With back spindle, the parted-off side machining is possible. Tool post is mutual use.

5-axis control: By the dedicated tool post for back machining, front & back simultaneous machining is possible and more productive than 4-axis machine.

6-axis control: Thanks to the Y2 axis on back tool post, milling capability is improved on the back side machining.

B0 Series Basic structure

Page		Z axis on B.S.	X-,Z-axis on B.S.	Back tool post	Back tool post with live tool	Back tool post with Y2 axis	Guide-bush-less	NC unit (FANUC)		Guide-bush		Max. dia. x Max. length (mm)
								Oi-TD	32i-B	Carrier type	Direct-drive	0 100 200 300 350
07	B073-II	—	—	—	—	—	—	○	—	Op.	Op.	ϕ7 x 70 mm
07	B074-II	○	—	—	—	—	—	○	—	Op.	Op.	ϕ7 x 70 mm
07	B0123-II	—	—	—	—	—	Op.	○	—	Op.	Op.	ϕ12 x 210 mm
07	B0124-II	○	—	—	—	—	Op.	○	—	Op.	Op.	ϕ12 x 210 mm
07	B0125-II	—	○	○	Op.	—	Op.	○	—	Op.	Op.	ϕ12 x 210 mm
07	B0126-II	—	○	○	○	○	Op.	—	○	Op.	Op.	ϕ12 x 210 mm
07	B0203-II	—	—	—	—	—	Op.	○	—	Op.	Op.	ϕ20 x 210 mm
07	B0204-II	○	—	—	—	—	Op.	○	—	Op.	Op.	ϕ20 x 210 mm
07	B0205-II	—	○	○	Op.	—	Op.	○	—	Op.	Op.	ϕ20 x 210 mm
07	B0206-II	—	○	○	○	○	Op.	—	○	Op.	Op.	ϕ20 x 210 mm
12	B0265-II	—	○	○	Op.	—	Op.	○	—	—	Op.	ϕ26 x 320 mm
12	B0265B-II	—	○	○	Op.	—	Op.	—	○	—	Op.	ϕ26 x 320 mm
12	B0266-II	—	○	○	○	○	Op.	—	○	—	Op.	ϕ26 x 320 mm
12	B0325-II	—	○	○	Op.	—	Op.	○	—	—	Op.	ϕ32 x 320 mm
12	B0325B-II	—	○	○	Op.	—	Op.	—	○	—	Op.	ϕ32 x 320 mm
12	B0326-II	—	○	○	○	○	Op.	—	○	—	Op.	ϕ32 x 320 mm
17	B0385	—	○	○	Op.	—	—	○	—	Double Spindle (GB exclusive)		ϕ38 x 250 mm
17	B0385L	—	○	○	Op.	—	○	○	—	—	—	ϕ38 x 100 mm

Op.: Option

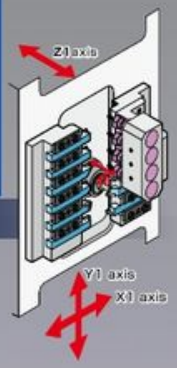
See page 17

B073-II
B0123-II
B0203-II

Basic machine

φ7 φ12 φ20

3-axis control

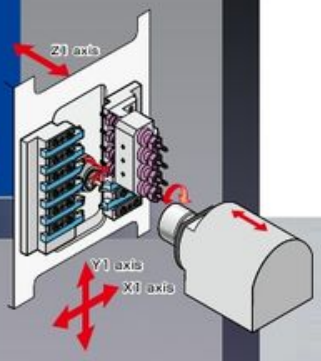


B074-II
B0124-II
B0204-II

Built-in back spindle

φ7 φ12 φ20

4-axis control

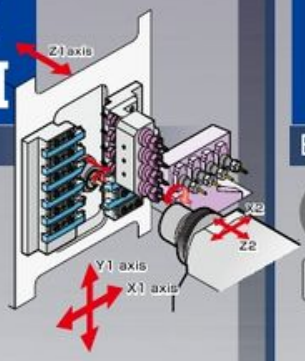


B0125-II
B0205-II

Back tool post

φ12 φ20

5-axis control

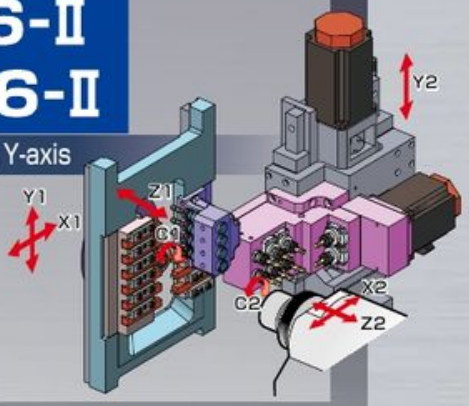


B0126-II
B0206-II

Back tool post with Y-axis

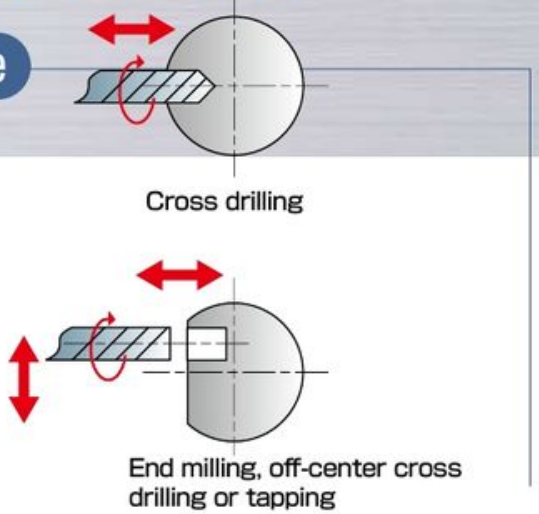
φ12 φ20

6-axis control



- Complete simultaneous machining is possible with back tool post (B0125-II/B0205-II/B0126-II/B0206-II)
- Moreover, simultaneous machining including milling is possible by adding Y-axis on the back tool post (B0126-II/B0206-II)
- Optional direct-drive rotary guide bushing provides high speed and accurate machining.
- Guide-bush type or guide-bushless type is selectable according to workpieces.
- Easy to use thanks to abundant and extensive software (Standard)
- Automatic programming system prepared as standard

Y-axis milling with cross tool spindle



B0125-Ⅱ/B0205-Ⅱ

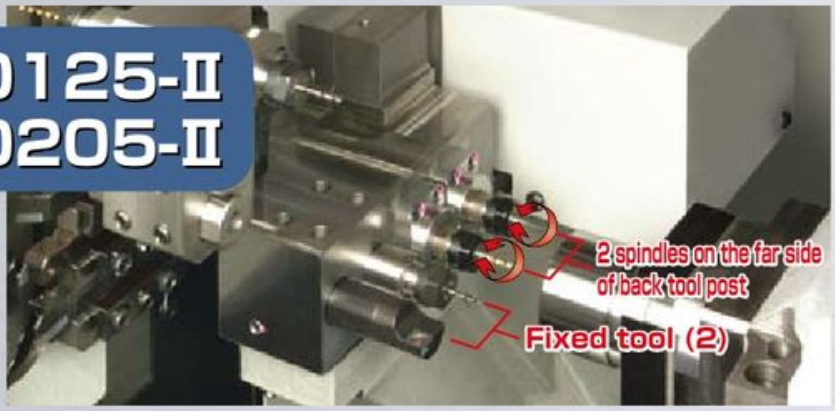
Achieving milling operation on back side with optional live tools

Back live tools

On B0125-Ⅱ/205-Ⅱ, back side off-center drilling, off-center tapping or endmilling can be overlapped with the main side machining.

Type 1: Two front drill units

B0125-Ⅱ
B0205-Ⅱ

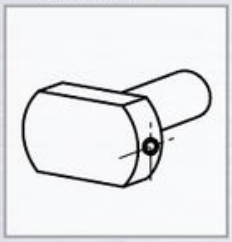


Max. speed	5,000 min^{-1}
Max. drilling dia.	φ6
Max. tapping dia.	M5 x 0.8
Motor output	0.75 kW
Applicable collet	AR11

Type 2: One front drill + One cross drill

Both-sided milling
Slotting

Cross drilling/
tappinng



Machining Patterns of back milling

Specification and restriction B0126-Ⅱ and B0206-Ⅱ do not have this restriction since the NC is 32i-B

Specification

Item	Max. speed	Max. drilling dia.	Max. tapping dia.	Motor output	Applicable collet
Specification	8,000 min^{-1}	φ6	M5	0.75 kW	AR11

	Type 1	Type 2
Live tools	Front: 2 spindles (non-modular type)	Cross: 1 spindle (modular type) (horizontal/vertical: cross/slotting) Front: 1 spindle (Non-modular type)
Fixed tool	2 tools	1 tool

B0125-Ⅱ/205-Ⅱ Restriction of combination (Take note at ordering)

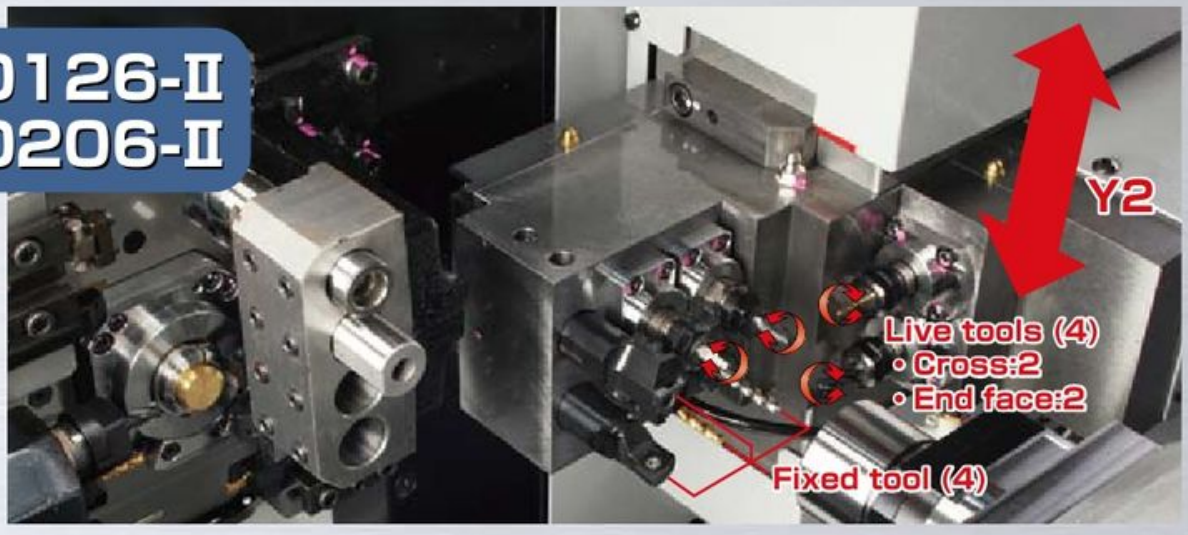
	Rotary guide bushing		Live tools		Spindle indexing	
	Direct driven	Carrier driven	Cross	Back	Main spindle	Back spindle
①	—	○	○	○	C axis	C axis
②	○	—	○	Speed command by S code / Rigid tap is invalid	C axis	C axis
③	○	—	Speed command by S code / Rigid tap is invalid	○	C axis	C axis
④*	○	—	○	○	C axis	1°, 15°
⑤*	○	—	○	○	1°, 15°	C axis

*By the optional C-axis switching function, adapting C-axis whether on the main spindle or the back spindle, such as the combinations of ④&⑤, can be selected by the soft key. After switching, be sure to shut down the NC switch once.

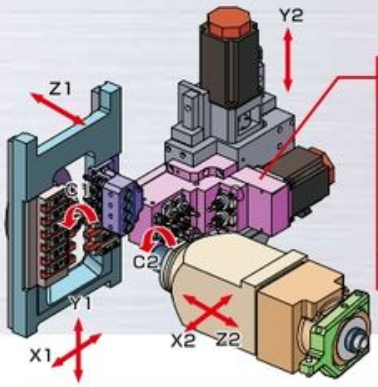
B0126-Ⅱ/B0206-Ⅱ

By adding Y-axis on the back tool post, the milling capability on the back side is improved even on the small size machines.

On B0126-Ⅱ and B0206-Ⅱ simultaneous machining including milling such as off-center drilling, off-center tapping, endmilling, or cross drilling on back side is possible by adding Y-axis on the back tool post



Machining Patterns of back milling



Back tool post

	End face	Cross
Live tool	AR11 x 2	AR11 x 2
	Max. speed: 8,000 min^{-1}	
	Non-modular type	
Fixed tool	ϕ20 x 4 holes	

Specification

Item	Max. speed	Max. drilling dia.	Max. tapping dia.	Motor output	Applicable collet
Specification	8,000 min^{-1}	ϕ6	M5	0.75 kW	AR11

Thread whirling

Spec. for whirling unit

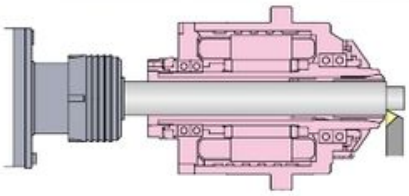
Max. machining dia.	Cutting depth	Inclined angle	Max. cutter speed	Number of OD tools
ϕ9	MAX. 2.5 mm	0° to 30°	4,000 min^{-1}	6

Spec. for one spindle cross drill

Max. drilling dia.	Max. tapping dia.	Max. speed	Applicable collet
ϕ6	M5 x 0.8	5,000 min^{-1}	AR11

Direct-drive rotary guide bushing assures increase of spindle speed.

	Max. speed	Machining length
B073/B074-II	12,000 min-1	70 mm
B0123/124/125-II	12,000 min-1	170 mm
B0203/204/205-II	10,000 min-1	170 mm



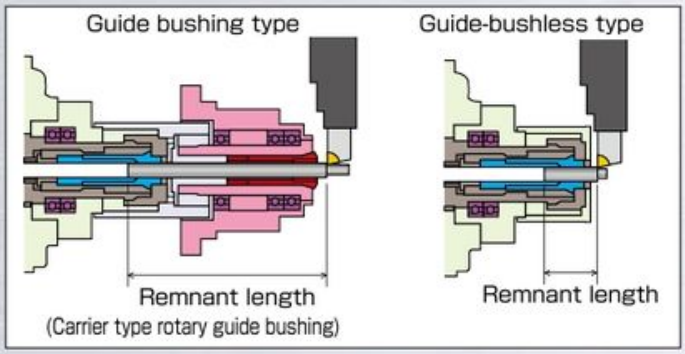
Direct-drive rotary guide bush unit

Improved geometrical accuracy, dimensional accuracy, and surface roughness with high speed and quiet operation.

The water-soluble coolant is not available.

Guide-bush type or guide-bushless type is selectable according to workpieces.

- Stationary guide bushing
- Carrier type rotary guide bushing
- Guide-bushing-less kit
- Direct-drive rotary guide bush
  - Possible to switch between the guide bushing type and guide-bushing-less type so that most suitable operation depend on the workpiece length can be chosen.
  - The spindle without a guide bushing does not require ground bar, enabling high speed and high precision machining from cold drawn bars. The shortest possible remnant length is 30 mm.



Remnant length	Carrier type rotary guide bushing	Direct-drive guide bushing	Guide-bushless
B0123/124/125-II B0203/204/205-II	180 mm	210 mm	30 mm

B073-II/B074-II

Specialized machine for miniaturizing micro precision IT-related parts Chucking bar stock dia(ϕ1 to ϕ7 mm)

Solid performance

Toggles are replaced with Tsugami's outstanding chuck operation mechanism, which has excellent response and balance characteristics. This contributes to improve roundness in high-speed machining. Ceramic ball bearings contributes to the improvement in the stable surface finish / surface roughness, and tool life in high-speed machining.

Improved operability

Clearance of the guide bushing can be adjusted from tooling zone side. The optimum work catcher for micro workpieces that can be discharged both from the back spindle side or cutting-off side is equipped as standard.

Options

Illumination lamp
A light, which illuminates tooling zone

Front discharge
An ejector ejects the workpiece from inside of the back spindle.

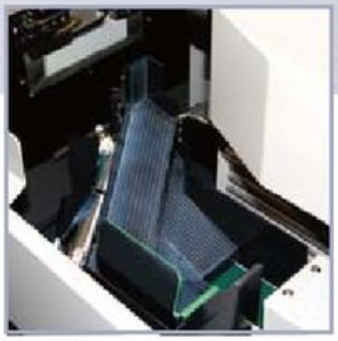
3-spindle cross drill
Y-axis milling function with cross-tool spindle. This device is used for drilling, tapping or milling from cross side with the combination of the main spindle indexing. The slitting cutter of ϕ 30 mm can be mounted on the tool position T03.

4-spindle cross drill
This device is used for drilling, tapping or milling from cross side with the combination of the main spindle indexing.
The slitting cutter of ϕ30 mm can be mounted on the tool position T03 and T05.

Stationary guide bushing
The device to install stationary guide bushing on the guide bush unit. It can correspond to various guide bushing by changing the guide bushing adapter.

Guide-bushing-less kit
When the workpiece length is short compared with the diameter of the bar stock (workpiece length/ bar stock diameter <3), "Guide-bushless Type", which is eliminating the guide bush is practical. The specification has the advantage of short remnant and the use of drawn bar.

Work conveyor
After receiving the parted-off workpiece from the main spindle or the ejected workpiece from the back spindle with a catcher, it is carried out with a conveyor to outside of the machine.

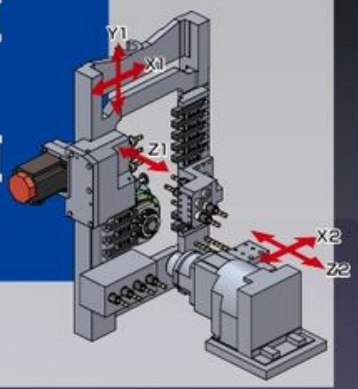


Work catcher
After receiving the parted-off workpiece from the main spindle or the ejected workpiece from the back spindle with a catcher, it is stored inside the receiving bin settled inside of the machine.

Signal indicator (Triple)
Three-color lamp lights and it informs of the state of the machine.

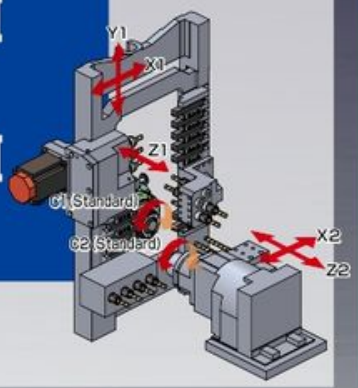
B0265-II
φ26 5-axis control

B0325-II
φ32 5-axis control



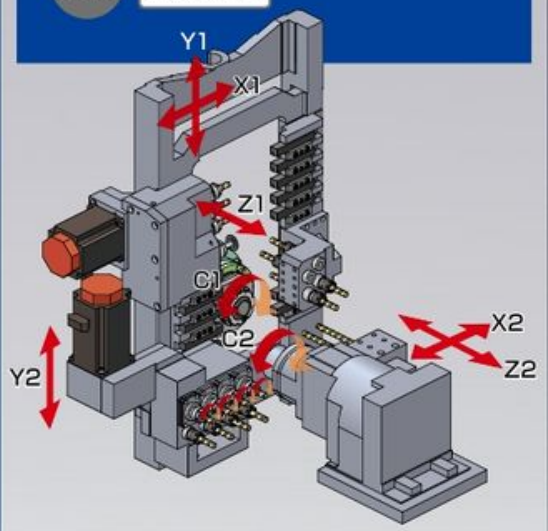
B0265B-II
φ26 5-axis control

B0325B-II
φ32 5-axis control

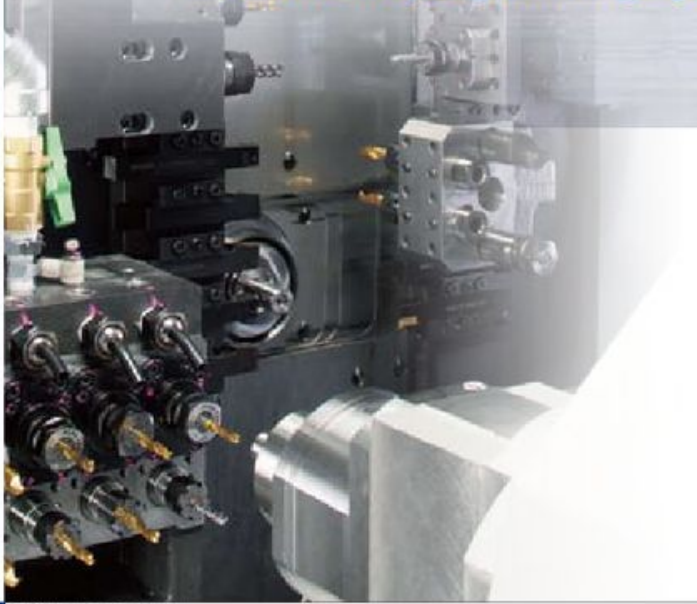


B0266-II
φ26 6-axis control

B0326-II
φ32 6-axis control

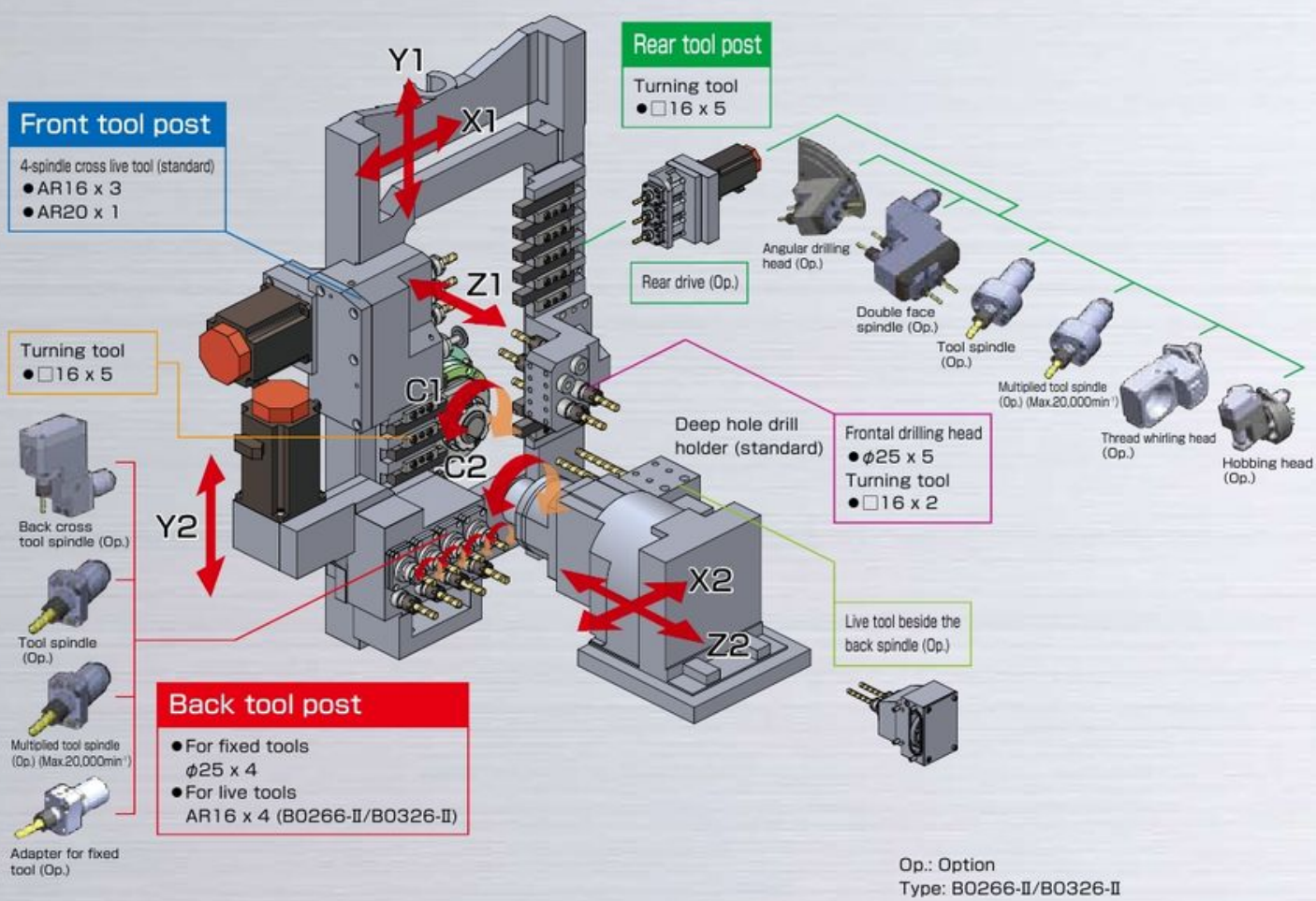


- Machine complex parts simultaneously on main and back spindles with the Y-axis tool post (B0266-II/B0326-II).
- Modular type live tools (option) for optimum allocation of machining capability.
- Beside the back spindle, additional tool post is attached. Deep hole drilling (up to 100 mm) can be realized.
  In addition, by adopting optional live tool beside the back spindle, the ability of front off-center machining is increased.
- Optional direct-drive rotary guide bushing provides high speed and accurate machining.
- Guide-bush type or guide-bushless type is selectable according to workpieces.
- Pursuing operatability thanks to enriched standard softwares
- Automatic programming system prepared as standard



Modular tooling

Various arrangement of live tools, ID holders and turning holders



Op.: Option
Type: B0266-II/B0326-II

Angular drilling head

Back cross tool spindle

Thread whirling head

On B0126-II and B0206-II simultaneous machining including milling such as off-center drilling, off-center tapping, endmilling, or cross drilling on back side is possible by adding Y-axis on the back tool post Flexibly respond to workpieces requiring complex back machining.

Live tools on rear tool post and back tool post are modular type, and optimum tool allocation is possible (option).

Rear tool post
Tool spindle
Double face spindle
Angular drilling head
Additional drill holder
Hobbing head
Thread whirling head etc.

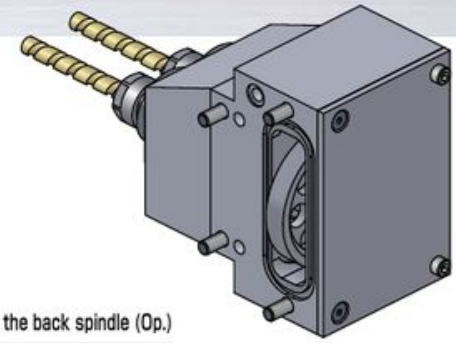
Back tool post
Tool spindle
Back cross tool spindle
Adapter for fixed tool etc.

Direct-drive rotary guide bushing (op.) realizes high speed and accurate machining. Now the unit for ϕ26 mm and ϕ32 mm are newly added on the series. Geometrical accuracy, dimensional accuracy and surface roughness are improved in quiet operation even in high speed machining. New development

	B0265-II/B0265B-II/B0266-II	B0325-II/B0325B-II/B0326-II
Max. speed	10,000 min^{-1}	8,000 min^{-1}
Max. machining length	320 mm	
Applicable guide gushing	2621-1196	2621-6216
Remnant length	250 mm	

Increasing front milling capability by the optional rotary tool beside the back spindle.

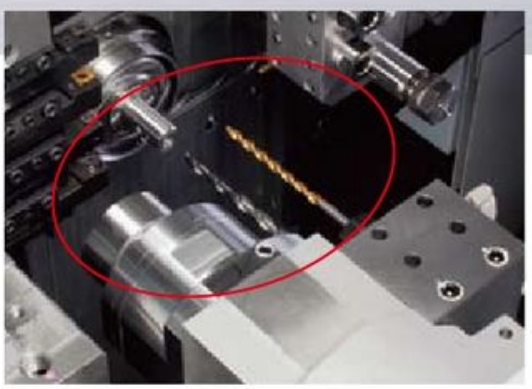
For standard specification, deep hole drilling up to 100 mm can be realized by mounting front drilling holder. New development



●Rotary tool beside the back spindle (Op.)

Max. spindle speed	8,000 min^{-1}
Applicable collet	AR16
Max. drilling dia.	ϕ8 mm
Max. tapping dia.	M6

Maximum back spindle speed of B0265-II/B0266-II is limited to 8,000 min^{-1} when the rotary tool beside the back spindle is mounted.



●Holder spec. (standard)

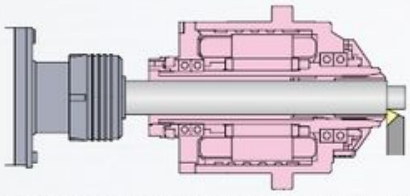
ϕ25 mm hole	2 positions
Effective machining length	100 mm

Guide bushing type or guide-bushless type is selectable according to the workpiece

- Possible to switch between the guide bushing type and guide-bushing-less type so that most suitable operation for the workpiece length can be chosen.
- Guide-bushless type does not require ground bar, enabling high speed and high precision machining from cold drawn bars.

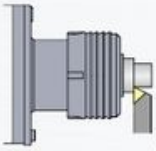
	Main spindle collet chuck	Back spindle collet chuck	Rotary guide bushing
B0265-II B0265B-II B0266-II	2601-1196	2601-1196	2621-1196
B0325-II B0325B-II B0326-II	2601-5216	2601-5216	2621-6216

Processing with guide-bush type



(Direct-drive rotary guide bush unit)

Processing with guide-bushless type



(Remnant length: 45mm)

Multiplied tool spindle (Option) Optimum for small hole drilling

	B0265-II/265B-II/266-II/325-II/325B-II/326-II
Max. spindle speed	20,000 min^{-1}
Mounting position	Back tool post
Applicable collet	AR11−φd
Parts number	3290-Y680

Multiplied tool spindle can be replaced with tool spindle on the back tool post. Possible to be replaced at the customer's site.

Tool spindle of max. speed of 20,000 min^{-1} is provided as option.

	B0265-II/265B-II/266-II/325-II/325B-II/326-II
Max. spindle speed	20,000 min^{-1}
Mounting position	Rear drive
Applicable collet	AR11−φd
Parts number	3290-Y670

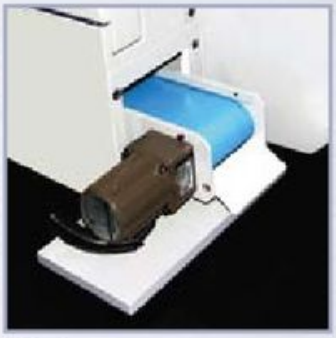
Multiplied tool spindle can be replaced with tool spindle on the rear tool post. Possible to be replaced at the customer's site.

Options

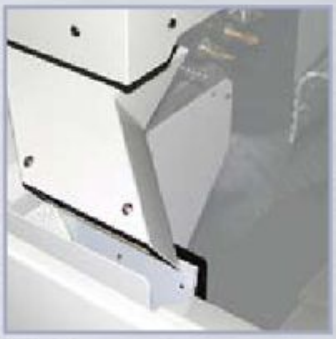
Illumination lamp
A light, which illuminates tooling zone

Direct-drive rotary guide bushing
Direct -drive rotary guide bushing realizes increase of spindle speed, improvement of accuracy and cycle time reduction on the long parts.

Rear drive (Rear tool post)
Base unit to mount the live tools on the rear tool post.



Work conveyor
After receiving the cut-off workpiece from the main spindle or the ejected workpiece from the back spindle with a catcher, it is carried out with a conveyor to outside of the machine.



Work catcher
The workpiece discharged from back spindle is collected by a catcher, and carried out to the machine right outside through work conveyor.

Back drive (Back tool post)
Base unit to mount the live tools on the back tool post.

Option restriction of C axis and live tool(B0265-II/B0325-II)

		Live tool			Index function	
Possible combination		Front cross (Equipped as standard)	Rear drive (Cross)	Back drive	Main spindle	Back spindle
Selected guide-bushless unit	①	○	○	Speed command by S code and rigid tap are invalid	C axis	C axis
	②	○	Speed command by S code and rigid tap are invalid	○	C axis	C axis
	③*	○	○	○	C axis	1°/15°
	④*	○	○	○	1°	C axis
Selected direct drive guide bush	⑤*	○	○	Speed command by S code and rigid tap are invalid	C axis	1°/15°
	⑥*	○	○	Speed command by S code and rigid tap are invalid	1°	C axis
	⑦*	○	Speed command by S code and rigid tap are invalid	○	C axis	1°/15°
	⑧*	○	Speed command by S code and rigid tap are invalid	○	1°	C axis
	⑨	○	Speed command by S code and rigid tap are invalid	Speed command by S code and rigid tap are invalid	C axis	C axis
	⑩	○	○	○	1°	1°/15°

*By the optional C-axis switching function, adapting C-axis whether on the main spindle or the back spindle, such as the combinations of ③&④, ⑤&⑥ or ⑦&⑧, can be selected by the soft key. After switching, be sure to shut down the NC switch once.

Option restriction of C axis and live tool(B0265B-II/B0266-II/B0325B-II/B0326-II)

		Live tool			Index function	
Possible combination		Front cross (Equipped as standard)	Rear drive (Cross)	Back drive	Main spindle	Back spindle
Selected guide-bushless unit	①	○	○	○	C axis	C axis
Selected direct drive guide bush	②	○	○	○	C axis	C axis

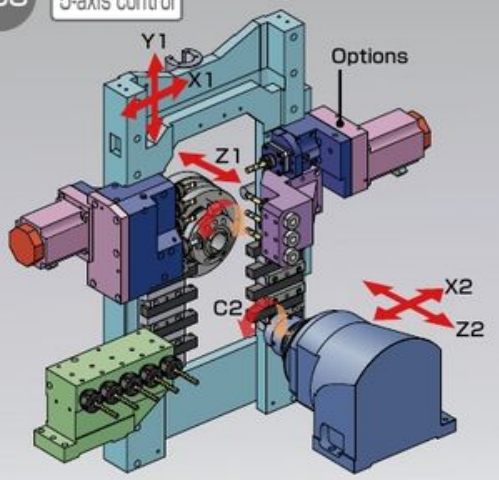
Rigid tap function

	B0265-II/B0265B-II/B0325-II/B0325B-II	B0266-II/B0326-II
Main spindle rigid tap	Standard	
Back spindle rigid tap	Standard	
Live tool rigid tap	Option("○" marked on above column can be selected.)	

B0385

Guide Bush configuration exclusively

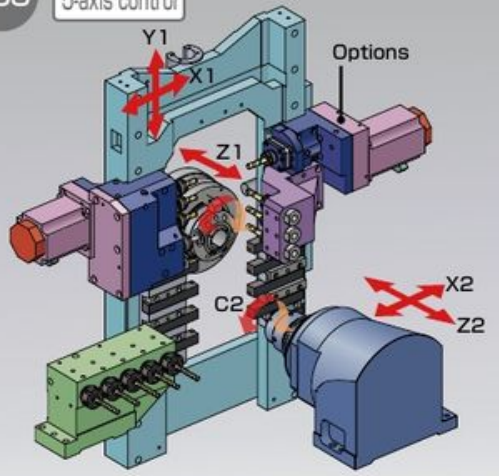
φ38 5-axis control



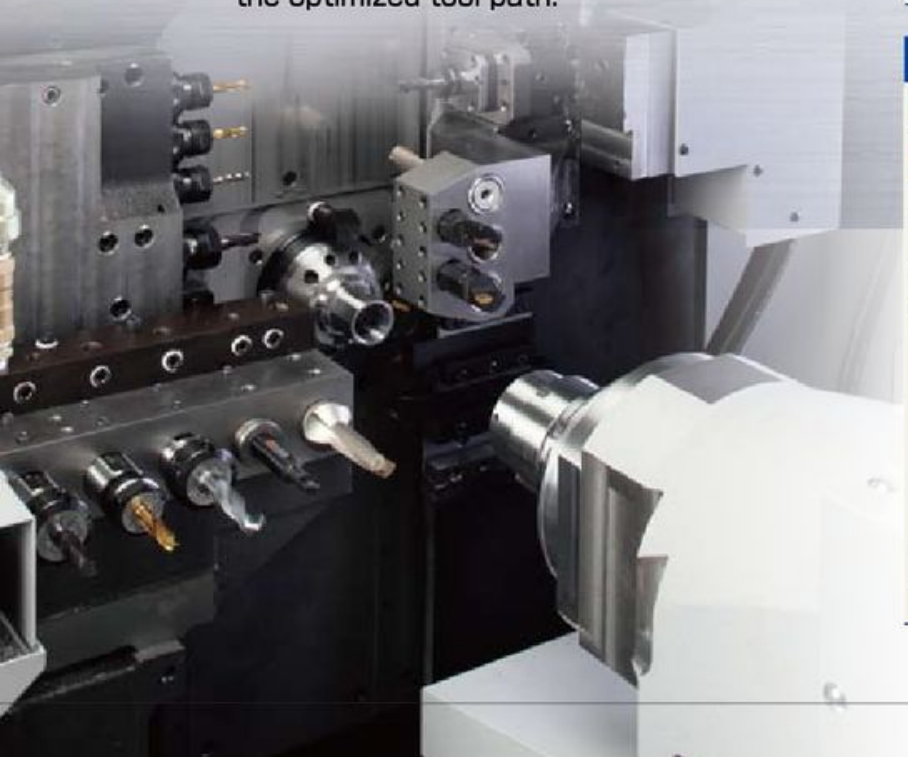
B0385L

Guide Bushless configuration exclusively

φ38 5-axis control



- Larger machining capability up to φ38 mm.
- Simultaneous machining is possible.
  Simultaneous machining by main and back spindles realizes high productivity.
- Improved simultaneous machining with Y axis live tools.
- Wide tooling zone.
  Easy set up and better chip disposal.
- Automatic programming system prepared as standard
  Minimizes tool change time and generates the optimized tool path.

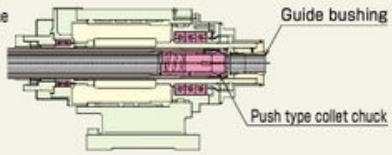


B0385 (Guide Bushing Configuration)

Equipping the Double Spindle

- TSUGAMI unique "Double Spindle" enables heavy duty machining and shortens the remnant length.
- Heavy-duty machining is enabled by the Double Spindle, and increase the productivity.
- Use of water soluble coolant eliminates the risk of fire and generates less oily smoke even during heavy duty machining.
- Short remnant length (remnant length = 150 mm + workpiece length)
- Overlap machining by main and back spindles realizes high productivity.

Structure of the Double Spindle

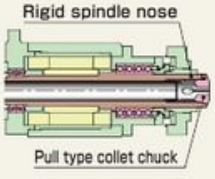


Type of spindle	Double Spindle
Max. machining length	250 mm

B0385L (Guide Bushless Configuration)

Machine a workpiece accurately which have been produced with NC lathe. Moreover, Y-axis milling is capable.

- Use of pull type collet chuck ensures stable chucking, and suitable for short length workpieces.
- Ground bar is not required (use of cold drawn bar reduces the cost).
- Shorter remnant length can reduce the material cost.

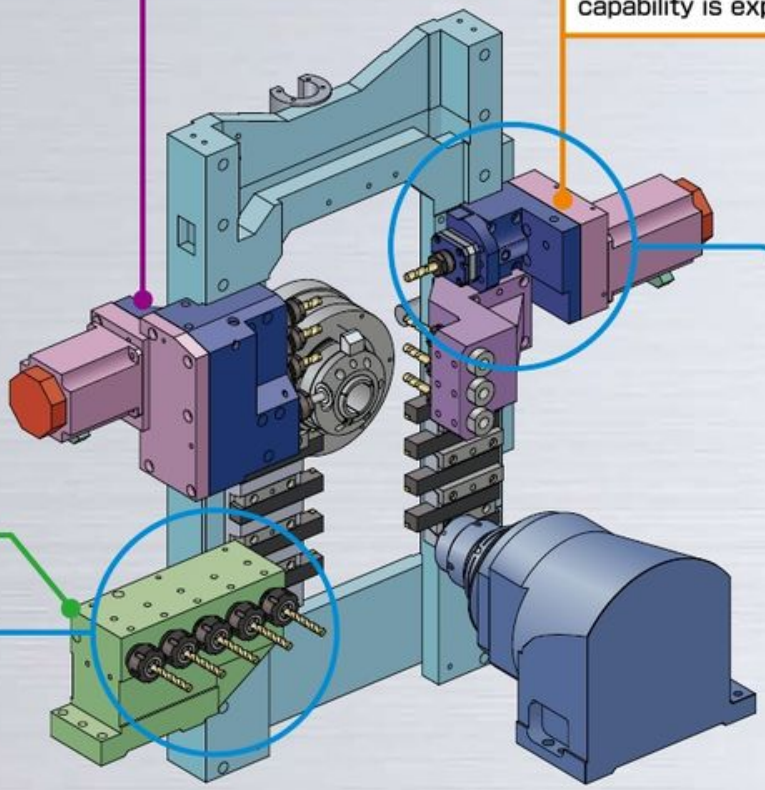


Type of spindle	Exclusive guide bushless spindle
Max. machining length	2.5D (Max. machining length: 100 mm) D: Bar dia.

Live tools on front tool post (standard)

(Optional)
By adding the live tool drive to the rear tool post, milling capability is expanded.

Fixed holder back tool post
(Standard)



Back tool post live tools (optional)

By attaching live tools such as tool spindle to the back tool post, milling capability on the back side is increased.

Back drive (back tool post)

Tool spindle

Fixed tool adapter

Rear tool post live tools (optional)

By attaching live tools to the live tool drive on the rear tool post, milling capability is increased.

Double-face spindle

Tool spindle

Combination restriction of rear-drive live tools and back-drive live tools

	Main spindle C axis	Back spindle C axis	Front tool post live tools	Rear tool post live tools (Optional)	Back tool post live tool (Optional)
Selectable combination	Standard			○	△
				△	○

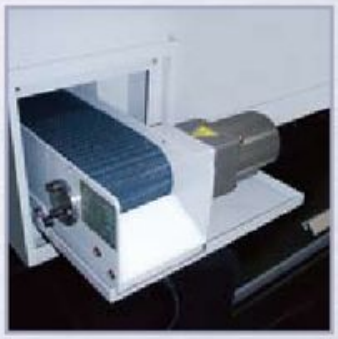
○: Speed command by S code and rigid tap is valid
△: Speed command by S code and rigid tap is invalid
} Rigid tap is optional.

Options

External illumination light
A light, which illuminates tooling zone.

Rear drive (Rear tool post)
Base unit to mount the live tools on the rear tool post.

Work catcher
The workpiece discharged from back spindle is collected by a catcher, and carried out to the machine right outside through work conveyor.



Work conveyor
After receiving the parted-off workpiece from the main spindle or the ejected workpiece from the back spindle with a catcher, it is carried out with a conveyor to outside of the machine.

Mist collector
Oily or Water-soluble mist from the cutting area can be collected, and working environment is kept cleanly.

Front discharge (Oil blow / Air blow)
An ejector ejects the workpiece from inside of the back spindle.

Coolant flow switch
When the flow rate of coolant decreases, the machine will be stopped.
The risk of fire or defective machining due to coolant shortage is limited.

Back drive (Back tool post)
Base unit to mount the live tools on the back tool post.

High pressure pump (1500 W)
When the optional M-code oil blow or workpiece front discharge unit is in use, employ this pump system together.

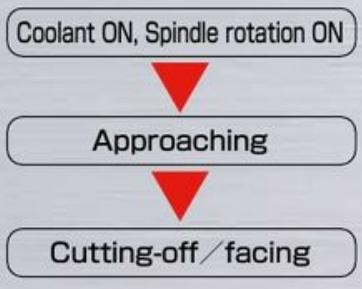
Easy-to-use software

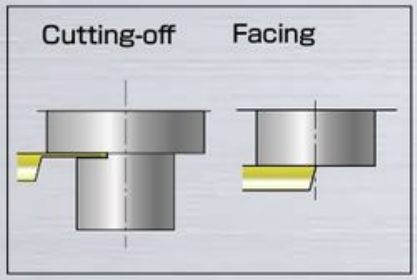
Cutting-off or facing program is simplified with minimum imputing.

Automatic cutting-off/facing

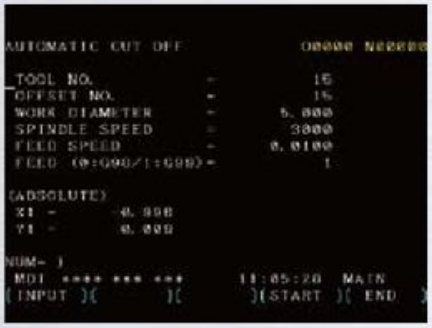
Cutting-off or facing is executed by inputting on the dedicated screen.

Inputting tool number, offset number, bar diameter, spindle speed and feedrate, and by pressing start soft key:



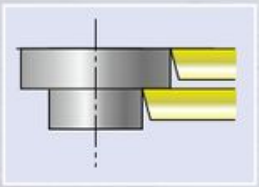


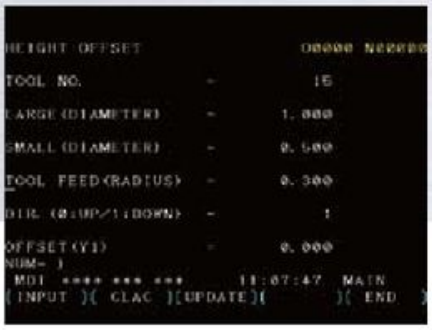
In this manner cutting-off or facing is simply executed. Moreover, same operation can be performed by the dedicated program code.



Tool-height compensation function

Execute tryout turning including bigger OD and smaller OD, and measure the both dimensions. On the dedicated screen by inputting the measured value and other data and pressing "CLAC" button, the compensation value is easily created. By pressing "UPDATE" soft key, the tool height offset data will be updated.





Rich information for the maintenance helps the effective operation

Periodical maintenance

Useful maintenance information such as amount of lubrication oil, cleaning of chuck/guide bush, or battery replacement timing is displayed, contribute to the consistent maintenance. Items or setting period can be customized, and it can be optimized.

Function setting

ON/OFF selection of various options such as work discharge, HP coolant, spindle indexing can be easily set on the dedicated screen.

C-axis selection (NC:0i-TD)

C-axis applying path can be selected by the soft key.
MAIN: C-axis is applied on the main spindle side.
BACK: C-axis is applied on the back spindle side.

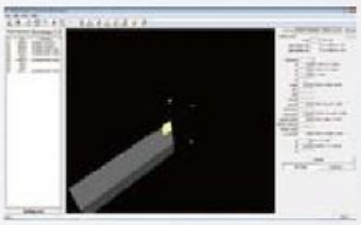
B0 series automatic programming system "Abile".

B03-IIAbile B02632-IIAbile
B04-IIAbile B06-IIAbile
B05-IIAbile B0385Abile

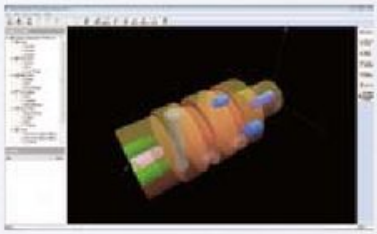
Tsugami's rich know-how such as machining processes, machining conditions, etc. are taken into the software, and any novice programmers can create standardized and high quality programs.

Creating NC program in two steps

Step 1 Tool data inputting

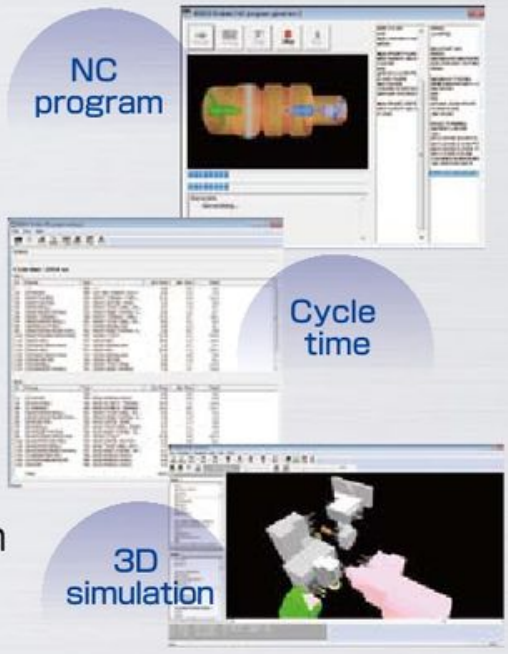


Step 2 Geometrical data inputting



Automatic generation

From program generation to simulation by simple operation



Abile [B0]Series lineup

Applicable models	B03-II Abile	B073-II/B0123-II/B0203-II/BM163-II
	B04-II Abile	B074-II/B0124-II/B0204-II/BM164-II
	B05-II Abile	B0125-II/B0205-II/B0165-II
	B06-II Abile	B0126-II/B0206-II
	B02632-II Abile	B0265-II/B02658-II/B0266-II/B0325-II/B03258-II/B0326-II
	B0385 Abile	B0385/B0385L

Hardware requirement

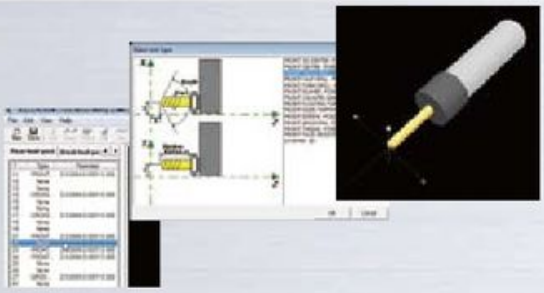
Item	Specifications
OS	Windows XP
	Windows Vista
	Windows 7
	Internet Explorer 6.0 or more and Open GL library has installed.
Computer	PC/AT compatibles (DOS/V machines)
CPU	Intel Celeron 2GHz or faster (3GHz or more recommended)
Memory	512MB or more
HDD	100MB or more free space required
CD-ROM drive	Double speed or more (Used at installation)
Display	16.77 million color bit display (Full color) Resolution: 1024 x 768 or higher

Simple inputting

Tool definition

Tool definition as like as an actual mechanical setting, inputting tool type, tool width, drill dia., setting position, etc. for each tool.

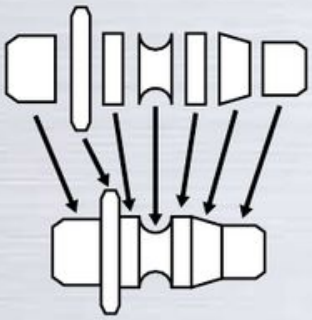
Click T number, and select the type of tool to be set. Just input simple data as tool dia. or width is enough.



Work geometry definition

No complicated operation like CAD required for work geometry definition. By building up simple shapes (building block method), geometry can be created with ease in a drastically shortened time. Even a novice can quickly learn the input method.

Building block method means dividing work shape into some blocks, and by building the block to define the work piece geometry.



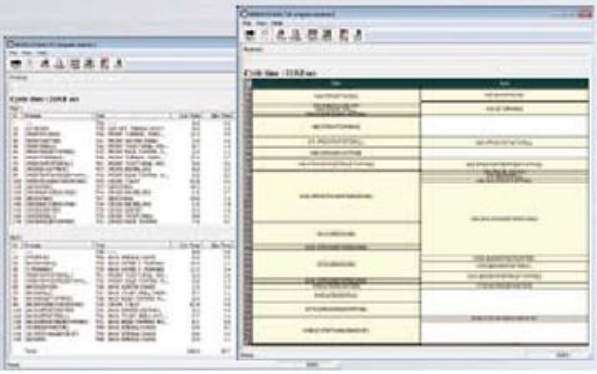
Useful output

NC program / Offset data

NC program including not only the matching of two path control, but also the exclusive M codes/G codes is automatically created.

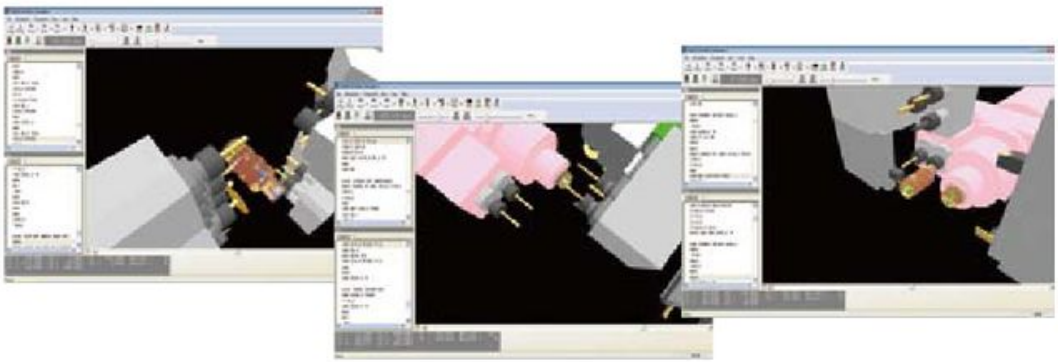
Cycle time

The cycle time is calculated automatically, and cutting time/idle time as well as process time for each path system can be displayed.



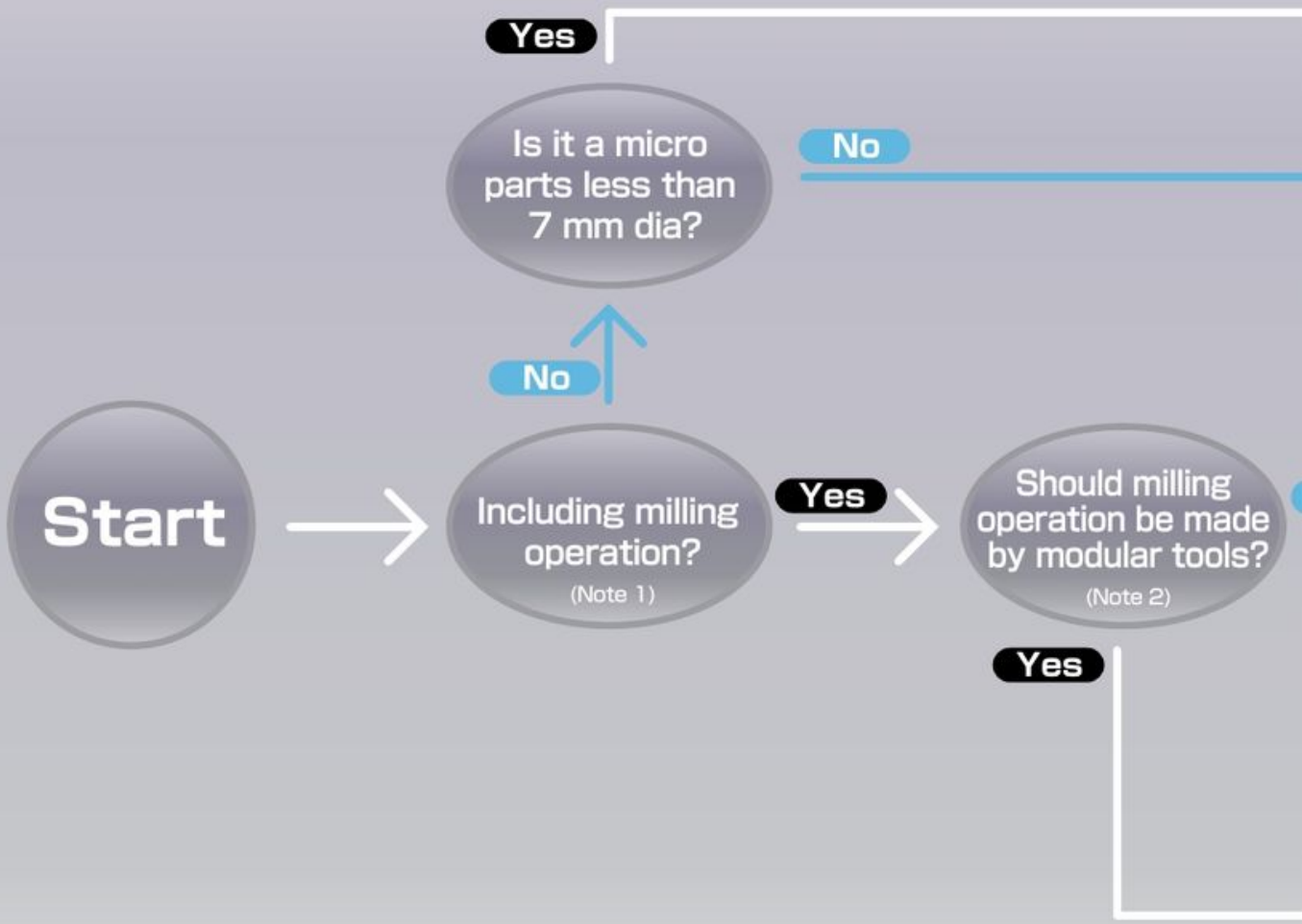
Simulation

The 3D simulation function enables the checking the operations from any angle.



The guidance of the machine selection

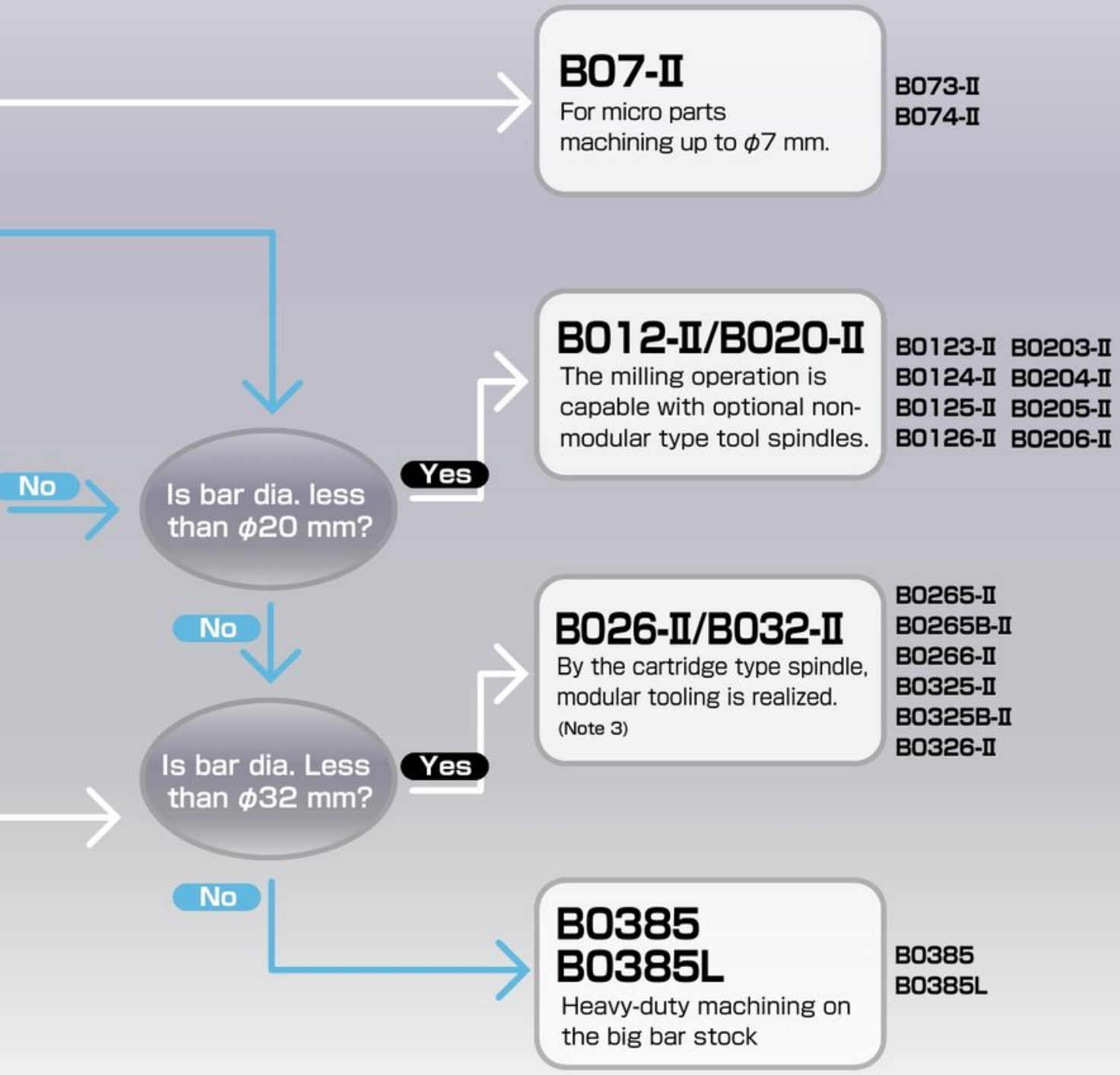
The machine selection should be defined by the current workpiece demand such as bar diameter or machining area, and expecting workpieces in future.
B0 series can be divided into 4 categories.
The selection flow is as follows:



PRECISION TSUGAMI

(Note 1) Milling, drilling or tapping by the tool spindle
(Note 2) By replacing the cartridge type tool spindle, various operation such as milling, angular drilling, hobbing or thread whirling is possible.
(Note 3) Replaceable tool spindle

Machine Models



Standard Specifications of Machine

Item		B073-II	B074-II	B0123-II	B0124-II	B0203-II	B0204-II
Machine capacity, Machining range	Working barstock diameter	ϕ1 to ϕ7 mm	ϕ1 to ϕ7 mm	ϕ3 to ϕ12 mm		ϕ3 to ϕ20 mm	
	Max. machining length	70 mm (40 mm (Carrier type rotary guide bushing)/ 70 mm (Direct-drive rotary guide bushing))		210 mm (80/170 mm: (Rotary guide			
	Max. main spindle drilling diameter	ϕ4	ϕ4	ϕ7		ϕ10	
	Max. main spindle tapping diameter	M4 x 0.7	M4 x 0.7	M6 x 1		M10 (II)	
	Max. back spindle chucking dia.	ϕ7	ϕ7	—	ϕ12	—	ϕ20
	Max. back spindle drilling diameter	—	ϕ4	—	ϕ7	—	ϕ8
	Max. back spindle tapping diameter	—	M4 x 0.7	—	M8 (II)	—	M8 (II)
	Max. cross drilling diameter	ϕ4 (Op.)	ϕ4 (Op.)	ϕ6 (Op.)			
	Max. cross tapping diameter	M4 x 0.7 (Op.)	M4 x 0.7 (Op.)	M5 x 0.8 (Op.)			
	Max. tool spindle slotting cutter dia.	—	—	—	—	—	—
	Max. back drilling diameter	—	—	—			
	Max. back tapping diameter	—	—	—			
Machine	Main spindle speed	200 to 15,000 min^{-1}	200 to 15,000 min^{-1}	200 to 12,000 min^{-1}		200 to 10,000 min^{-1}	
	Back spindle speed*	—	200 to 10,000 min^{-1}	—	200 to 12,000 min^{-1}	—	200 to 12,000 min^{-1}
	Rotary guide bushing speed	200 to 8,000 min^{-1}: Carrier type/ 200 to 15,000 min^{-1}: Direct-drive		200 to 8,000 min^{-1}: Carrier type rotary guide bushing/ 200 to 12,000 min^{-1}: Direct-drive rotary guide bushing		200 to 8,000 min^{-1}: Carrier type rotary guide bushing/ 200 to 10,000 min^{-1}: Direct-drive rotary	
	Tool spindle speed	200 to 5,000 min^{-1} (op.)	200 to 5,000 min^{-1} (op.)	200 to 5,000 min^{-1} (op.)		200 to 5,000 min^{-1} (op.)	
	Total tool storage capacity (Standard / Max.: Op.)	13	17	13	17	13	17
	Tool size	8 mm x 8 mm x 85 mm	8 mm x 8 mm x 85 mm	12 mm x 12 mm x 85 mm			
	Rapid traverse rate	32 m/min (X1: 24 m/min)	32 m/min (X1: 24 m/min)	32 m/min (X1: 24 m/min)			
	Controlled axes (linear axes)	3-axis	4-axis	3-axis	4-axis	3-axis	4-axis
Motors	Main spindle	1.1/1.5 kW	1.1/1.5 kW	1.5/2.2 kW		2.2/3.7 kW	
	Back spindle	—	0.55/1.1 kW	—	1.5/2.2 kW	—	1.5/2.2 kW
	Axis	0.5 kW (X1,Y1,Z1)	0.5 kW (X1,X2,Y1,Z1,Z2)	0.5 kW (X1,X2,Y1,Z1,Z2)			
	Cross drill	0.5 kW (Op.)	0.5 kW (Op.)	0.5 kW (Op.)			
	Coolant pump	0.18 kW	0.18 kW	0.18 kW			
	Lubricating oil pump	3 W	3 W	3 W			
Power supply and others	Net weight	1,400 kg	1,700 kg	1,400 kg	1,700 kg	1,400 kg	1,700 kg
	Power source requirment	6 kVA	9 kVA	7 kVA	10 kVA	7 kVA	10 kVA
	Compressed air requirement	0.4 MPa or above	0.4 MPa or above	0.4 MPa or above			
	Air discharge rate	30 NL/min	30 NL/min	30 NL/min			
	Coolant tank capacity	85 L	115 L	115 L			
	Width x depth x height	1,400 x 1,035 x 1,700	1,640 x 1,080 x 1,700	1,640 x 1,035 x 1,700	1,640 x 1,080 x 1,700	1,640 x 1,035 x 1,700	1,640 x 1,080 x 1,700

NC Specifications

Item	B073-II/B0123-II/B0203-II	B074-II/B0124-II/B0204-II	B0125-II/B0205-II	B0126-II/B0206-II
NC unit	FANUC 0i-TD			FANUC 32i-B
Controlled axes	X1,Z1,Y1	X1,Z1,Y1,Z2	X1,Z1,Y1,X2,Z2	X1,Z1,Y1,X2,Z2,Y2,C1,C2
Least input increment	0.001 mm (X in diameter) (B073/74-II: 0.0001 mm)			0.001 mm (X1/X2 axis in diameter)
Least command increment	X: 0.0005 mm, other axes: 0.001 mm (B074-II: 0.00005 mm, other axes: 0.0001 mm)			0.001 mm (X1/X2 axis in diameter)
Maximum programmable value	±8 digits			±8 digits
Interpolation method	Linear, circular			Linear, circular
Rapid traverse rate	32 m/min (X1: 24 m/min)			32 m/min (X1,Y1,Y2: 24 m/min)
Feedrate	1 to 6,000 mm/min			1 to 6,000 mm/min
Feedrate override	0 to 150 % in 10 % increments			0 to 150 % in 10 % increments
Dwell	G04 0 to 99999.99			G04 0 to 99999.99
ABS/INC command	X,Y,Z: absolute, U,V,W: Incremental			X,Y,Z,C: absolute, U,V,W,H: Incremental
Tool offset value	±6 digits			±6 digits
Tool offset pairs	64			99
LCD/MDI	8.4"color LCD			10.4"color LCD
Display language	Japanese/English			Japanese/English
Part program storage size	512 k byte (equivalent to 1,280 m tape for each path system)	1 Mbyte (equivalent to 2,560 m tape for each path system) *sum of main and back spindle NCs		64 kbyte (equivalent to 80m for each path system)
Registerable programs	400	800 *sum of main and back spindle NCs		63 *sum of main and back spindle NCs
Miscellaneous functions	M5-digits			M5-digits
Spindle function	S5-digits			S5-digits
Tool function	T4-digits			T4-digits

B0125-II	B0205-II	B0126-II	B0206-II	B0265-II B0265B-II	B0266-II	B0325-II B0325B-II	B0326-II	B0385	B0385L
φ3 to φ12 mm	φ3 to φ20 mm	φ3 to φ12 mm	φ3 to φ20 mm	φ8 to φ26 mm		φ8 to φ32 mm		φ8 to φ32 mm	
bushing)/45 mm (Guide bush less))				320 mm (Direct-drive rotary guide bushing) 50 mm (Guide bush less)		320 mm (Direct-drive rotary guide bushing) 70 mm (Guide bush less)		250 mm	100 mm
φ7	φ10	φ7	φ10	φ12 mm				φ13	
M6 x 1	M10 (II)	M6 x 1	M10 (II)	M10				M12	
φ12	φ20	φ12	φ20	φ26		φ32		φ38	
φ7	φ8	φ7	φ8	φ10				φ12	
M8 (II)		M8 (II)		M10				M12	
φ6 (Op.)		φ6 (Op.)		φ8				φ10	
M5 x 0.8 (Op.)		M5 x 0.8 (Op.)		M6				M8	
—	—	—	—	φ45				φ45	
φ6 (Op.)		φ6		φ8 (Op.)		φ8		φ8 (Op.)	
M5 (Op.)		M5		M6 (Op.)		M6		M6 (Op.)	
200 to 12,000 min-1	200 to 10,000 min-1	200 to 12,000 min-1	200 to 10,000 min-1	200 to 10,000 min-1		200 to 8,000 min-1		200 to 6,000 min-1	
200 to 12,000 min-1		200 to 12,000 min-1		200 to 10,000 min-1*		200 to 8,000 min-1		200 to 7,000 min-1	
200 to 8,000 min-1: Carrier type rotary guide bushing/ 200 to 12,000 min-1: Direct-drive rotary guide bushing	200 to 8,000 min-1: Carrier type rotary guide bushing/ 200 to 10,000 min-1: Direct-drive rotary guide bushing	200 to 8,000 min-1: Carrier type rotary guide bushing/ 200 to 12,000 min-1: Direct-drive rotary guide bushing	200 to 8,000 min-1: Carrier type rotary guide bushing/ 200 to 10,000 min-1: Direct-drive rotary guide bushing	200 to 10,000 min-1		200 to 8,000 min-1		200 to 6,000 min-1	—
200 to 5,000 min-1 (op.)		200 to 5,000 min-1 (op.)		200 to 6,000 min-1				200 to 5,000 min-1	
21		25		27/39	31/43	27/39	31/43	20/31	
12 mm x 12 mm x 85 mm		12 mm x 12 mm x 85 mm		16 x 16 x 100 mm				20 mm x 20 mm x 125 mm	
32 m/min (X1: 24 m/min)		32 m/min (X1: 24 m/min)		32 m/min (X1,Y1,Y2: 24 m/min)				45 m/min (X1,Y1,Z1: 24 m/min) (X2:32 m/min)	
5-axis		6-axis		5-axis	6-axis	5-axis	6-axis	5-axis	5-axis
1.5/2.2 kW	2.2/3.7 kW	1.5/2.2 kW	2.2/3.7 kW	3.7/5.5 kW				7.5/11 kW	
1.5/2.2 kW		1.5/2.2 kW		2.2/3.7 kW				3.7/5.5 kW	
0.5 kW (X1,X2,Y1,Z1,Z2)		0.5 kW (X1,X2,Y1,Y2,Z1,Z2)		X1,Y2: 0.5 kW Y1,Z1,X2,Z2: 0.75 kW				Z1:1.2 kW, X1,Y1: 0.75 kW, X2,Z2: 2.5 kW	
0.5 kW (Op.)		0.5 kW (Op.)		1.0 kW				1.0 kW	
0.18 kW		0.18 kW		0.4 kW				0.4 kW	
3 W		3 W		3 W				3 W	
1,700 kg		1,750 kg		3,500 kg				4,600 kg	
11 kVA		11 kVA	12 kVA	21.4 kVA				30 kVA	
0.4 MPa or above		0.4 MPa or above		0.4 MPa or above				0.4 MPa or above	
30 NL/min		30 NL/min		40 NL/min				100 NL/min	
115 L		115 L		180 L				195 L	
1,640 x 1,080 x 1,700		1,640 x 1,120 x 1,700		2,150 x 1,280 x 1,930				2,520 x 1,345 x 1,970	

※Maximum back spindle speed is limited to 8,000min-1 when the rotary tool beside the back spindle is mounted.

B0265-II/B0325-II	B0265B-II/B0325B-II	B0266-II/B0326-II	B0385	B0385L
FANUC 0i-TD	FANUC 32i-B		FANUC 0i-TD	
X1,Z1,Y1,X2,Z2	X1,Z1,Y1,X2,Z2,C1,C2	X1,Z1,Y1,X2,Z2,Y2,C1,C2	X1,Z1,Y1,X2,Z2,C1,C2	
0.001 mm (X axis in diameter)		0.001 mm (X1/X2 axis in diameter)	0.001 mm (X1/X2 axis in diameter)	
X1,X2 axis: 0.0005 mm, other axes: 0.001 mm			X1,X2 axis: 0.0005 mm, other axes: 0.001 mm	
±8 digits			±8 digits	
Linear, circular			Linear, circular	
32 m/min (X1,Y1: 24 m/min)		32 m/min (X1,Y1,Y2: 24 m/min)	45 m/min (X1,Y1,Z1: 24 m/min) (X2: 32 m/min)	
1 to 6,000 mm/min			1 to 6,000 mm/min	
0 to 150 % in 10 % increments			0 to 150 % in 10 % increments	
G04 0 to 99999.99			G04 0 to 99999.99	
X,Y,Z: absolute, U,V,W: Incremental	X,Y,Z,C: absolute, U,V,W,H: Incremental		X,Y,Z,C: absolute, U,V,W,H: Incremental	
±6 digits			±6 digits	
64	99		Main: 64, Back: 64	
10.4"color LCD			8.4"color LCD	
Japanese/English			Japanese/English	
1 Mbyte (equivalent to 2,560 m tape for each path system) ※sum of main and back spindle NCs	64 kbyte (equivalent to 80m for each path system)		1 Mbyte (equivalent to 2,560 m tape for each path system) ※sum of main and back spindle NCs	
800 ※sum of main and back spindle NCs	63 ※sum of main and back spindle NCs		800 ※sum of main and back spindle NCs	
M5-digits			Main: M5 digits, Back: M3 digits	
S5-digits			S5-digits	
T4-digits			T4-digits	

Standard Accessories

Item	B073-II B0123-II B0203-II	B074-II/124-II/125-II B0204-II/205-II	B0126-II B0206-II	B0265-II B0325-II	B0265B-II/325B-II B0266-II/326-II	B0385	B0385L
Automatic programming system	○	○	○	○	○	○	○
Tool height compensation	○	○	○	○	○	○	○
Tool life counter	○	○	○	○	○	○	○
Periodic maintenance screen	○	○	○	○	○	○	○
Main spindle adapter	○	○	○	○	○	○	—
Back spindle adapter	—	○	○	○	○	○	○
Guide bushing adapter	—	—	—	—	—	○	—
Door interlock	○	○	○	○	○	○	○
Coolant level detector	○	○	○	○	○	○	○
Spindle cooling unit	○	○	○	○	○	○	○
Standard tools	○	○	○	○	○	○	○
Transit clamps	○	○	○	○	○	○	○
4-hole drill bracket	○	○	○	—	—	—	—
Retractable coolant nozzle	○	○	○	○	○	○	○
Automatic power shut off	○	○	○	○	○	○	○
Front tool post: 4-spindle cross drill	—	—	—	○	○	○	○
Deep hole drill holder (φ25mm×2)	—	—	—	○	○	—	—
Automatic cut-off function/Automatic facing function	○	○	○	○	○	—	—
Main spindle/back spindle air purge	—	—	—	○	○	○	○
Cross drill air purge	—	—	—	○	○	○	○
Main spindle brake	—	—	—	○	○	○	○
C-axis control for main/back spindles	—	—	○	—	○	○	○

NC standard accessories

Item	B073-II B0123-II B0203-II	B074-II/124-II/125-II B0204-II/205-II	B0126-II B0206-II	B0265-II/265B-II/266-II B0325-II/325B-II/326-II	B0385	B0385L
Chasing function	○	○	○	○	○	○
Continuous thread cutting	○	○	○	○	○	○
Manual pulse generator	○	○	○	○	○	○
Memory card input/output interface	○	○	○	○	○	○
Back ground editing	○	○	○	○	○	○
Run time & parts number display	○	○	○	○	○	○
Custom macro	○	○	○	○	○	○
Constant surface speed control	○	○	○	○	○	○
Spindle synchronous control (rotation/phase/tracing)	—	○	○	○	○	○
Tool geometry/wear offset	○	○	○	○	○	○
Programmable data input	○	○	○	○	○	○
Chamfering & corner R	○	○	○	○	○	○
Tool nose radius compensation	○	○	○	○	○	○
HRV control	○	○	○	○	○	○
Multiple repetitive cycle	○	○	○	○	○	○
Extended program editing	○	○	○	○	○	○
Canned drilling cycle	○	○	○	○	○	○
Rigid tap (Main spindle, back spindle)	○*	○	○	○	○	○
Spindle speed fluctuation detection	○	○	○	○	○	○
Cut-off detection (Speed Differential type)	—	○	○	○	○	○
Manual handle retrace function	—	—	—	—	○	○
Stored stroke check 2,3	—	—	—	○	—	—

*: B073-II/B0123-II/B0203-II: Main spindle only

Options

	Item	B073-II	B074-II	B0123-II/124-II/125-II B0203-II/204-II/205-II	B0126-II B0206-II	B0265-II B0325-II	B0265B-II B0325B-II	B0266-II B0326-II	B0385	B0385L
Guide bushing	Stationary guide bushing	standard	standard	○	○					
	Carrier type rotary guide bushing	○	○	○	○					
	Direct-drive guide bushing	○	○	○	○	○	○	○		
	Guide-bushing-less kit			○	○	○	○	○		standard
Advanced function system	Main spindle C axis control	○	○	○	standard*4	○	standard	standard	standard	standard
	Back spindle C axis control(Brake is optional)		○	○*1	standard	○	standard	standard	standard	standard
	Spindle 15°index	○	○	○	○					
	Main spindle brake	○	○	○	○	standard	standard	standard	standard	standard
	Back spindle 15°index		○	○*1	○	○	○	○		
	Back spindle 1°index		○	○*1	○	○	○	○	○	○
	Live tool beside the back spindle					○	○	○		
	3-spindle cross drill	○	○	○	○					
	4-spindle cross drill	○	○	○	○	standard	standard	standard	standard	standard
High precision system	0.1 μm resolution	standard	standard	○	○	○	○	○	○	○
	Coolant oil temperature controller	○	○	○	○	○	○	○	○	○
Live tools (Rear tool post)	Rear drive					○	○	○	○	○
	Tool spindle					○	○	○	○	○
	Double face spindle					○	○	○	○	○
	Angular drilling head					○	○	○	○	○
	Thread whirling head					○	○	○		
	Hobbing head					○	○	○		
Live tools (Back tool post)	Back drive			○*3	standard	○	○	standard	○	○
	Tool spindle				standard	○	○	○	○	○
	Back cross tool spindle			○*3	standard			○		
	Back tool adapter					○	○	○	○	○
Coolant related	Mist collector		○	○	○	○	○	○	○	○
	High pressure pump unit		○	○	○	○	○	○	○	○
	M code oil blow		○	○	○	○	○	○	○	○
Workpiece discharge system	Work catcher	standard	standard	○*2	○	○	○	○	○	○
	Work conveyor			○*1	○	○	○	○	○	○
	Front discharge		○	○*1	○	○	○	○	○	○
	Rear discharge		○	○*1	○	○	○	○	○	○
Chip disposal	Chip conveyor		○	○*1	○	○	○	○	○	○
Machine maintenance and monitoring functions	Cut-off detection (Touch switch type)	○	○	○	○					
	Signal indicator	○	○	○	○	○	○	○	○	○
Tooling related	Adapter for non-round bar (main spindle)	○	○	○	○	○	○	○	○	
	Adapter for non-round bar (back spindle)		○	○	○	○	○	○	○	○
	Collet chuck with carbide lining	○	○	○	○	○	○	○	○	○
	Tool set gauge	○	○	○	○	○	○	○	○	○
	Spindle liner	○	○	○	○	○	○	○	○	○
	Drill holder					○	○	○	○	○
NC functions	Part program storage size 128 k bytes				○		○	○		
	Part program storage size 256 k bytes				○		○	○		
	Part program storage size 512 k bytes				○		○	○		
	G-code system B/C				○	○	○	○		
	Direct drawing dimension program	standard	standard	standard	○	standard	○	○	standard	standard
	Variable-lead thread cutting	standard	standard	standard	○	standard	○	○	standard	standard
	Thread cutting cycle retract	standard	standard	standard	○	standard	○	○	standard	standard
	Number of registerable programs expansion #1				○		○	○		
	Standard program storage size: 120 programs				○		○	○		
	128 KB : 250 programs				○		○	○		
	256 KB : 500 programs				○		○	○		
	512 KB : 1,000 programs				○		○	○		
	Polar coordinate interpolation	○	○	○	○	standard	○	○	standard	standard
	Cylindrical interpolation	○	○	○	○	standard	○	○	○	○
	Display language	○	○	○	○	○	○	○	○	○
Safety and other	Coolant flow switch	○	○	○	○	○	○	○	○	○
	Automatic fire extinguisher	○	○	○	○	○	○	○	○	○
	Illumination lamp	○	○	○	○	○	○	○	○	○
	Bar feeder interface	○	○	○	○	○	○	○	○	○
	Manual handle retrace function	○	○	○	○	○	○	○	standard	standard
	Live tool rigid tapping	○	○	○	○	○	○	○	○	○
	RS232C input/output interface	○	○	○	○	○	○	○	○	○
	Inch/metric conversion	○	○	○	○	○	○	○	○	○
	Abnormal load detection	○	○	○	○	○	○	○	○	○

*1: Can not be mounted on B0123-II and B0203-II. *2: Standard for 3-axis machine (without back spindle)
*3: B0125-II/B0205-II only *4:Brake is optional.

Collet chucks and guide bushing

		B073-Ⅱ	B074-Ⅱ	B0123-Ⅱ	B0124-Ⅱ B0125-Ⅱ B0126-Ⅱ	B0203-Ⅱ	B0204-Ⅱ B0205-Ⅱ B0206-Ⅱ	B0265-Ⅱ B0265B-Ⅱ B0266-Ⅱ	B0325-Ⅱ B0325B-Ⅱ B0326-Ⅱ	B0385	B0385L
Main spindle collet chuck		2601-1132	2601-1132	2601-1185	2601-1185	2601-1192	2601-1192	2601-1196	2601-5216	2601-3234	2601-3233
Back spindle collet chuck		—	2601-1132	—	2601-1185	—	2601-1147	2601-1196	2601-5216	2601-5233	2601-5233
Guide bushing	Carrier type	2601-1132	2621-1132	2621-1185	2621-1185	2621-1147	2621-1147	—	—	—	—
	Direct-drive type	2621-1132	2621-1132	2621-1185	2621-1185	2621-1226 (exclusive)	2621-1226 (exclusive)	2621-1196	2621-6216	2621-1234	

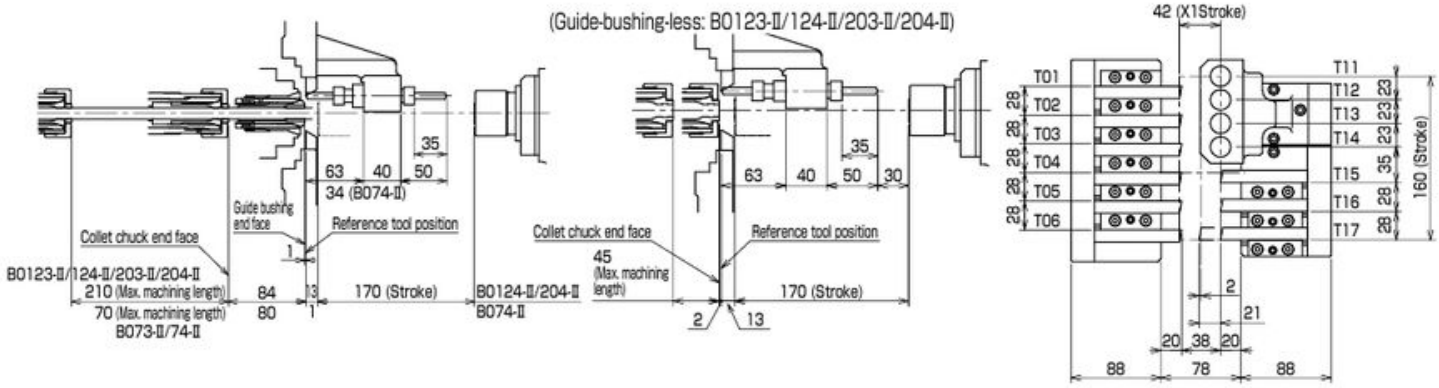
Selection of live tool (option)

				B073-Ⅱ B074-Ⅱ	B0123-Ⅱ B0203-Ⅱ	B0124-Ⅱ B0204-Ⅱ	B0125-Ⅱ B0205-Ⅱ	B0126-Ⅱ B0206-Ⅱ
Front tool post	Cross drill		2 spindles parallel	3270-Y030	3220-Y5130			
			2 spindles shifted	3270-Y040	3220-Y5140			
			3 spindles	3270-Y050	3220-Y5150			
			4 spindles	3270-Y060	3220-Y5160			
	Thread whirling head		Thread whirling head	—	3220-Y6540			
			Cross: one spindle	—				
Back tool post	Type 1	Live tools	Front: 2 spindle(Non-modular type)	—	—	—	3273-Y050	—
		Fixed drill holders	2 tools	—				
	Type 2	Live tools	・One modular type(changeable in horizontal or in vertical) ・Front: one spindle (Non-modular type)	—	—	—	3273-Y080	—
		Fixed drill holders	1 tool	—				
	Y2 axis tool post	Live tools	Front:2 / Cross:2 (Non-modular type)	—	—	—	—	standard
		Fixed drill holders	4 tools	—				

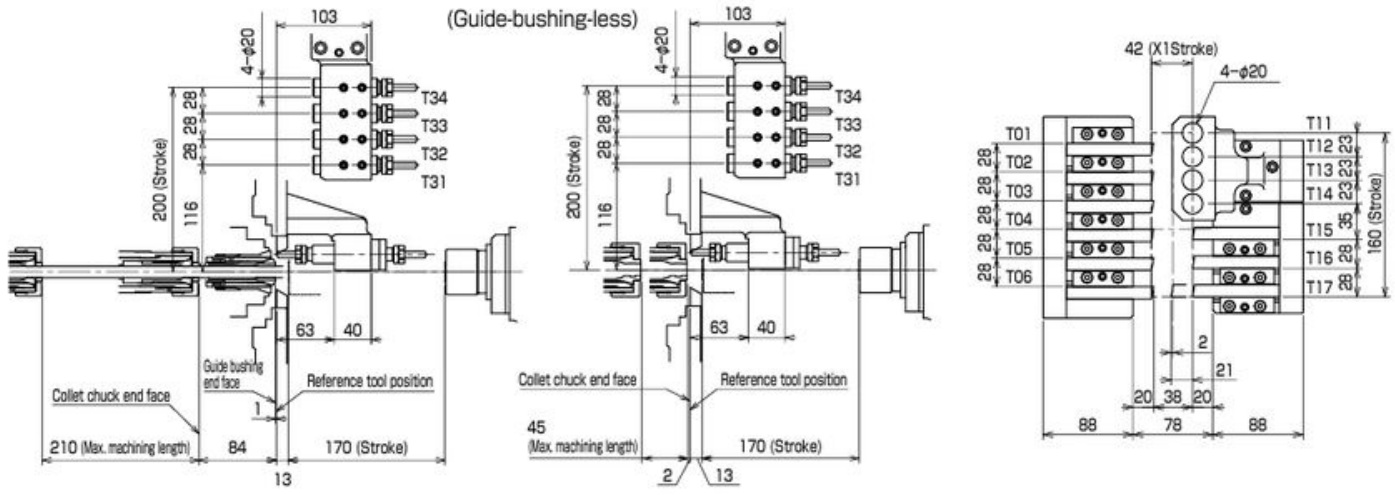
			B0265-Ⅱ/B0265B-Ⅱ	B0266-Ⅱ	B0325-Ⅱ/B0325B-Ⅱ	B0326-Ⅱ	B0385/B0385L
Front tool post	4-spindle cross drill		standard				standard
Rear tool post	Rear drive		3290-Y020				3282-Y010
	Double face spindle (Double heads)	In conjunction with rear drive	3282-Y901				3282-Y901
	Angular spindle (Double heads)		3282-Y921				3282-Y921
	Tool spindle		3268-T051				3268-T051
	Hobbing head		3268-Y430				—
	Thread whirling head		3268-Y450				—
	Multiplied tool spindle		3290-Y670				3290-Y670
Back tool post	Back drive		3290-Y220	standard	3290-Y220	standard	3282-Y220
	Y2 axis tool post		—	standard	—	standard	—
	Tool spindle	In conjunction with back drive	3282-Y041				3282-Y041
	Back cross tool spindle		—	3290-Y041	—	3290-Y041	—
	Back tool adapter		3282-Y211(ϕ25hole)				3282-Y211(ϕ25hole) 3282-Y212(ϕ32hole)
	Multiplied tool spindle		3290-Y680				3290-Y680

Tooling zone

B073-II/74-II/123-II/124-II/203-II/204-II

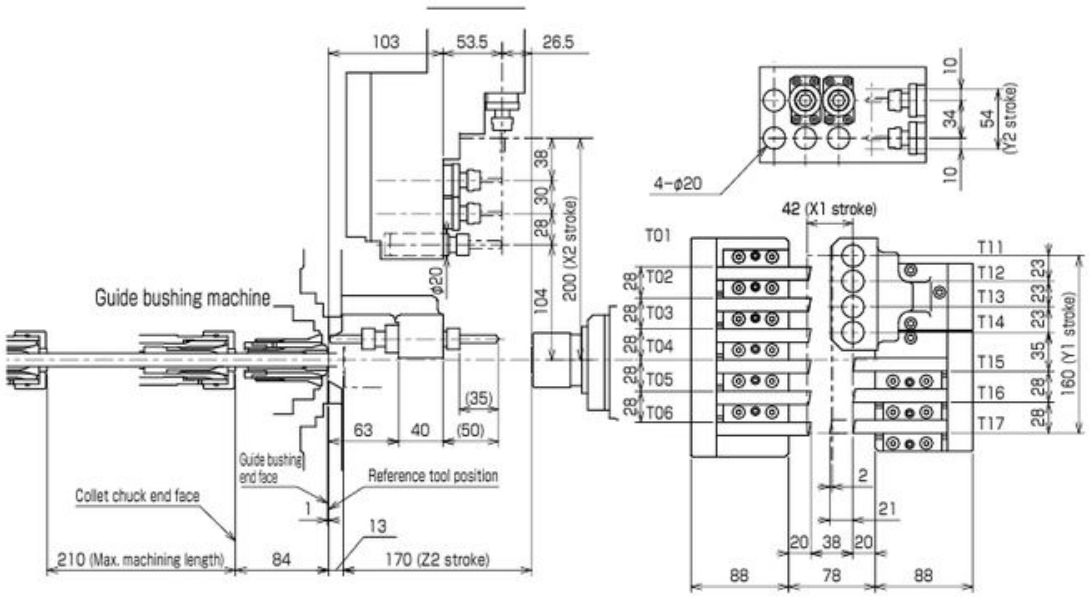


B0125-II/205-II

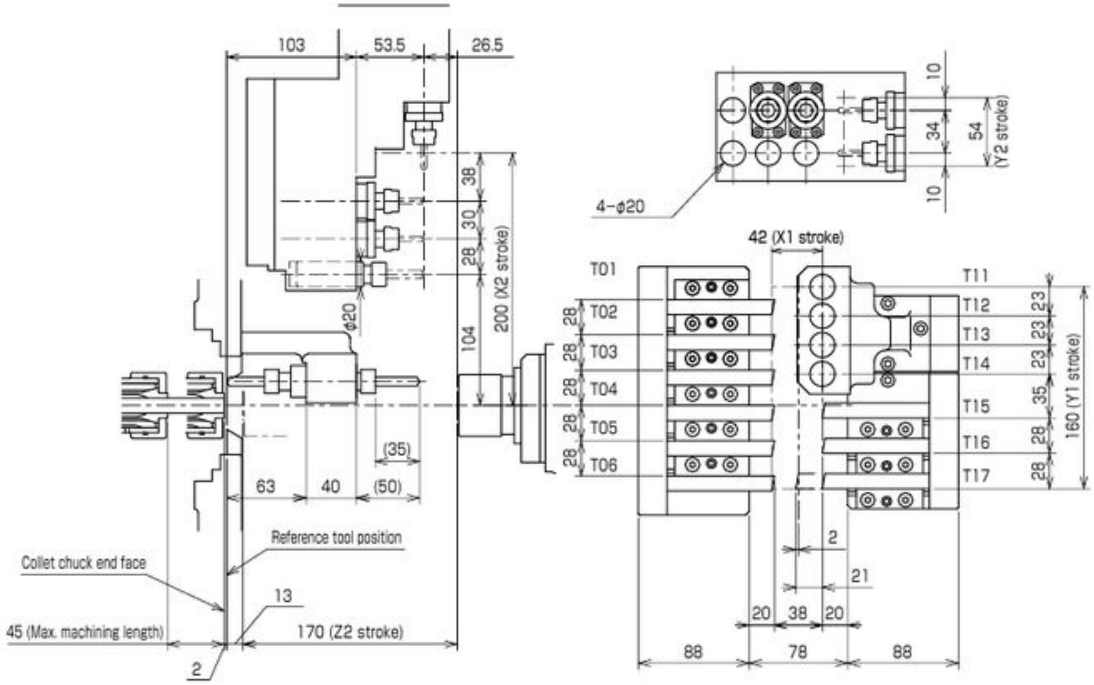


Tooling zone

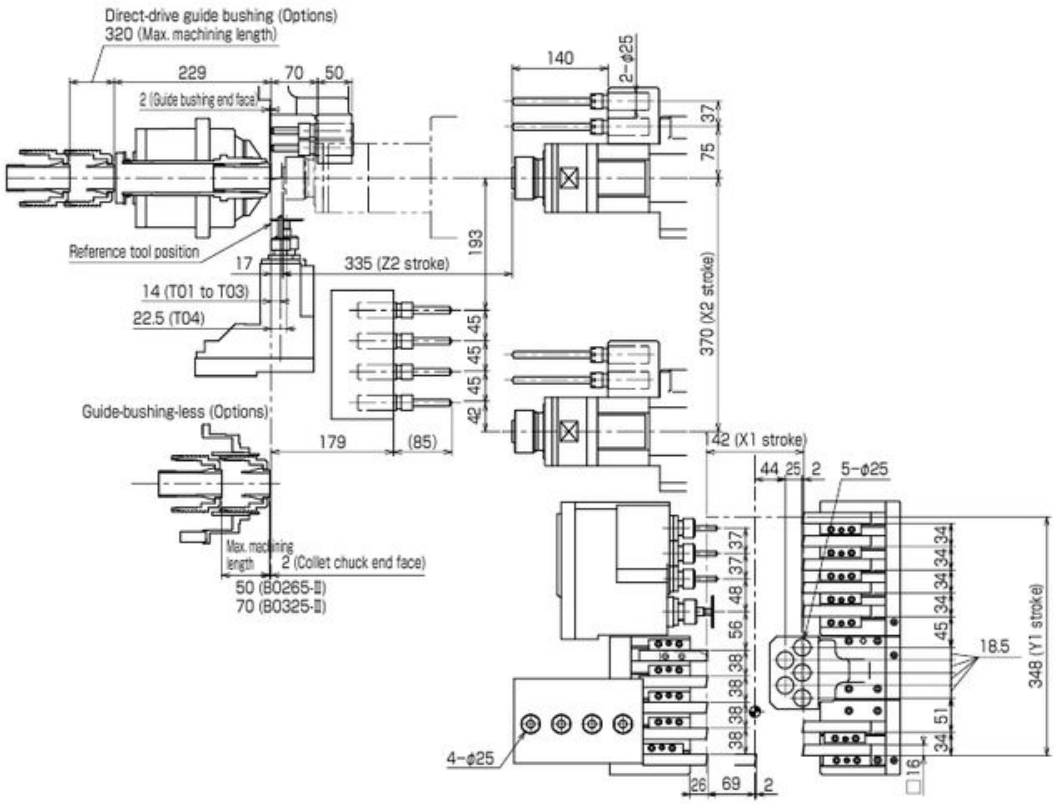
B0126-Ⅱ/206-Ⅱ



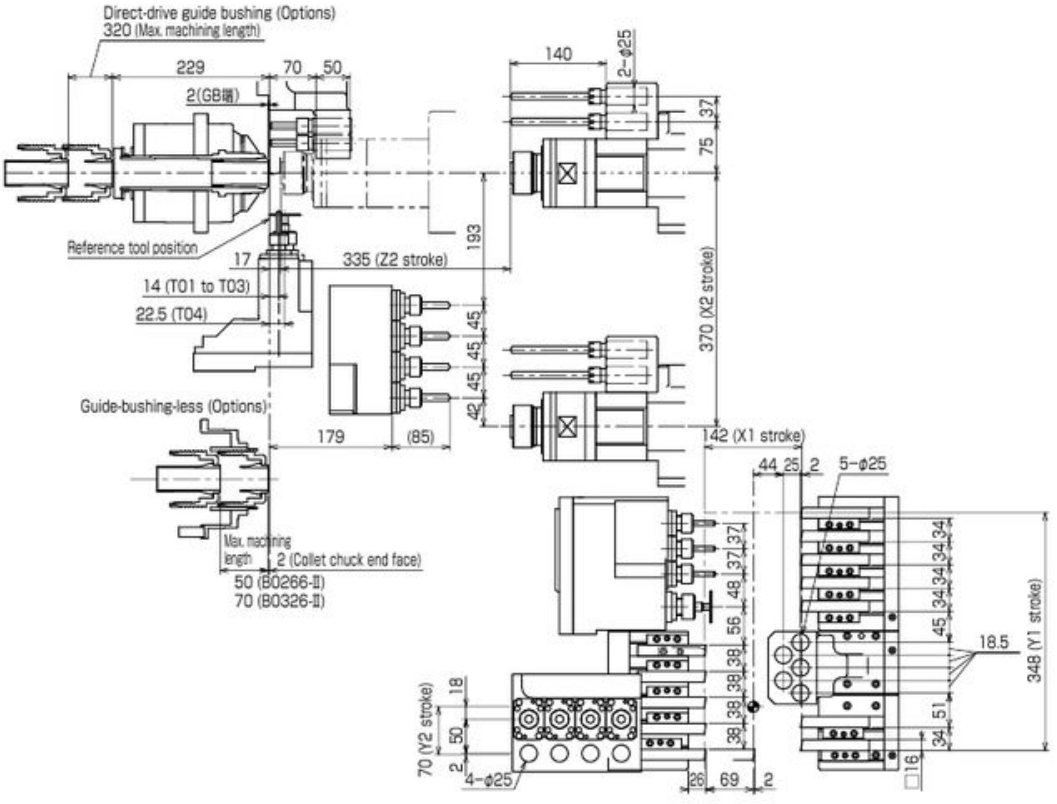
(Guide-bushless)



B0265-Ⅱ/265B-Ⅱ/325-Ⅱ/325B-Ⅱ

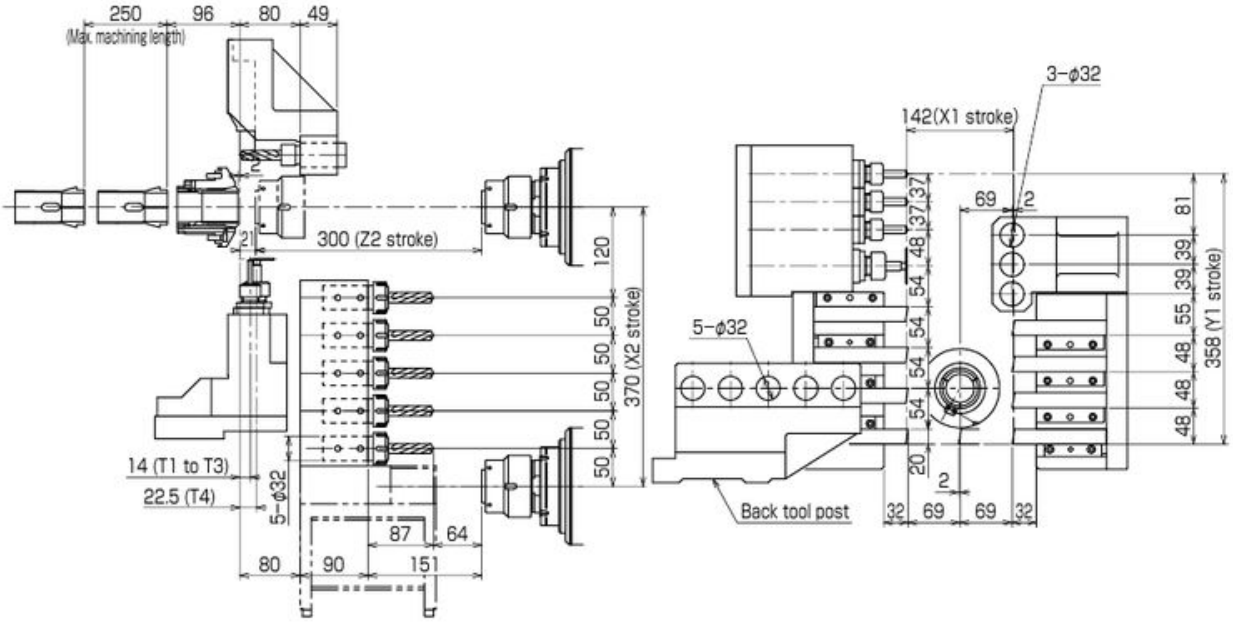


B0266-Ⅱ/326-Ⅱ

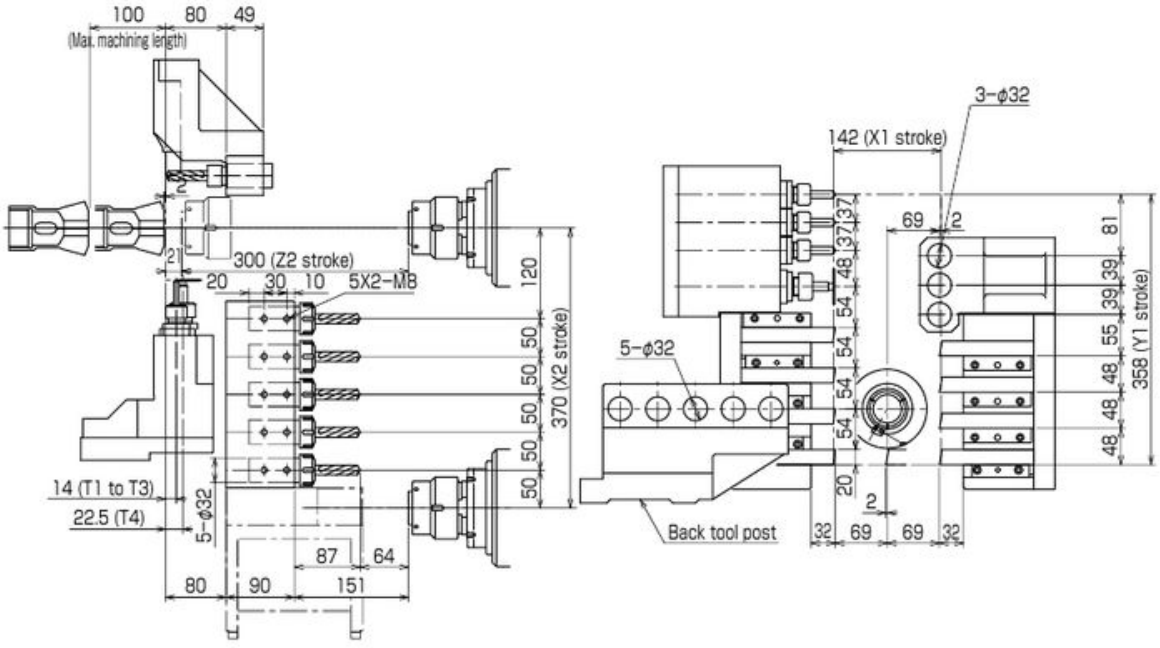


Tooling zone

B0385

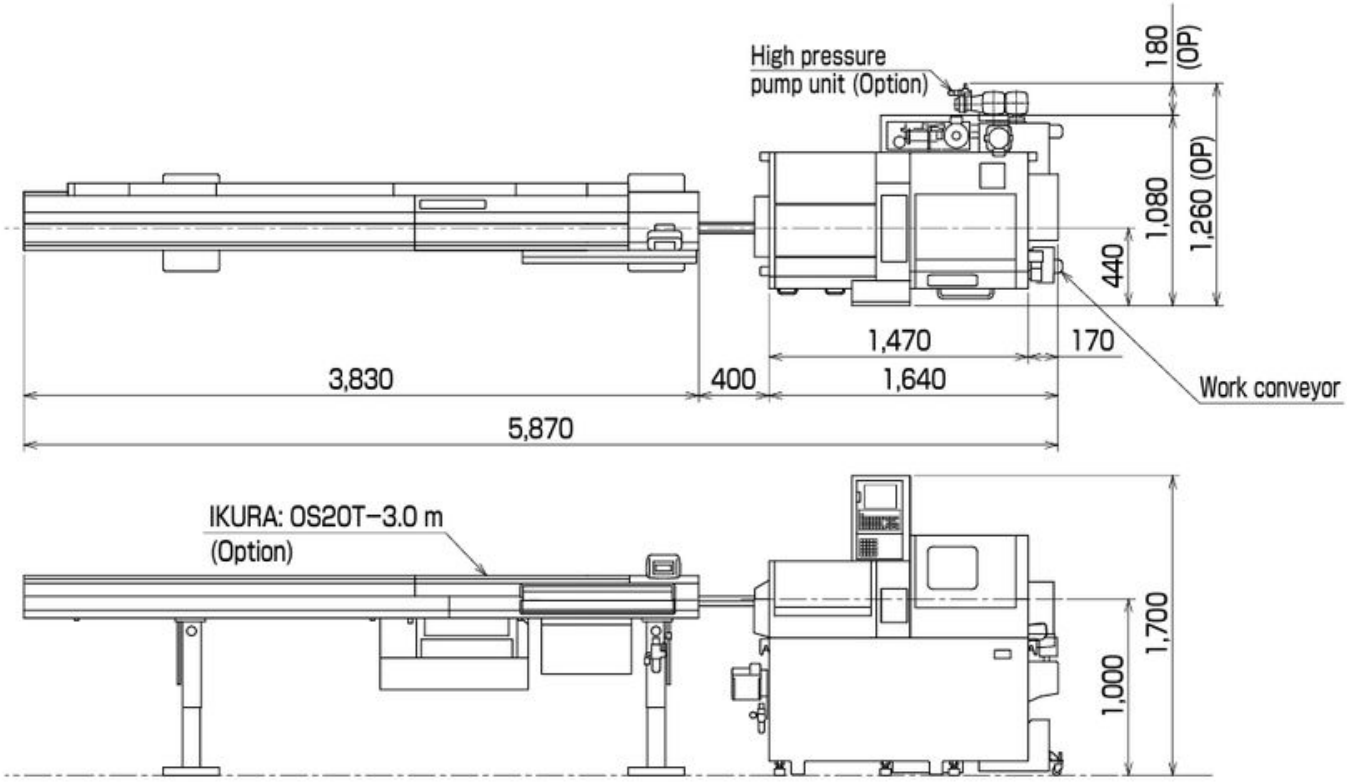


B0385L

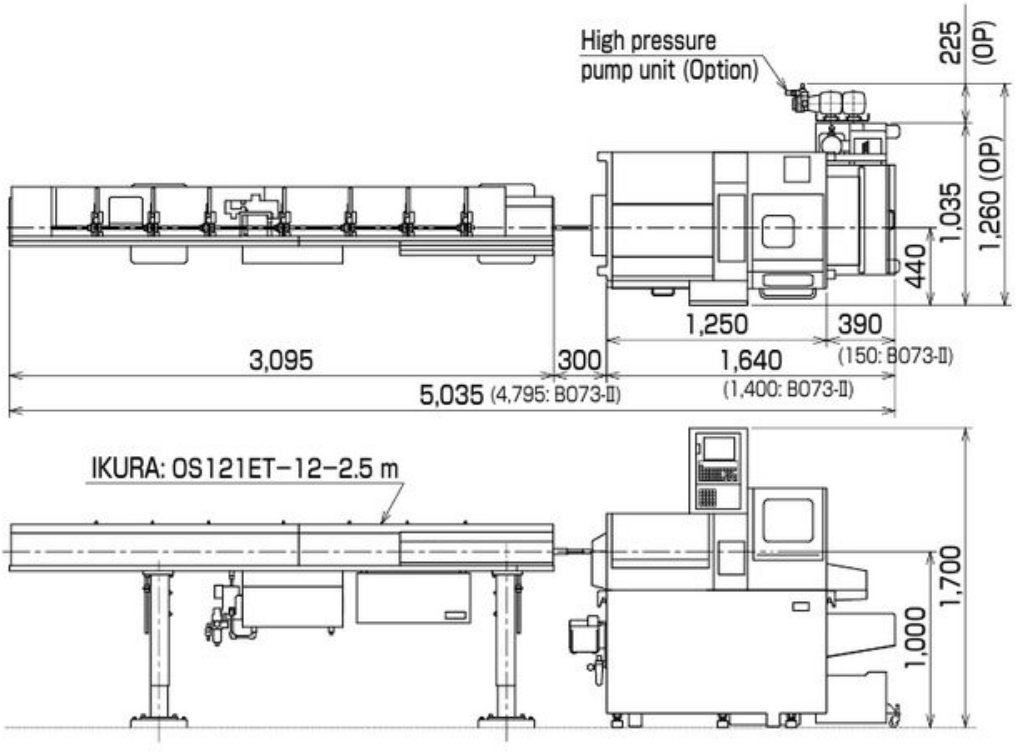


Appearances

B074-Ⅱ/124-Ⅱ/125-Ⅱ/204-Ⅱ/205-Ⅱ/126-Ⅱ/206-Ⅱ

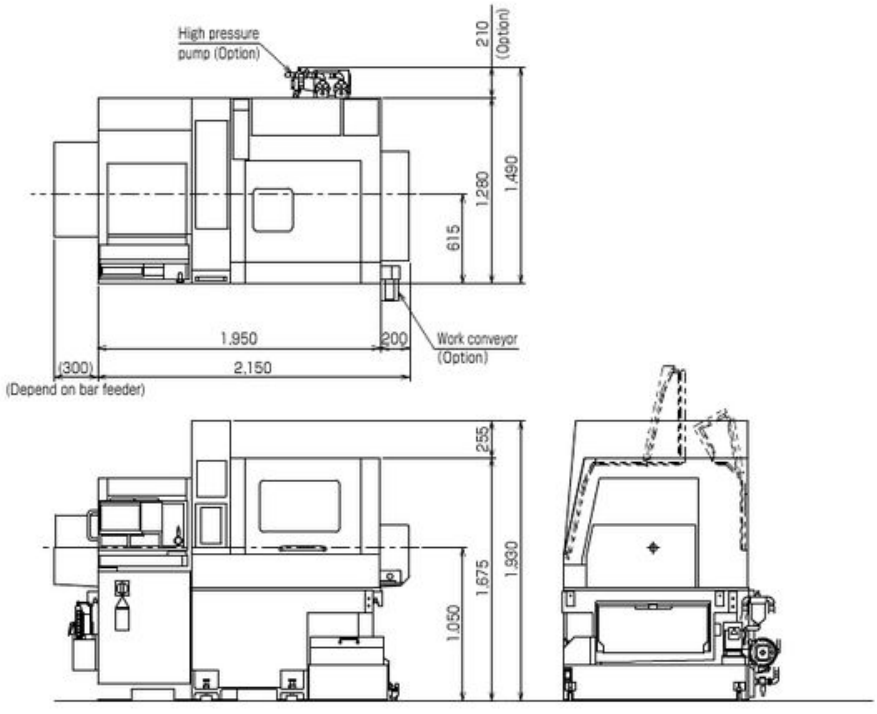


B073-Ⅱ/123-Ⅱ/203-Ⅱ

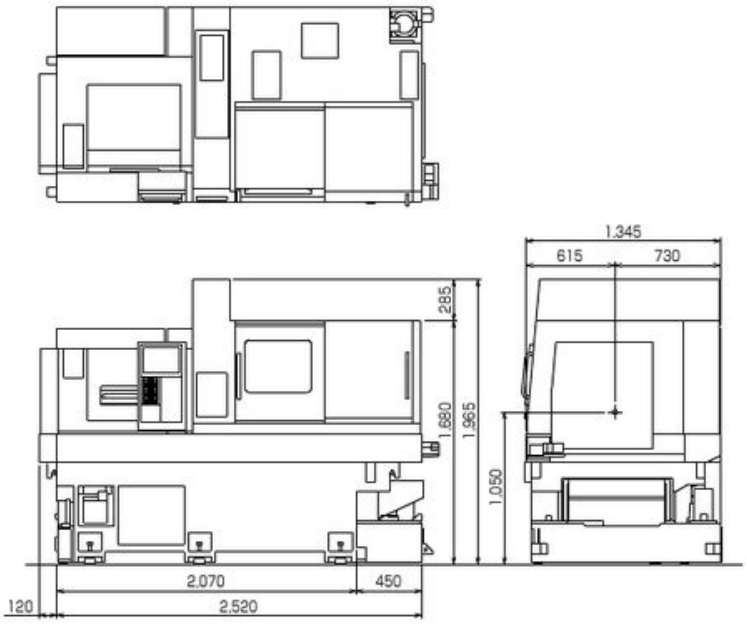


Appearances

B0265-Ⅱ/265B-Ⅱ/325-Ⅱ/325B-Ⅱ/266-Ⅱ/326-Ⅱ



B0385/385L



Export permission by the Japanese Government may be required for exporting our products in accordance with the Foreign Exchange and Foreign Trade Law. Please contact our sales office before exporting our products.

The specifications of this catalogue are subject to change without prior notice.

TSUGAMI CORPORATION

12-20, TOMIZAWA-CHO, NIHONBASHI,
CHUO-KU, TOKYO 103-0006, JAPAN
Phone : 03-3808-1172
Facsimile : 03-3808-1175

CAT.NO.E113556.MAR.3T(H)