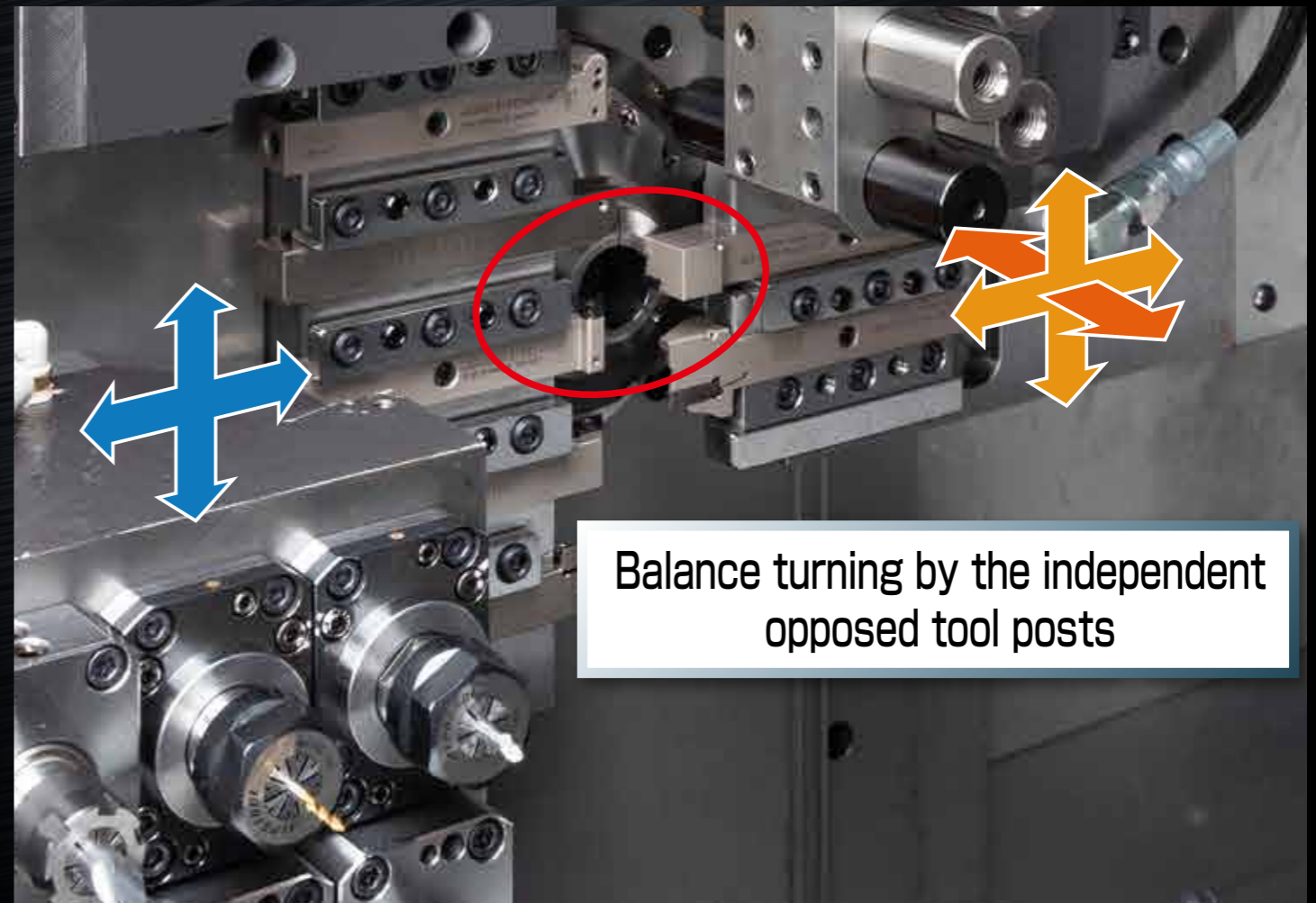


Simultaneous 2-tool cross processing by the independent opposed tool posts

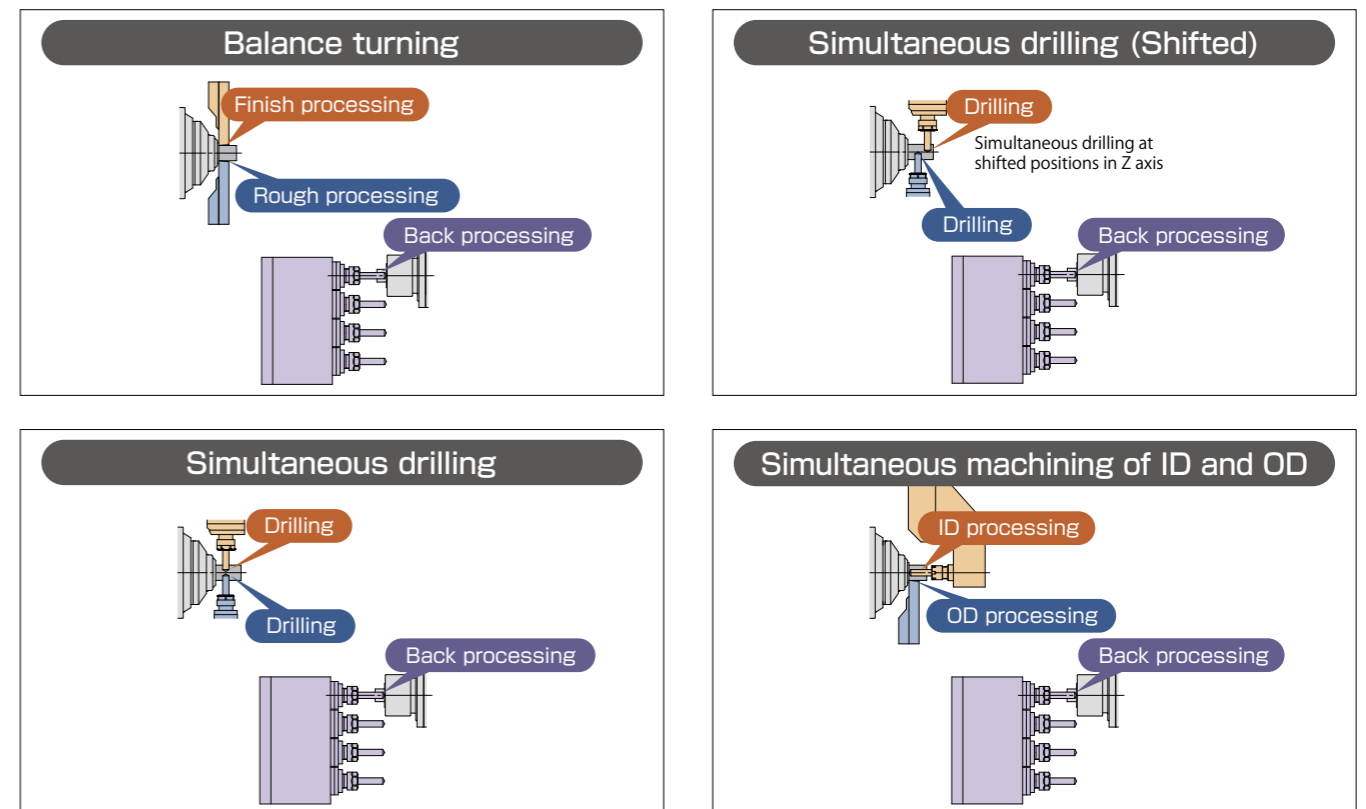


Balance turning by the independent opposed tool posts

Pursues higher productivity

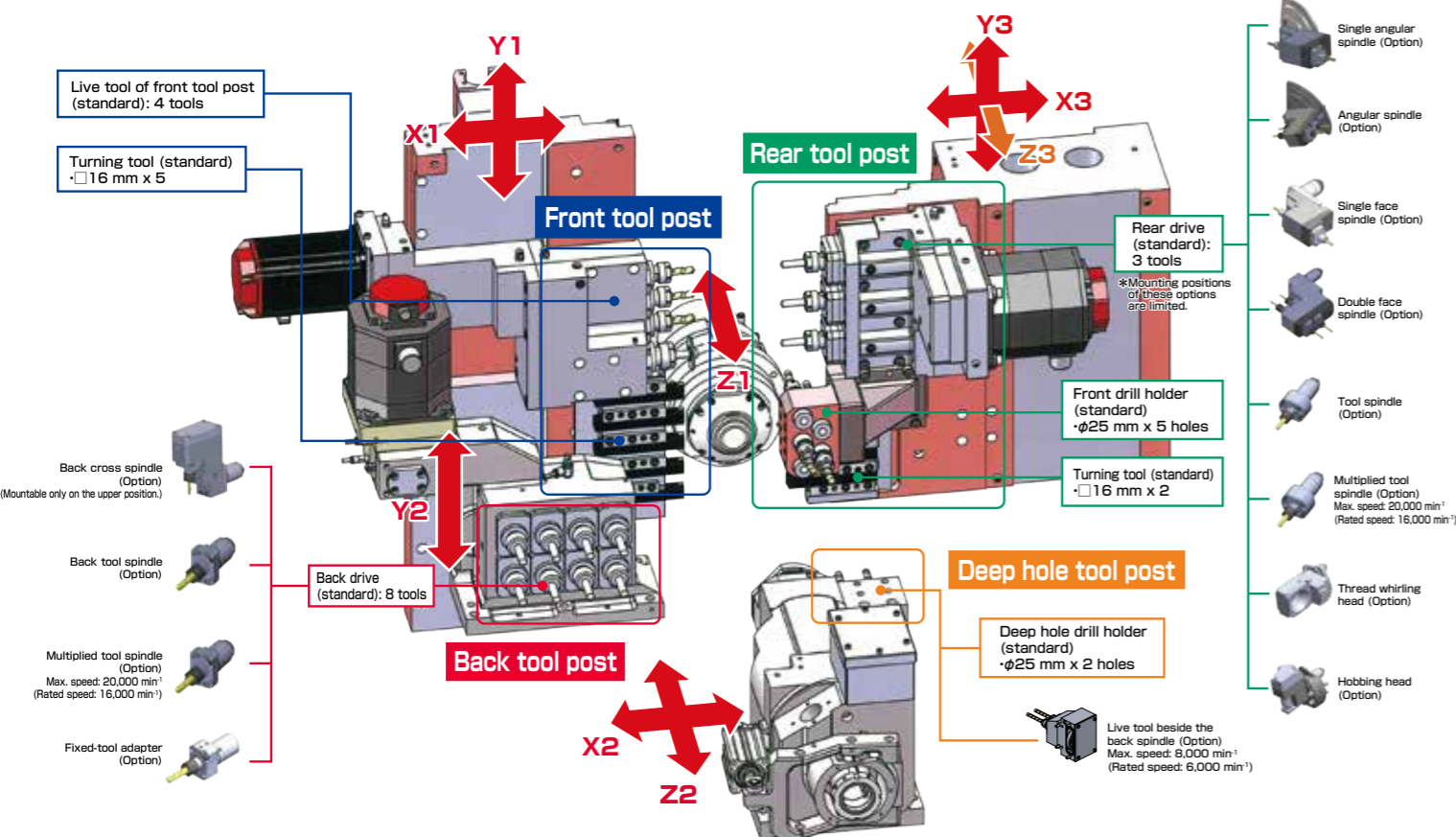
- Diverse processing capability with combination of front and rear independent tool post and the Y-axis controlled back tool post
- The independent opposed tool post structure allows the tool not being machined to be prepared for the next process, thereby minimizing the tool change time.
- Modular tooling enables optimal tool allocation. Achieves high productivity with optimal tooling and machining patterns.
- Internal cutting-edge coolant (option) improves chip disposal and tool life.
- Thanks to the thermal displacement compensation, the long-term stable production is realized. (Standard equipped)
- Automatic programming software (Abile) allows to create the program with 3-path controlled machining easily. (Standard equipped)

Diverse processing capability



Modular tooling

Various arrangement of live tools, drill holders, and turning tools enables optimal tool allocation.



Variety of live tools

Live tool of front tool post: 4 tools



Item	Specifications	
Rotation speed	T01 to T03	Max. 6,000 min ⁻¹ (Rated speed: 4,800 min ⁻¹)
	T04	Max. 4,000 min ⁻¹ (Rated speed: 3,200 min ⁻¹)
Applicable collet	T01 to T03	ER16
	T04	ER20
Motors	1.0 kW	

Rear drive: 3 tools*1



Back drive: 8 tools*1



Item	Specifications
Rotation speed	Max. 6,000 min ⁻¹ *2 (Rated speed: 4,800 min ⁻¹)
Type of mounting live tools	Modular
Motors	1.4 kW

*1 Modular type live tools are option.
*2 The rotation speed may be limited depending on mounting options.

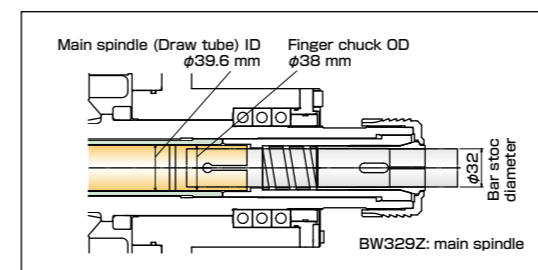
Direct-drive rotary guide bushing realizes high speed and high precision machining. (Option)

The structure with built-in drive motor reduces vibration and achieves stable geometrical accuracy, dimensional accuracy, and surface roughness.



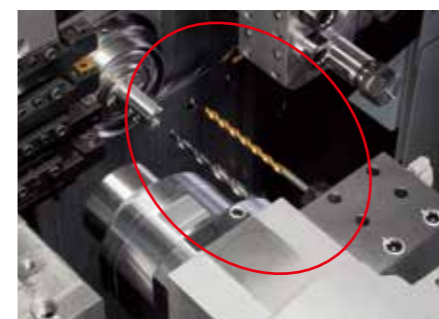
Item	BW269Z	BW329Z
Max. machining length	330 mm	
Rotation speed	Max. 10,000 min ⁻¹ (Rated speed: 7,000 min ⁻¹)	Max. 8,000 min ⁻¹ (Rated speed: 6,000 min ⁻¹)
Motors	0.75/1.5 kW	
Remnant length	220 + α (Workpiece length) mm	

Bar end pre-turning is unnecessary.



Model name	Main spindle (Draw tube) ID
BW269Z	φ33.6 mm
BW329Z	φ39.6 mm

Deep hole drilling by the deep hole drill holder



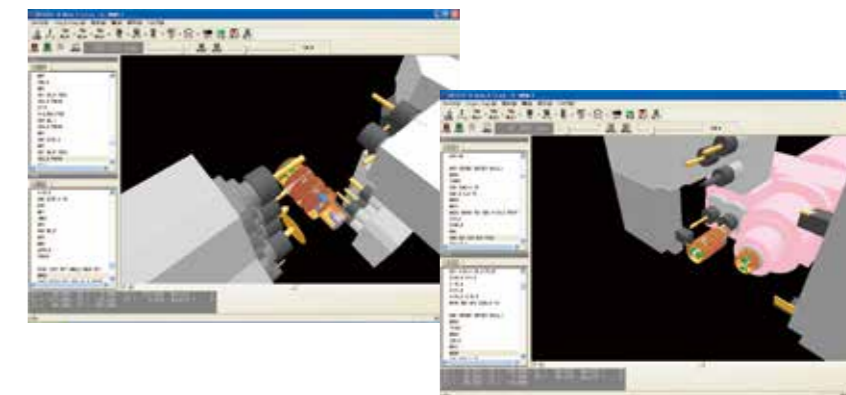
■ Deep hole drill holder specification

Drill holder hole dia.	φ25 mm x 2 holes
Valid machining length	100 mm

Automatic programming software (Able)

Program for 3-path controlled machine can be created easily and quickly by the PC-based automatic programming software. (Standard)

The 3D simulation enables the user to check the operations of main/back spindles from any angle. With TSUGAMI's know-how (machining process and cutting conditions), high quality and standardized programs can be created.



Machine specifications

Item		BW269Z	BW329Z
Machining range, Machining capacity	Bar stock chucking dia.	φ8 mm to φ26 mm	φ8 mm to φ32 mm
	Max. back spindle chucking dia.	φ26 mm	φ32 mm
	Max. machining length	330 mm (Direct-drive guide bushing *1) 50 mm (Guide-bushless *1)	330 mm (Direct-drive guide bushing *1) 70 mm (Guide-bushless *1)
	Max. main spindle drilling dia.	φ12 mm	
	Max. main spindle tapping dia.	M10	
	Max. back spindle drilling dia.	φ10 mm	
	Max. back spindle tapping dia.	M10	
	Max. deep hole drilling dia.	φ10 mm	
	Max. live tool drilling dia.	φ8 mm (Front tool post) φ10 mm (Rear tool post/ Back tool post)	
	Max. live tool tapping dia.	M6 (Front tool post) M8 (Rear tool post/ Back tool post)	
Max. live tool slotting cutter dia.	φ45 mm (Front tool post: T04)		
Machine	Main spindle speed	Max. 10,000 min ⁻¹ (Rated speed: 7,000 min ⁻¹) *2	Max. 8,000 min ⁻¹ (Rated speed: 6,000 min ⁻¹) *2
	Back spindle speed	Max. 10,000 min ⁻¹ (Rated speed: 7,000 min ⁻¹) *2*3	Max. 8,000 min ⁻¹ (Rated speed: 7,000 min ⁻¹) *2
	Rotary guide bushing speed	Direct-drive *1: Max. 10,000 min ⁻¹ (Rated speed: 7,000 min ⁻¹) *2	Direct-drive *1: Max. 8,000 min ⁻¹ (Rated speed: 6,000 min ⁻¹) *2
	Live tool speed	Front tool post/ Rear tool post/ Back tool post: Max. 6,000 min ⁻¹ (Rated speed: 4,800 min ⁻¹) *2 Front tool post (T04): Max. 4,000 min ⁻¹ (Rated speed: 3,200 min ⁻¹) *2	
	Tool storage capacity	34	
Tool size	□16 mm		
Rapid traverse rate	35 m/min (Z1, X2, Z2) 24 m/min (Y1, Y2, Y3) 12 m/min (X1, X3, Z3)		
Motors	Main spindle	3.7/5.5 kW	
	Back spindle	3.7/5.5 kW	
	Linear axes	0.5 kW (X1, Y2) 0.75 kW (Z1, Y1, X2, Z2, X3, Y3) 1.4 kW (Z3)	
	Live tools	1.0 kW (Front tool post)	
		1.4 kW (Rear tool post)	
Coolant pump	0.4 kW		
Lubricating oil pump	3 W		
Power supply and others	Weight	5,300 kg	
	Power source requirement	18.2 kVA	
	Compressed air requirement	0.4 MPa or above	
	Air discharge rate	100 NL/min	
	Coolant tank capacity	220 L	
Width x Depth x Height	2,655 mm x 1,640 mm x 2,000 mm		

*1: Option
 *2: The rotation more than the rated speed should be short period.
 *3: Max. back spindle speed is limited to 8,000 min⁻¹ when the live tool beside the back spindle is mounted.

NC specifications

Item	BW269Z	BW329Z
NC specifications	X1, Z1, Y1, X2, Z2, Y2, X3, Z3, Y3, C1, C2	
Least input increment	0.001 mm (X1, X2, X3-axis in diameter)/ 0.001 deg	
Max. programmable value	±8 digits	
Interpolation method	Linear, Circular	
Feedrate	1 to 6,000 mm/min	
Feedrate override	0 to 150% in 10% increments	
Dwell	G04 0 to 99999.999	
Absolute/incremental command	X, Z, Y, C: Absolute U, W, V, H: Incremental	
Number of tool offset	Sum of all paths: 200	
LCD/MDI	10.4" color LCD	
Display language	English	
Part program storage size	Sum of all paths: 512 Kbytes	
Number of registerable programs	Sum of all paths: 1,000	
Miscellaneous functions	M5-digits	
Spindle functions	S5-digits	S4-digits
Tool functions	T4-digits	

Machine standard accessories

Item	Item	Item
Tool height compensation function	Transit clamps	Live tool of front tool post: 4 tools
Tool counter	Retractable coolant nozzle	Rear drive: 3 tools
Periodic maintenance screen	Automatic power shut off	Back drive: 8 tools
Main/back spindle adapter	Automatic cut-off function/ Automatic facing function	Front drill holder: 5 holes
Door interlock (Tooling zone/Headstock area)	Air purge for main/back spindle	Deep hole drill holder (φ25mm x 2 holes)
Coolant level switch	Air purge for live tool	Internal illumination lamp (Tooling zone)
Spindle cooling unit	C-axis control for main/back spindles	Thermal displacement compensation
Standard tools	Main spindle brake	Automatic programming software(Abile)

NC standard accessories

Item	Item	Item
Chasing function	Spindle synchronous control (rotation/phase)	Extended program editing
Continuous thread cutting	Z1-Z2 synchronous control	Canned drilling cycle
Manual pulse generator	Tool geometry/Wear offset	Rigid tap (Main spindle, Back spindle)
Memory card I/O interface	Programmable data input	Spindle speed fluctuation detection
Background editing	Chamfering & Corner R	Cut-off detection (Speed differential type)
Run time & parts number display	Tool nose radius compensation	Tool load monitor (live tool)
Custom macro	HRV control	Fixed data setting screen
Constant surface speed control	Multiple repetitive cycle	High-speed CPU

Options

Item		Item		
Guide bushing	Direct-drive rotary guide bushing	Chip disposal	Chip conveyor	
	Guide-bushless		Chip carrier	
Spindle functions	Back spindle brake	Machine maintenance and monitoring functions	Tool load monitor (linear axis)	
	Back spindle 15 deg index		Signal indicator	
High accuracy functions	0.1 μm resolution	Tooling	Collet chuck with carbide lining	
	Coolant temperature controller		Drill holder	
	Touch switch for X2 axis		Adapter for non-round bar (main spindle)	
Live tools (Rear tool post)	Tool spindle		Adapter for non-round bar (back spindle)	
	Multiplied tool spindle		Spindle liner	
	Single face spindle		Additional holder for back tool post	
	Single angular spindle		Tool set gauge	
	Double face spindle		Part program storage size 2Mbyte	
	Angular spindle		Helical interpolation	
	Multiplied face spindle head		Direct drawing dimension program	
	Multiplied angular spindle head	Variable-lead thread cutting		
Thread whirling head	Thread cutting cycle retract			
Live tools (Back tool post)	Hobbing head	NC functions	Polar coordinate interpolation	
	Back tool spindle		Cylindrical interpolation	
	Multiplied tool spindle		Display language	
	Back cross spindle		Manual handle retrace	
Live tools (Deep hole tool post)	Fixed-tool adapter		Inch/metric conversion	
	Coolant		Live tool beside the back spindle	Data server function
			High pressure pump	3-dimensional coordinate conversion
			M code oil blow	Shift amount setting for spindle phase synchronization control
Work discharge	Wavy nozzle		Automatic setting of pick-up position (G430-G431)	
	Cutting-edge coolant (Internal)		Torque limit skip for Z2 axis (G432)	
	Work conveyor	Safety and other	Mist collector	
	Work catcher		Automatic fire extinguisher	
	Front discharge		Coolant flow switch	
Rear discharge	Bar feeder interface			
Work tray	Rigid tap (live tool)			
Work unloader	RS232C input/output interface			
			Abnormal load detection	