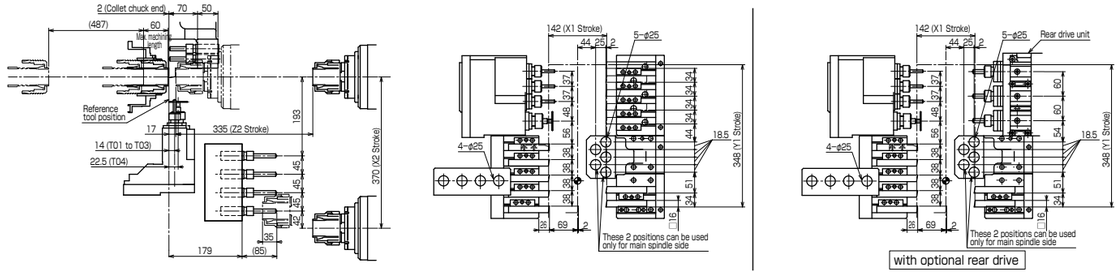
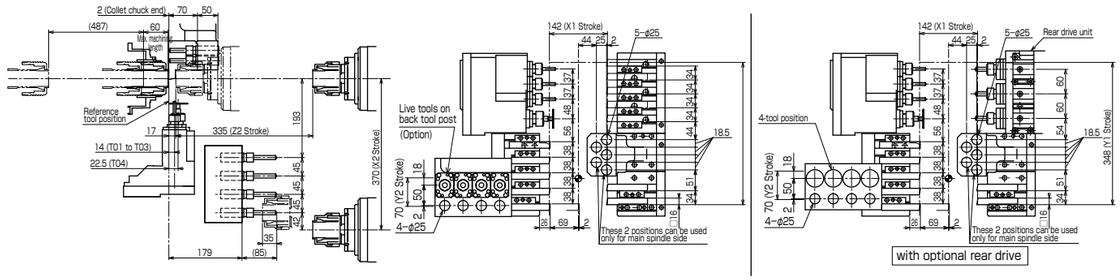
Tooling zone

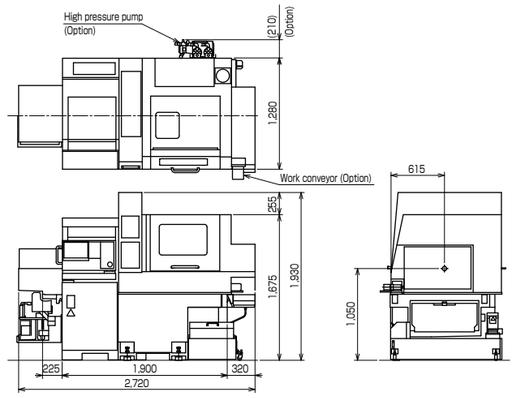
B0385C (Guide-bushless type)



B0386C (Guide-bushless type)



Layout



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

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PRECISION TSUGAMI

CNC Precision Automatic Lathe

B0385C
B0386C

Guide Bushless Configuration
ϕ38 spindles are attached to the compact body

ϕ38 spindles
Space saving Guide-bushless machine

Front & back simultaneous machining

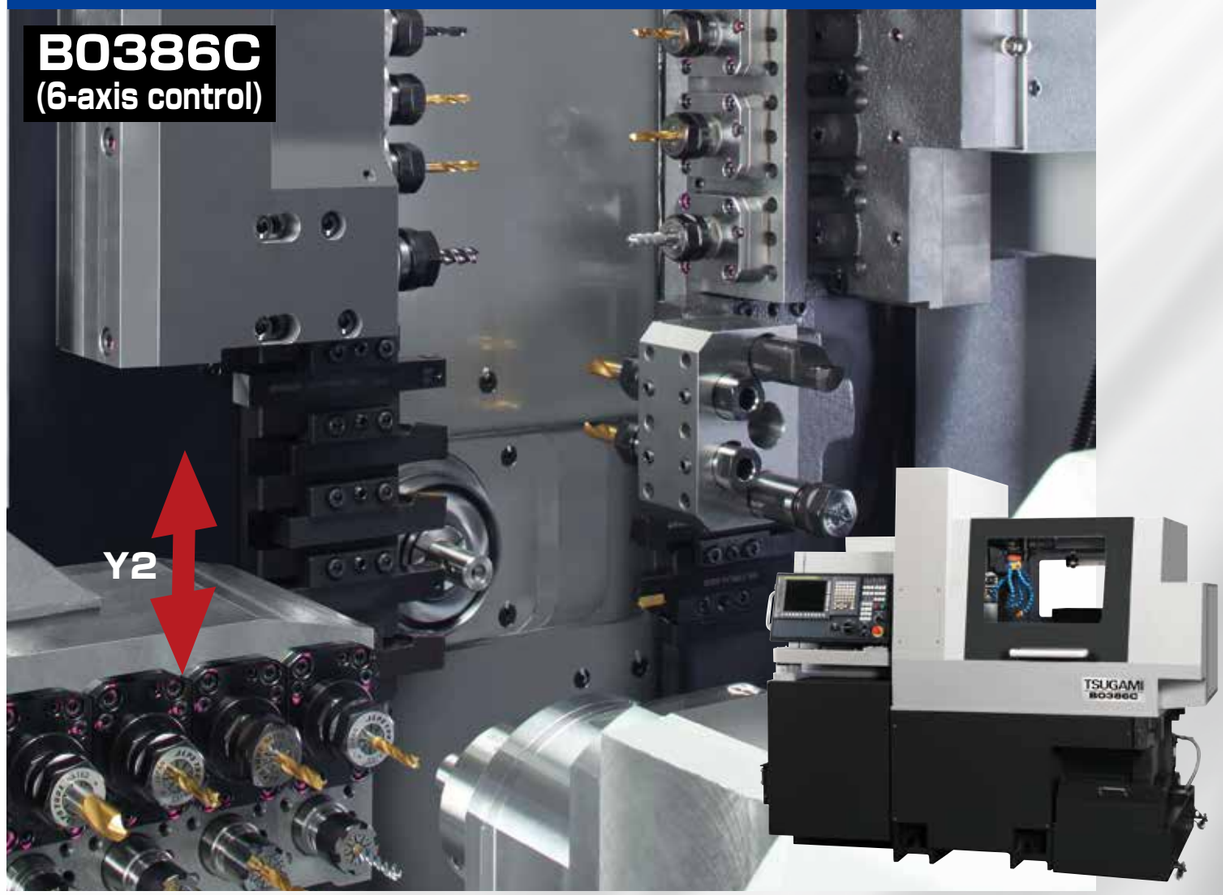
Compact guide-bushless machine
with ϕ38 spindles.

Ground bar is not required.

Shorter remnant length can reduce the material cost.

Complete simultaneous machining is possible
with back tool post

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



Modular tooling using cartridge type live tools (option) for
optimum allocation of machining capability.
Applicable for off-center machining with an attachment.

Hydraulic cylinder is mounted on the main spindle to secure the gripping force.

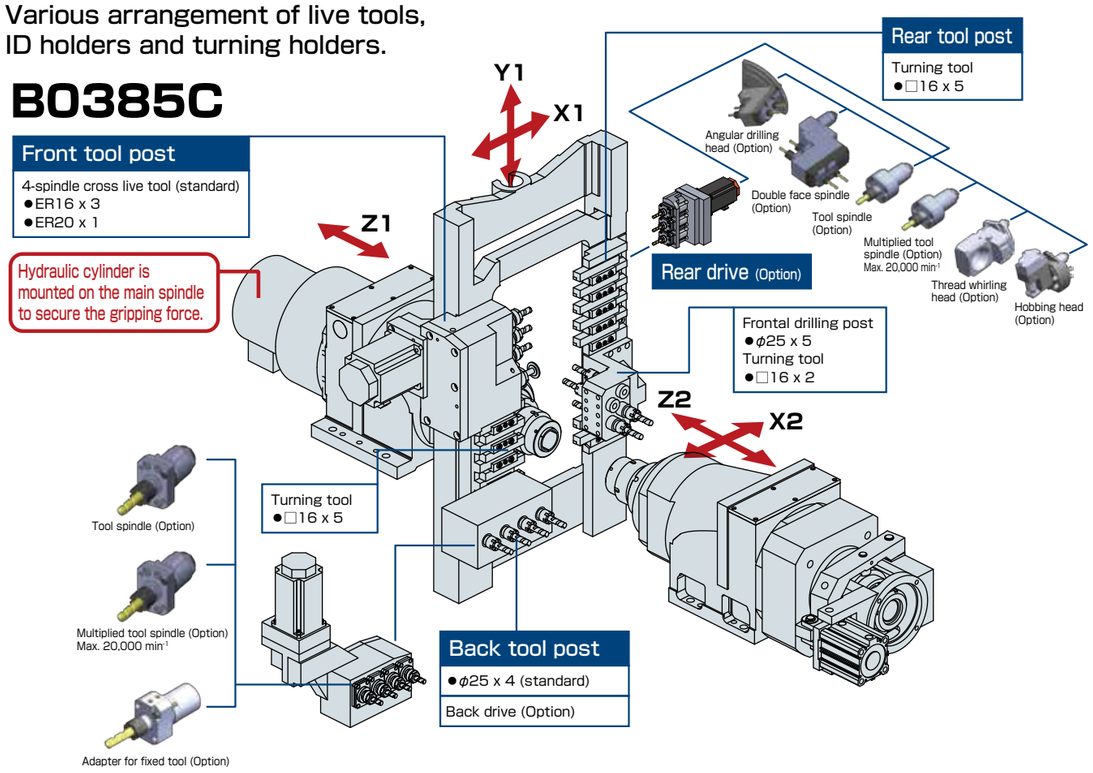
Pursuing operability thanks to enriched standard software.

Automatic programming system prepared as standard.

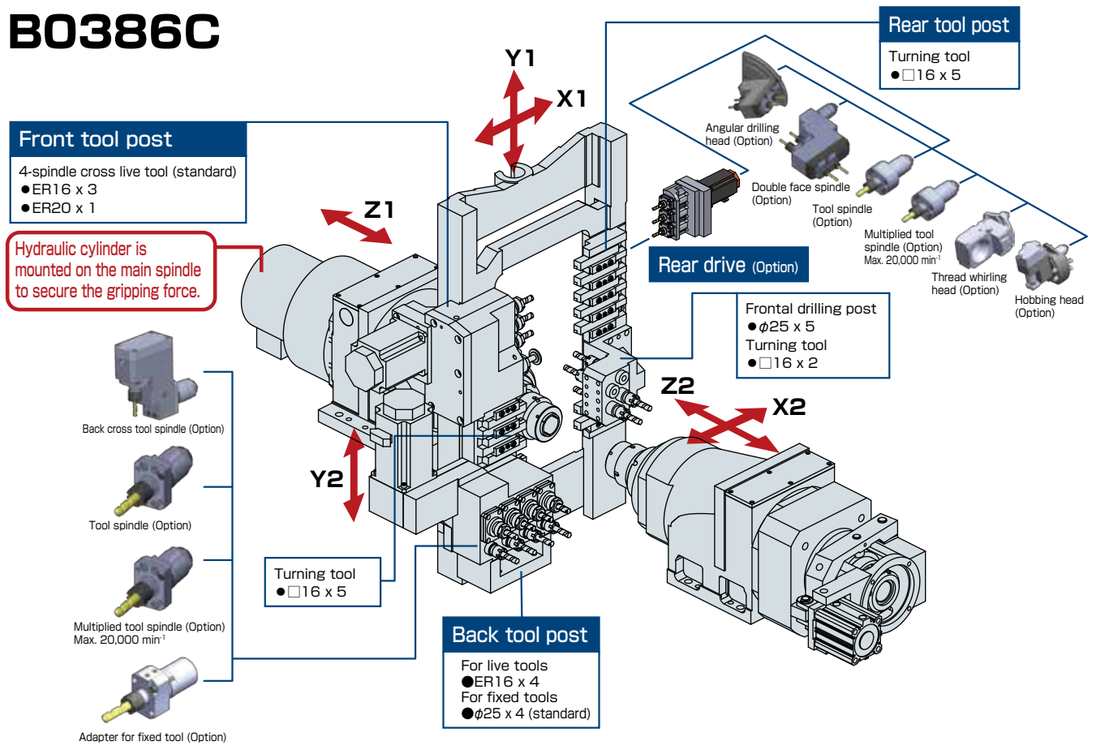
Modular tooling

Various arrangement of live tools,
ID holders and turning holders.

B0385C



B0386C

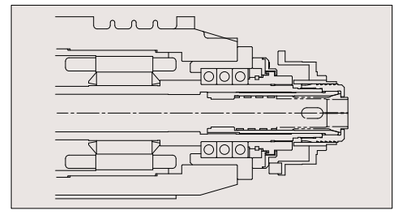


Processing with guide-bushless

Guide-bushless does not require ground bar, enabling high speed and high precision machining from cold drawn bars.

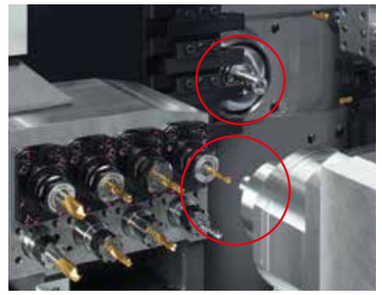
- ●Ground bar is not required (use of cold drawn bar reduces the cost).
- ●Shorter remnant length can reduce the material cost.

Type of spindle	Exclusive guide bushless spindle
Max. machining length	60 mm



Simultaneous machining

On B0386C 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.



Modular type tool spindle

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

Rear tool post	Back tool post
Tool spindle	Tool spindle
Double face spindle	Back cross tool spindle (B0386C)
Angular drilling head	Adapter for fixed tool etc.
Additional drill holder	
Hobbing head	
Thread whirling head etc.	

Angular drilling head (Option)
3282-Y921

Back cross tool spindle (Option)
3290-Y041

Thread whirling head (Option)
3268-Y450

Multiplied tool spindle (Option)

Optimum for small hole drilling

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

Max. spindle speed	20,000 min-1
Mounting position	Back tool post
Applicable collet	ER11−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.

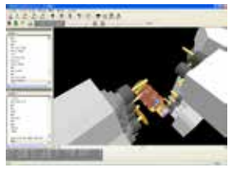
Max. spindle speed	20,000 min-1
Mounting position	Rear drive
Applicable collet	ER11−ϕd
Parts number	3290-Y670

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

Pursuing operability thanks to enriched standard software

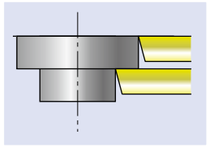
■Automatic programming system prepared as standard

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.



■Tool-height compensation function (Patented)

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 "CALC" button, the compensation value is easily created. By pressing "UPDATE" soft key, the tool height offset data will be updated.



Standard Specifications of Machine

		B0385C	B0386C
Machine capacity, Machining range	Max. working barstock dia.	ϕ38 mm	
	Max. machining length	60 mm	
	Max. main spindle drilling diameter	ϕ12 mm	
	Max. main spindle tapping diameter	M12	
	Max. back spindle chucking dia.	ϕ38 mm	
	Max. back spindle drilling diameter	ϕ12 mm	
	Max. back spindle tapping diameter	M12	
	Max. cross drilling diameter	ϕ8 mm	
	Max. cross tapping diameter	M6	
	Max. tool spindle slotting cutter dia.	ϕ45 mm	
Machining capability	Main spindle speed Note1)	200 to 4,500 min^{-1}	
	Back spindle speed	200 to 7,000 min^{-1}	
	Tool spindle speed Note2)	200 to 6,000 min^{-1} (Rated speed: 4,800 min^{-1})	
	Total tool storage capacity (Standard /Option)	28/35	32/39
	Tool size	□16 mm x 100 mm	
	Rapid traverse rate	32 m/min (X1/Y1: 24 m/min)	32 m/min (X1/Y1/Y2: 24 m/min)
Motors	Main spindle	3.7/5.5 kW	
	Back spindle	2.2/3.7 kW	
	Cross drill of front tool post	1.0 kW	
	Cross drill of rear tool post	1.0 kW (Option)	
	X1,Y2 (B0386C)	0.5 kW	
	Y1,Z1,X2,Z2	0.75 kW	
	Hydraulic motor	1.5 kW	
	Coolant pump	0.4 kW	
	Lubricating oil pump	3 W	
Power supply and others	Power source requirement	19.4 KVA	19.8 KVA
	Compressed air requirement	0.4 MPa or above	
	Air discharge rate	100 NL/min	
	Coolant tank capacity	180 L	
	Width x depth x height	2,720 x 1,280 x 1,930 mm	
	Net weight	3,800 kg	

Note 1 Main spindle speed changes according to the barstock material or length.
Note 2 Tool spindle speed: In case of rotating more than 4,800 min^{-1}, it is limited in the short period.

NC Specifications

	B0385C	B0386C
NC unit	FANUC Oi-TD	FANUC Oi-TF
Controlled axes	X1,Z1,Y1,X2,Z2	X1,Z1,Y1,X2,Z2,Y2
Least input increment	0.001 mm (X1/X2 axis in diameter)	
Least command increment	X1/X2 axis: 0.0005 mm, other: 0.001 mm	
Maximum programmable value	±8 digits	
Feedrate	1 to 6,000 mm/min	
Feedrate override	0 to 150% in 10% increments	
Dwell	G04 0 to 99999.999	
ABS/INC command	X,Z,Y,C: absolute, U,W,V,H: Incremental	

	B0385C	B0386C
Tool offset pairs	Main: 64, Back: 64	
LCD/MDI	10.4" color LCD	
Display language	Japanese/English	
Part program storage size	1 Mbyte (equivalent to 2,560 m tape length) *sum of main and back spindle NCs	
Registerable programs	800 *sum of main and back spindle NCs	
Miscellaneous functions	Main: M 5 digits, Back: M 3 digits	
Spindle function	S5-digits	
Tool function	T4-digits	

Standard Accessories

Machine		
Front tool post: 4-spindle cross drill	Back spindle adapter	Main spindle/back spindle air purge
C-axis control for main/back spindles (B0386C)	Door interlock (Tooling zone side door/Main spindle side door)	Cross drill air purge
Automatic programming system	Coolant level detector	Retractable coolant nozzle
Tool height compensation	Spindle cooling unit	Main spindle brake
Tool life counter	Standard tools	Hydraulic unit/hydraulic cylinder
Periodic maintenance screen	Transit clamps	
Main spindle adapter	Automatic power shut off	

NC standard accessories		
Chasing function	Z1/Z2-axis synchronous control	Rigid tap (Main spindle, back spindle)
Continuous thread cutting	Tool geometry/wear offset	Cut-off detection (Speed Differential type)
Manual pulse generator	Programmable data input	Spindle speed fluctuation detection
Memory card input/output interface	Chamfering & corner R	Direct drawing dimension program
Back ground editing	Tool nose radius compensation	Variable-lead thread cutting
Run time & parts number display	HRV control	Thread cutting cycle retract
Custom macro	Multiple repetitive cycle	Polar coordinate interpolation
Constant surface speed control	Extended program editing	Cylindrical interpolation
Spindle synchronous control (rotation/phase)	Canned drilling cycle	Abnormal load detection

Options

Advanced function system	Back spindle brake
	0.1 μm resolution
	Rear drive unit (For mounting rotary tools)
	Back drive
	Bar feeder interface
	Main spindle C axis control (B0385C)
	Back spindle C axis control (B0385C)
Rotary tools (Rear tool post) (The same tools with B0265-II/325-II)	Tool spindle
	Double face spindle
	Angular drilling head
	Thread whirling head
	Hobbing head
	Multiplied tool spindle
Rotary tools (Back tool post)	Tool spindle
	Back cross tool spindle (B0386C)
	Fixed adaptor
	Multiplied tool spindle
Chip disposal	Chip conveyor
Operation support functions	Tool set gauge
Tooling related	Drill holder
	Various collet chuck

Coolant related	High-pressure pump (1.5MPa)
	High-pressure pump (2MPa)
	High-pressure pump (4MPa)
	M code oil blow
	Coolant oil temperature controller
	Bag filter tank
	Coolant flow switch
	Mist collector
Workpiece discharge system	Work conveyor
	Work catcher
	Front discharge
Machine maintenance and monitoring functions	Tap breakage detector
	Signal indicator
NC functions	Live tool rigid tapping
	RS232C input/output interface
	Inch/metric conversion
	Manual handle retrace function
Safety and other	External light
	Internal light
	Automatic fire extinguisher

Option restriction of C axis and live tool (B0385C)

	Live tool			Index function	
Possible combination	Front cross (Equipped as standard)	Rear drive (Cross)	Back drive	Main spindle	Back spindle
(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

Note) By the optional C-axis switching function, adapting C-axis whether on the main spindle or the back spindle, such as the combination of (3) & (4), can be selected by the soft key. After switching, be sure to shut down the NC switch once.