OKUMA

OPEN POSSIBILITIES

Intelligent Multitasking Machines

MULTUS Bseries

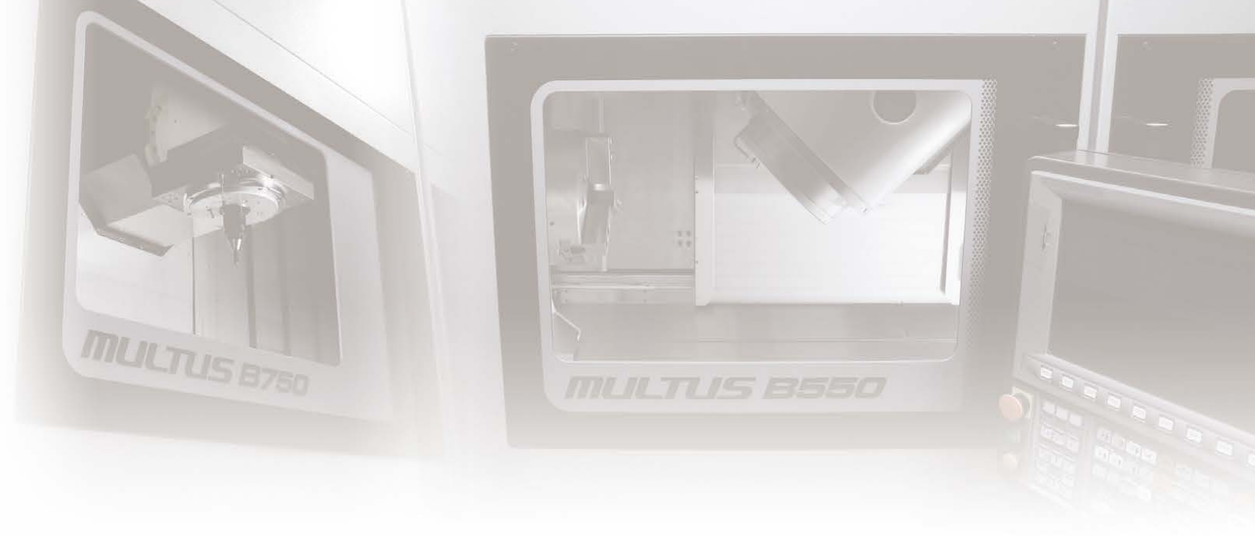
MULTUS B550/MULTUS B750

Intelligent Multitasking Machines

MULTUS Bseries

MULTUS B550/MULTUS B750

Intelligent Technology | Thermo-Friendly Concept | Collision Avoidance System | Machining Navi | 5-Axis Auto Tuning System | SERVONAVI



See the future of intelligent machining— with multitasking and Okuma Intelligent Technologies

Process-intensive machining that exceeds expectations
with excellent structural design and a next-generation CNC system.

- All processes for large-diameter, long workpieces done on a single machine with a wide array of applications
- Higher productivity than a large lathe and machining center
- Outstanding operability achieved with a control made by machine tool manufacturer

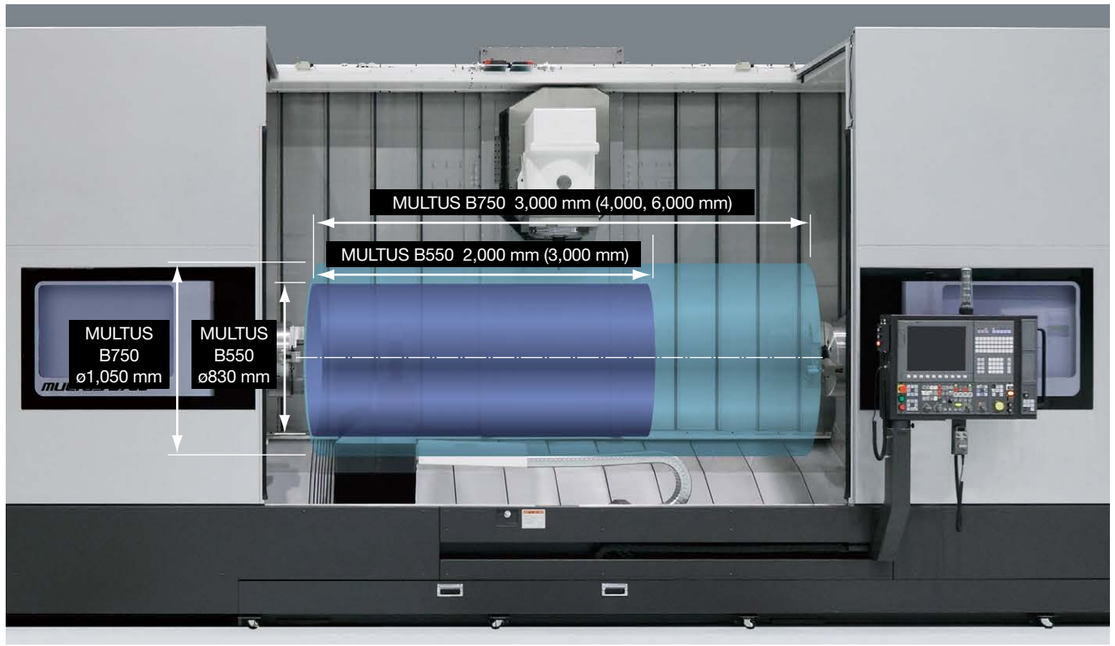
MULTUS B550

MULTUS B750

Photos shown in this brochure include optional equipment.

Full process-intensive machining of large-diameter, long workpieces

A large working range that can handle large or long workpieces up to ø1,050 mm and 6,000 mm in length is ensured with an orthogonal 3-axis machine configuration (MULTUS B750). Rigidity essential for the machining of large parts is achieved with use of diagonal rib structured columns and high-accuracy, high-rigidity spindles. Turning capacity is equivalent to that of a large NC lathe, while milling capacity corresponds to that of a horizontal machining center.



Largest working range in class

Even large parts can be machined without difficulty thanks to a wide working range produced by large Y-axis travel and strong support capacity.

Maximum support weight

	MULTUS B550	MULTUS B750
Double-centered support weight	1,500 kg	8,000 kg
Double-sided support weight	1,600 kg	5,000 kg

Note: Support weight may differ depending on specifications

Performs full-fledged milling

With an orthogonal 3-axis structure, full-fledged milling that exceeds the capacity of multitasking machines is achieved in milling difficult right angles or drilling with high pitch accuracy.

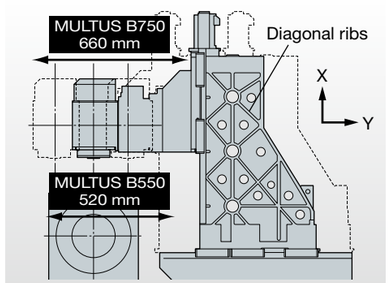


Illustration shows MULTUS B750

X-axis rigidity maintained during Y-axis movement

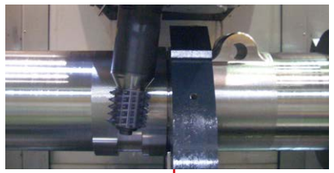
A column feed system is used for Y-axis travel. With a rigid and highly stable X-axis structure, the ram extension remains constant at any Y-axis position.

A single machine performs all the machining operations for a wide variety of applications

Fully integrated operations for long parts—from inner diameter, outer diameter, and gear machining to high-speed contour shaping

Flute milling of gears with hob cutter

Gear section machining by mounting a hob cutter on the milling tool spindle and synchronizing (hobbing function: optional) with the C axis at a fixed ratio.
If the Gear Machining Package (optional) is used, programming can be done simply by inputting the tool and gear specifications and cutting conditions.



Gear section

High-speed contour shape machining

With Super-NURBS (optional), high speed machining of curved surfaces is achieved in accordance with machine characteristics, based on fine control of tool travel position, speed, acceleration, and changes in acceleration to draw out the maximum performance of the machine.

- Product name: Landing gear model
- Cycle time: 9 h 40 min

Machining with left spindle

ID super deep hole machining

Long boring bar (optional) can be used on either left or right spindle. Handles even deep hole machining of 1 m without interference.

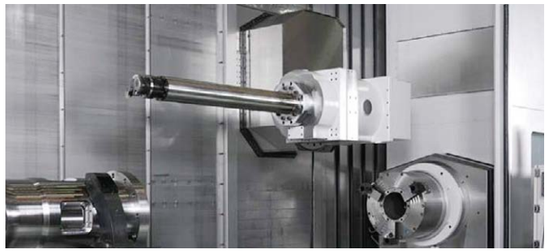
Machining with right spindle

Full use of opposing spindle and long boring bar for process-intensive boring

High-accuracy machining with steadyrest

The use of steadyrests suppresses workpiece bending from its own weight and workpiece distortion from cutting force, thus enabling high-accuracy machining.

- Product name: Valve body (hydraulic part)
- Material: S45C
- Cycle time: 1 h 40 min
- Size: ø270 × 1,000 mm
- Machining portion: Inner diameter dome, inner diameter finishing, dome milling, window milling



Cycle times shortened with powerful machining

Equipped with high-power, high-torque turning spindle and milling tool spindle, achieves powerful machining equivalent to a large lathe or machining center. Even large workpieces with much removal stock can be machined with ease. Also handles various types of machining with its abundant product variants, including big-bore spindle and milling tool high speed specifications.

Turning spindle

Spindle with highly rigid structure combining roller bearings and angular bearings. All types of machining processes can be done, from heavy-duty cutting to processes that demand high quality surface roughness.

Milling tool spindle

Milling tools with integral motor/spindle offer powerful cutting with high torque output (MULTUS B550: 321N-m, MULTUS B750: 505N-m). Ensures optimum rigidity in turning and milling with a roller bearing and angular bearing construction.

Turning	MULTUS B550	MULTUS B750
	ø160 spindle: integral motor	ø220 spindle: 4-spd gear
Spindle speed	3,000 min^{-1}	2,000 min^{-1}
Power	37/30 kW (30 min/cont)	37/30 kW (30 min/cont)
	·Heavy cutting: 6.5 mm^2	·Heavy cutting: 6.5 mm^2

OD (Material: S45C)

Cutting	150 m/min	150 m/min
Depth	10 mm	10 mm
Feedrate	0.65 mm/rev	0.65 mm/rev

Insert drill (Material: S45C)

Tool	ø63 carbide drill	ø63 carbide drill
Cutting	180 m/min	180 m/min
Feedrate	0.25 mm/rev	0.25 mm/rev

Milling	MULTUS B550	MULTUS B750
	Milling tool spindle	Milling tool spindle
Milling tool spindle speed	10,000 min^{-1}	10,000 min^{-1}
Power	37/30/22 kW (3 min/30 min/cont)	37/30/22 kW (3 min/30 min/cont)
	·Chip volume: 1,000 cm^3/min	·Chip volume: 1,000 cm^3/min

Face mill (Material: S45C)

Tool	ø80 face mill, 8 blades	ø100 face mill, 10 blades
Cutting	300 m/min	300 m/min
Depth	5.5 × 56 mm	5 × 70 mm
Feedrate	2.72 mm/rev	3.0 mm/rev
Chips	1,000 cm^3/min	1,000 cm^3/min

Insert drill (Material: S45C)

Tool	ø63 carbide drill	ø63 carbide drill
Cutting	180 m/min	180 m/min
Feedrate	0.25 mm/rev	0.25 mm/rev

TAP (Material: S45C)

	M36 P4	M42 P4.5

Highly rigid structure shows its power in machining difficult-to-cut materials

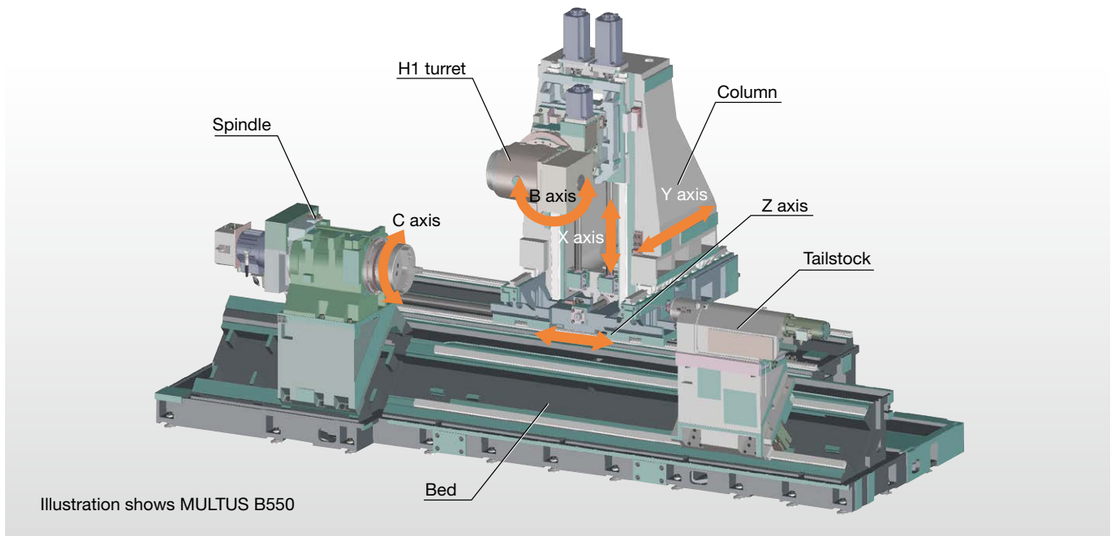


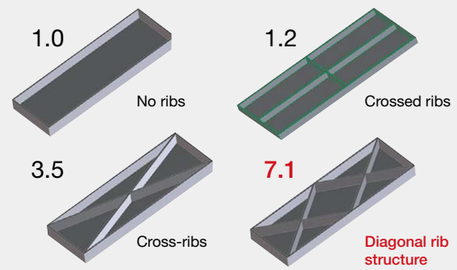
Illustration shows MULTUS B550

Maintains high accuracy over the long term

Diagonal rib structure used on bed and column. This rigidity is 7 times greater than without ribs. It strongly resists bending and torsion, remaining rigid even with large loads from heavy-duty cutting so that high accuracy is maintained over the long term.

■ Diagonal rib structure casting

● Rigidity comparison sample (rigidity per weight)



High follow-up accuracy with no positioning error

Large roller guides used on X, Y, and Z axes for superior rigidity, wear resistance, and vibration damping, smooth movement, and accurate positioning. Double ball screws on X axis eliminate positioning errors from movement direction and provide superb follow capability. In addition, a 3-way guide is used on the MULTUS B750, and straightness is maintained long-term with long travel.

Highly rigid tailstock

The tailstock has a large-diameter, highly rigid structure.
The workpiece is supported with high thrust for stable support of even massive workpieces.

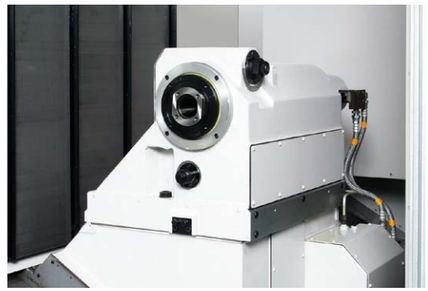


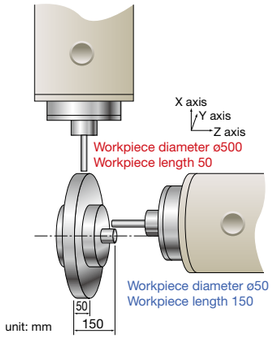
Photo shows MULTUS B750

	MULTUS B550	MULTUS B750
Built-in quill	MT No. 5	MT No. 6
Quill stroke	250 mm	350 mm
Quill diameter	ø130 mm	ø180 mm
Movement system	Auto tow-along	Auto tow-along
Thrust	15 kN	26 kN

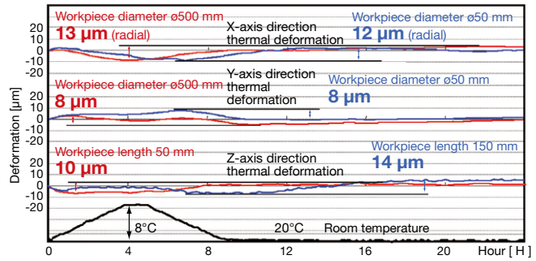
Large machine with extraordinarily high accuracy

Thermal Deformation–Accurately Controlled
Thermo-Friendly Concept

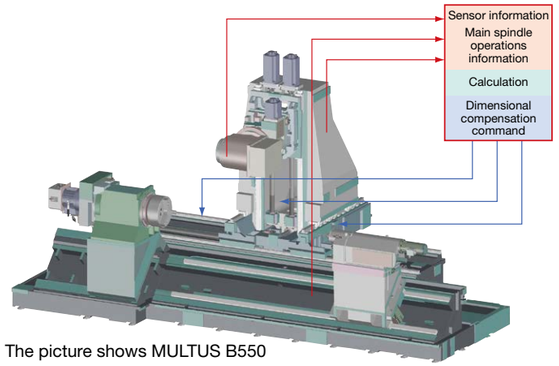
With thermal deformation control matched to the controlled axis position and machining point, dimensional changes from thermal deformation can be minimized regardless of workpiece size. Accurate control is also provided in various usage conditions, such as coolant use or downtime during lunch breaks.



Thermal deformation over time ≤ 14 µm
(actual data with MULTUS B750)



- Running conditions: Spindle rotation 500 mm^{-1} 24 h
- Room temperature change: Rise of 8° C from 20° C over 4 hours. After 1 hour, decline of 8°C over 4 hours. Coolant added

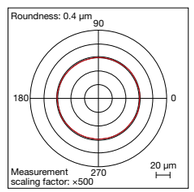


The picture shows MULTUS B550

TAS-S [Thermo Active Stabilizer – Spindle]
X-Y-Z axes control thermal deformation of the milling tool spindle

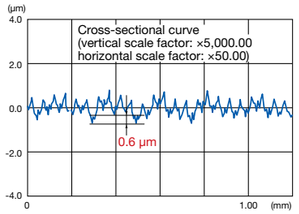
TAS-C [Thermo Active Stabilizer – Construction]
Overall control of thermal deformation on headstock, bed, column, and turret

Roundness 0.4 µm
MULTUS B550 (actual turning data)



- Material : BsB
- Cutting conditions : Spindle speed 2,500 min^{-1}
  Feedrate 0.05 mm/rev

Surface roughness 0.6 µm
(uniformity at tool edge)
MULTUS B550 (actual data)



- Material : BsB
- Cutting conditions : Spindle speed 2,000 min^{-1}
  Feedrate 0.05 mm/rev

B-axis positioning accuracy
±0.0025°
MULTUS B750 (actual data)

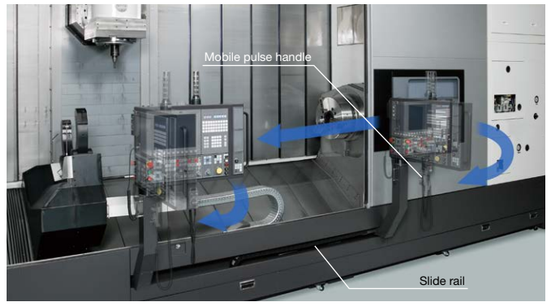
B-axis repeatability
±0.0005°
MULTUS B750 (actual data)

Note: The “actual data” referred to above for this brochure represent examples, and may not be obtained due to differences in specifications, tooling, cutting, and other conditions.

Machine construction with superior operability and maintainability

Mobile operation panel with outstanding ease-of-use

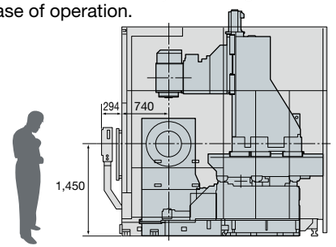
Swivel and slide type operation panel and mobile pulse handle are used. The operation panel can be moved freely on a slide rail that spans the entire front of the machine. The use of a mobile pulse handle enables smooth movement while checking the tool edge in any location.



Ease of use at operator’s line of sight

Bed and spindle layout for easy accessibility to spindle
Easy workpiece mounting and dismounting.
Reduced operator burden, including chip cleaning

Vertical X-axis with superior tool edge visibility
Tool edge comes to eye line height for ease of visibility and ease of operation.



(with MULTUS B750 and distance between centers of 3000)

Front maintenance

To make regular maintenance easy to perform, the major oil supply locations are concentrated on the front of the machine. Maintenance is also possible by pulling the chip conveyor out the front.

Note: May not be available for certain specifications.

Next-Generation Energy-Saving System
ECO suite

A suite of energy saving applications for machine tools

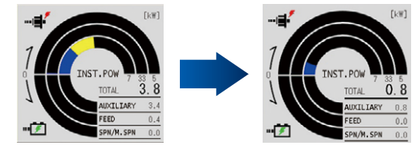
Accuracy ensured, cooler off
ECO Idling Stop

Intelligent energy-saving function with the Thermo-Friendly Concept. The machine itself determines whether or not cooling is needed and cooler idling is stopped with no loss to accuracy. (Standard application on machines with Thermo-Active Stabilizer—Spindle)

On-the-spot check of energy savings
ECO Power Monitor

Power is shown individually for spindle, feed axis, and peripheral equipment on the OSP operation screen. The energy-saving effect from peripheral equipment stopped with ECO Idling Stop can be confirmed on the spot.

- Power Monitor confirmation example

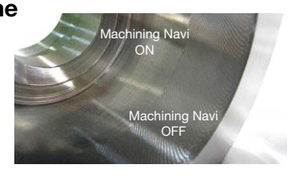


Before ECO Idling Stop After ECO Idling Stop

The indicated values are one example.

Maximizing machine tool performance

With optimal cutting conditions: longer tool life, shorter cycle time
Cutting condition search:
Machining Navi (Optional)



Machining Navi, with clear visuals of complex cutting conditions, is a breakthrough tool that enables the machine operator to navigate the machine and tool capabilities to their best performance levels.

For turning

Chatter-free applications for lathes
Machining Navi L-*g* (guidance)

Chatter in a lathe can be suppressed by changing spindle speeds to the ideal amplitude and wave cycle.

Threading chatter can be easily controlled by anyone
Machining Navi T-*g* (threading)

In the threading cycle, chatter during threading is controlled through appropriate change of the spindle speed in each pass.

For milling

Adjust cutting conditions while monitoring the data
Machining Navi M-*g* II +
(Optimum spindle speed/harmonic spindle speed control)

From chatter noise picked up by the microphone, Machining Navi will display the best options for chatter-free spindle speed. The operator can select a recommended speed and immediately confirm the result.

Simple, auto-mode—leave it to the machine
Finding optimum cutting conditions quickly
Machining Navi M-*i*
(intelligently optimized spindle speed control)

Chatter vibration is measured by built-in sensors, and spindle speed is automatically changed to the optimum speed. In addition, advanced graphics of the optimal cutting conditions represent effective alternatives to suppress various chatter characteristics throughout the low to high speed zones.

Gauging and compensatiom of geometric error
5-Axis Auto Tuning System (Optional)

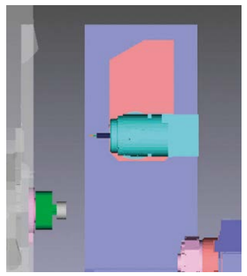
On multitasking machines there is "geometric error," such as spindle runout, that have huge effects on machining accuracy. The 5-Axis Auto Tuning System measures geometric error with a touch probe and datum sphere, and tunes multitasking machines for better operating accuracy through compensation control using the measurement results. This helps to achieve a higher level of 5-axis machining accuracy.

■ Anyone can automatically check for geometric error quickly and easily

Manual measurement and adjustment of geometric error is bothersome and time-consuming. The 5-Axis Auto Tuning System conducts automatic tuning to correct geometric error in a short time.

Setup/trial cut time: reduced by 40%
Preventing collisions
Collision Avoidance System

NC controller (OSP) with 3D model data of machine components—workpiece, tool, chuck, fixture, headstock, turret, tailstock—performs real time simulation just ahead of actual machine movements. It checks for interference or collisions, and stops the machine movement immediately before collision. Machinists (novice or pro) will benefit from reduced setup and trial cycle times, and the confidence to focus on making parts. Troublesome settings eliminated. With easy tool preps, you can use the preset tool data just as it is.



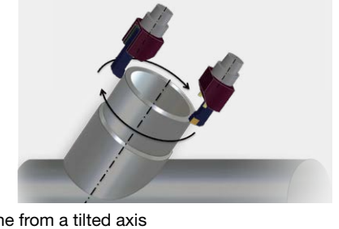
Virtual machine (advance simulation)

Actual machine

Achieves process-intensive machining beyond the framework of multitasking machines

Tilted axis turning
Turn-Cut (Optional)

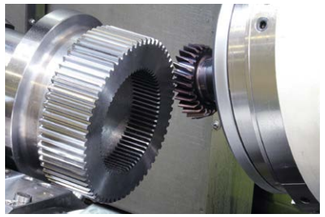
Turn-Cut is an original Okuma technology that enables turning from a milling spindle. The circular motion of the feed axis and the spindle indexing angle are simultaneously controlled so that the tool edge is always perpendicular to the milling spindle circular motion. Tilted axis turning can also be done by tilting the B axis. Moreover, machining of any diameter can be done with a single tool, enabling inside and outside diameter machining that is larger than the maximum tool diameter. For setting cutting conditions, the machine will recommend the optimum spindle speed if the diameter and roundness of the portion to be machined are specified with the Turn-Cut Guide app (optional).



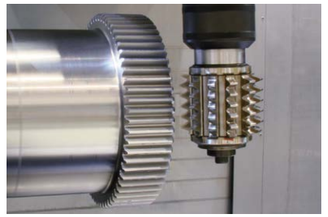
Turning can be done from a tilted axis

High accuracy gear cutting with a multitasking machine
Gear Machining Package (Optional)

Gear cutting that previously required complex programming can now be done with ease. With easy programming, simply input the tool type, gear data, and cutting conditions to achieve highly accurate machining, reducing programming time to about one-tenth that of manual input. Process-intensive machining is achieved, including the gear cutting that used to be done on expensive special-purpose machines.



Skiving (OD/ID splines)



Hobbing

Input screen

3D measuring for multitasking machines
NC Gage (Optional)

Twenty types of geometrical accuracy, such as hole position and flatness, can be measured on the machine, greatly reducing lead time. A program to measure the positional relationship between geometric tolerance and workpiece shape is automatically produced by teaching. Data storage of the measurement results is possible.

Machine Specifications

	Item		MULTUS B550				MULTUS B750					
			C × 2000	C × 3000	W × 2000	W × 3000	C × 3000	C × 4000	C × 6000	W × 3000	W × 4000	W × 6000
Capacity	Swing over saddle	mm (in.)	ø830 (32.68)				ø1,050 (41.34)					
	Distance between centers (C), distance between noses (W)	mm (in.)	2,000 (78.74)	3,000 (118.11)	2,544 (100.16)	3,544 (139.53)	3,000 (118.11)	4,000 (157.48)	6,000 (236.22)	3,544 (139.53)	4,544 (178.90)	6,544 (257.64)
	Max machining dia	mm (in.)	ø830 (32.68)				ø1,050 (41.34)					
Travels	X axis	mm (in.)	925 (36.42)				1,080 (42.52)					
	Z axis	mm (in.)	2,215 (87.20)	3,215 (126.57)	2,215 (87.20)	3,215 (126.57)	3,215 (126.57)	4,215 (165.94)	6,215 (244.69)	3,215 (126.57)	4,215 (165.94)	6,215 (244.69)
	Y axis	mm (in.)	520 (±260) (20.47 (±10.24))				660 (±330) (25.98 (±12.99))					
	W axis	mm (in.)	–		2,100 (82.68)	3,100 (122.05)	–			3,100 (122.05)	3,395 (133.66)	4,595 (180.91)
	C axis	degree	360 (Min controlled angle 0.001)				360 (Min controlled angle 0.001)					
	B axis indexing angle	degree	–30 to +210 (Min controlled angle 0.001)				–30 to +210 (Min controlled angle 0.001)					
Spindle	Spindle speed	min^{-1}	30 to 3,000 [12 to 2,400]				11 to 2,000 [14 to 1,500, 10 to 1,000]					
	Speed ranges		2 auto ranges (2-step motor coil switching) [4 auto ranges (4 speed gear)]				4 auto ranges (4 speed gear) [2 auto ranges (2 speed gear)]					
	Spindle nose		JIS A2-11				JIS A2-11 [JIS A2-15, A2-20]					
	Tapered bore / Bearing dia	mm (in.)	ø112/ø160 [ø130/ø180] (ø4.41/6.3 [ø5.12/ø7.09])				ø142/ø220 [ø185/ø280, ø275/ø380] (ø5.59/8.66 [ø7.28/ø11.02, ø10.83/ø14.96])					
Opposing spindle	Spindle speed	min^{-1}	–		30 to 3,000 [12 to 2,400]		–			11 to 2,000 [14 to 1,500]		
	Speed ranges		–		2 auto ranges (2-step motor coil switching) [4 auto ranges (4 speed gear)]		–			4 auto ranges (4 speed gear)		
	Spindle nose		–		JIS A2-11		–			JIS A2-11 [JIS A2-15]		
	Tapered bore / Bearing dia	mm (in.)	–		ø112/ø160 [ø130/ø180] (ø4.41/ø6.3 [ø5.12/ø7.09])		–			ø142/ø220 [ø185/ø280] (ø5.59/ø8.66 [ø7.28/ø11.02])		
Turret	Type		H1				H1					
	No. of tools		1 for both L and M				1 for both L and M					
	Tool shank dimensions / ID tool shank diameter	mm (in.)	□25/ø50 (□0.98/ø1.97)				□32/ø63 (□1.26/ø2.48)					
	Speed range	min^{-1}	40 to 10,000				40 to 10,000					
	Milling tool speed range		2 auto ranges (2-step motor coil switching)				2 auto ranges (2-step motor coil switching)					
	Milling tool spindle torque	N-m	321/260/191 (3 min/30 min/cont)				505/300/205 (3 min/30 min/cont)					
Feedrates	Rapid traverse X, Z, Y axis	m/min	X, Z, Y: 40				X, Z, Y: 40	X, Y: 40, Z: 30		X, Z, Y: 40	X, Y: 40, Z: 30	
	Rapid traverse W axis	m/min	–		20	15	–			15	12	10
	Rapid traverse C, B axis	min^{-1}	C: 200, B: 30				C: 100, B: 20					
Tailstock	Quill diameter	mm (in.)	ø130 (5.12)		–		ø180 (7.09)			–		
	Center taper		MT No. 5 (Built-in)		–		MT No. 6 (Built-in)			–		
	Quill travel	mm (in.)	250 (9.84)		–		350 (13.78)			–		
ATC	Tool shank / Pull stud		HSK-A100 [CAPTO C8, BT50/P50TⅡ]				HSK-A100 [CAPTO C8, MAS BT50/P50TⅡ]					
	No. of tools	tool	40 [80, 160]				40 [80, 160]					
	Max tool dia	mm (in.)	ø130 (5.12) (w/o adjacent tools: ø260 (10.24))				ø135 (5.31) (w/o adjacent tools: ø300 (11.81))					
	Max tool length	mm (in.)	600 (23.62) (from the gauge line)				600 (23.62) (from the gauge line)					
	Max tool weight	kg (lb)	30 (66)				30 (66)					
Motors	Spindle motors	kW (hp)	37/30 (50/40) (30 min/cont)		Main/opposing: 37/30 (50/40) (30 min/cont)		37/30 (50/40) (30 min/cont) [45/37 (30 min/cont)]			Main/opposing: 37/30 (50/40) (30 min/cont) [45/37 (30 min/cont)]		
	Milling tool spindle	kW (hp)	37/30/22 (50/40/30) (3 min/30 min/cont)				37/30/22 (50/40/30) (3 min/30 min/cont)					
	X, Z, Y, B axis	kW (hp)	X: 5.2 × 2, Z: 5.2, Y: 5.1, B: 4.6 (X: 7 × 2, Z: 7, Y: 7, B: 6)				X: 5.2 × 2, Z: 5.2, Y: 5.1, B: 4.6 (X: 7 × 2, Z: 7, Y: 7, B: 6)					
	W axis	kW (hp)	–		4.2 (5.6)		–			5.2 (6.63)		
	Coolant motor (50/60 Hz)	kW (hp)	0.25/0.25 × 1, 0.55/0.75 × 4 (0.3/0.3 × 1, 0.7/1 × 4)				0.25/0.25 × 1, 0.55/0.75 × 4 (0.3/0.3 × 1, 0.7/1 × 4)					
Machine size	Height	mm (in.)	3,307 (130.20)				3,557 (140.04)	3,607 (142.01)	3,610 (142.13)	3,557 (140.04)	3,607 (142.01)	3,610 (142.13)
	Floor space (tank included)	mm × mm (in.)	8,030 × 3,258 (316.14 × 0.13)	9,130 × 3,258 (359.45 × 128.27)	8,430 × 3,758* (331.89 × 147.95)	9,730 × 3,758* (383.07 × 147.95)	9,130 × 3,532 (359.45× 139.06)	10,555 × 3,532 (415.55 × 139.06)	13,505 × 3,797 (531.69 × 149.49)	9,730 × 4,022* (383.07 × 158.35)	11,155 × 4,022* (439.17 × 158.35)	13,505 × 4,287* (531.69 × 168.78)
	Weight (with CNC)	kg (lb)	29,500 (64,900)	33,000 (72,600)	31,000 (68,200)	34,000 (74,800)	40,000 (88,000)	43,500 (95,700)	50,000 (110,000)	44,000 (96,800)	47,500 (104,500)	54,500 (119,900)
CNC			OSP-P300SA				OSP-P300SA					

*Depth includes opposing spindle cooler [ ]: Optional

Standard Specifications and Accessories

	MULTUS B550	MULTUS B750
Headstock	JIS A2-11 (37/30 kW 3,000 min^{-1}) Integral spindle/motor	JIS A2-11 (37/30 kW 2,000 min^{-1}) Gear spindle
Milling tool spindle	37/30/22 kW 10,000 min^{-1}	
Turret	H1 ATC	
Tailstock	Built-in quill MT 5 Auto tow-along	Built-in quill MT 6 Auto tow-along
Auto tool changer	40-tool magazine HSK-A100	
Coolant system	Detachable coolant tank, pump motor: 0.25/0.25 (50/60 Hz) kW × 1, 0.55/0.75 (50/60 Hz) kW × 4, Milling tool spindle, through spindle specifications	
Full-enclosure shielding	DBC 2000: manual, DBC 3000: front door auto open/close	Auto front door open/close (safety tape SW included)
In-machine work lamp	LED	
Foundation pads, jack screws	○	
Hand tools	○	
CNC	OSP-P300SA	
Operating panel	15-inch color TFT display	
Pulse handle	1 pc, portable (electronic handwheel)	
Other	Thermo Active Stabilizer – Spindle (TAS-S), Thermo Active Stabilizer – Construction (TAS-C), Collision Avoidance System B-axis NC control, C-axis control, Synchonized Tapping	

Standard chuck sizes

		Main / Opposing spindle									
	Chuck OD	12-inch		15-inch		18-inch		21-inch		24-inch	
	Chuck type	Hollow	Solid	Hollow	Solid	Hollow	Solid	Hollow	Solid	Hollow	Solid
MULTUS B550	Standard spindle A2-11	●		●	●		●		●		●
	Big bore spindle A2-11			●	●	●	●	●	●	●	●
MULTUS B750	Standard spindle A2-11				●	●					
	Big bore spindle A2-15					●					●

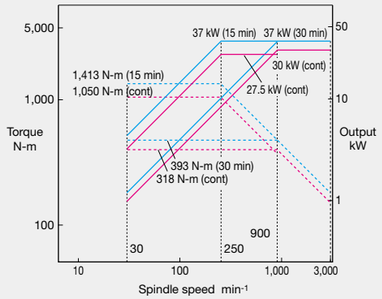
Please consult with regard to boxes with no ● dots.

Standard Spindle Torque/Output Diagrams

〈MULTUS B550〉

Standard spindle (MULTUS B550 Main, Opposing)

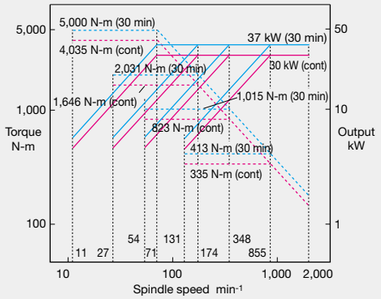
Spindle speed 3,000 min^{-1}
Output 37/30 kW (30 min/cont)
Torque 1,413/1,050 N-m (15 min/cont)



〈MULTUS B750〉

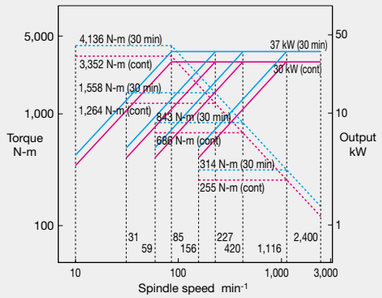
Standard spindle (MULTUS B750 Main, Opposing)

Spindle speed 2,000 min^{-1}
Output 37/30 kW (30 min/cont)
Torque 5,000/4,035 N-m (30 min/cont)



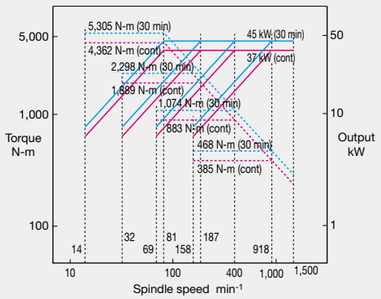
Big-bore spindle (MULTUS B550 Main, Opposing)

Spindle speed 2,400 min^{-1}
Output 37/30 kW (30 min/cont)
Torque 4,136/3,352 N-m (30 min/cont)



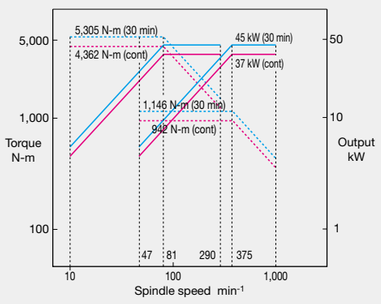
Big-bore spindle (MULTUS B750 Main, Opposing)

Spindle speed 1,500 min^{-1}
Output 45/37 kW (30 min/cont)
Torque 5,305/4,362 N-m (30 min/cont)



Super big-bore spindle (MULTUS B750 Main)

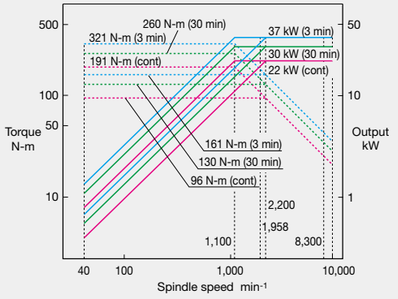
Spindle speed 1,000 min^{-1}
Output 45/37 kW (30 min/cont)
Torque 5,305/4,362 N-m (30 min/cont)



〈MULTUS B550〉

Milling tool spindle

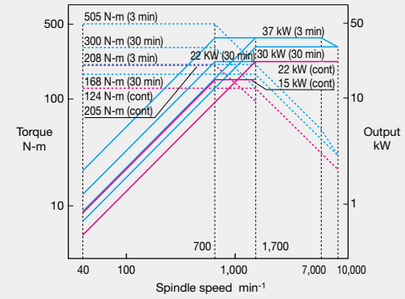
Spindle speed 10,000 min^{-1}
Output 37/30/22 kW (3 min/30 min/cont)
Torque 321/260/191 N-m (3 min/30 min/cont)



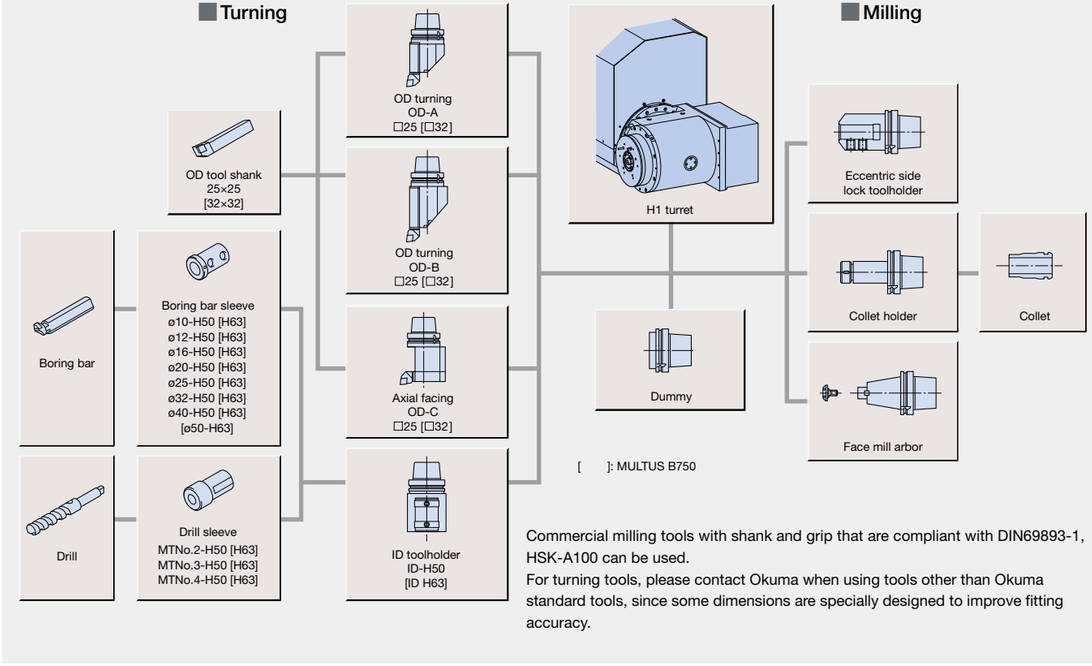
〈MULTUS B750〉

Milling tool spindle

Spindle speed 10,000 min^{-1}
Output 37/30/22 kW (3 min/30 min/cont)
Torque 505/300/205 N-m (3 min/30 min/cont)



Tooling System (HSK-A100)



Commercial milling tools with shank and grip that are compliant with DIN69893-1, HSK-A100 can be used.
For turning tools, please contact Okuma when using tools other than Okuma standard tools, since some dimensions are specially designed to improve fitting accuracy.

Optional Specifications and Accessories

	MULTUS B550	MULTUS B750
Big-bore spindle	ø180 A2-11 2,400 min^{-1} 37/30 kW (30 min/cont)	ø280 A2-15 1,500 min^{-1} 45/37 kW (30 min/cont)
Super big-bore spindle	—	ø380 A2-20 1,000 min^{-1} 45/37 kW (30 min/cont)
Opposing spindle	ø160 A2-11 3,000 min^{-1} 37/30 kW (30 min/cont)	ø220 A2-11 2,000 min^{-1} 37/30 kW (30 min/cont)
Opposing big-bore spindle	ø180 A2-11 2,400min^{-1} 37/30 kW (30 min/cont)	ø280 A2-15 1,500 min^{-1} 45/37 kW (30 min/cont)
High-power spindle motor	—	45/37 kW (30 min/cont)
Tool shank	CAPTO C8, MAS BT50 BIG-PLUS®	
High pressure coolant	7 MPa	
Turret high/low pressure switch	L/M thru high/low pressure switch, M peripheral low pressure	
Lubrication monitor	B-1, B-2 (w/ warning lamp), C-1, C-1 (w/ warning lamp)	
ATC magazine capacity	80, 160 tools	
Chip conveyor	Hinge type, scraper type, drum filter type	
Chip bucket		
Coolant sludge prevention	Oil skimmer attachment, magnetic separator attachment	
Touch Setter	A (Auto)	
In-process work gauging		
AbsoScale	X, Y, Z axes	
Air blower (air blast)	Chuck, tailstock, turret, and spindle bore	
Coolant blower	Shower coolant system, within spindle	
Coolant sensor	Level sensor, pressure sensor, flow sensor	
Coolant tank	With line filter, with reverse wash filter, with thickener bag filter	
Mist collector		
Steadyrest		
Long boring bar specifications	—	ATC or manual
High-accuracy C-axis control		
Dust-proofing	Spindle air purge	
5-Axis Auto Tuning System	Standard kit, High spec kit	
NC Gage	Standard kit, High spec kit	
Temperature regulator	Coolant, hydraulic oil, spindle temperature	
Hydraulic chuck	Solid chuck, hollow chuck	
Work stopper in spindle		
Auto chuck open/close	With confirmation	
Chuck high/low pressure switch		
Chucking error sensor		
Chuck internal sizing stopper		
Front door auto open/close	Tape SW, area sensor	—
Dual palm start buttons (door close interlock)		
Auto tailstock quill advance/retract	With confirmation	
Tailstock thrust high/low pressure switch		
Movable tailstock	Self-travelling	
Coolant gun		
Workrest		
Loader		

Opposing spindle

Powerful machining is achieved with opposing spindle capacity equivalent to main spindle.

	MULTUS B550	MULTUS B550 (Big-bore specs)	MULTUS B750	MULTUS B750 (Big-bore specs)
Spindle speed	3,000 min^{-1}	2,400 min^{-1}	2,000 min^{-1}	1,500 min^{-1}
Spindle nose	JIS A2-11	JIS A2-11	JIS A2-11	JIS A2-15
Spindle/bore dia	ø160/ø112	ø180/ø130	ø220/ø142	ø280/ø185
Spindle motor	37/30 kW	37/30 kW	37/30 kW	45/37 kW

Optional Specifications and Accessories

Long boring bar specifications

(MULTUS B750)

With B-axis rotation for main /oppossed spindle applications.

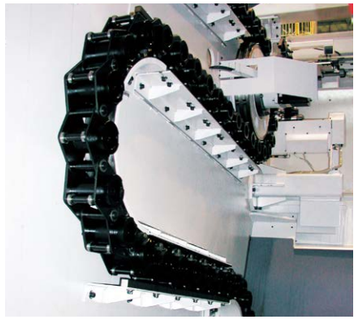
- Boring bar diameter × length

Manual tool end changes:	ø130 mm × 1,270 mm (ø5.12 in. × 50 in.)
Auto tool end changes:	ø120 mm × 1,000 mm (ø4.72 in. × 39.37 in.)

ATC tool mount (tool mounted to bar end by ATC)

Large capacity ATC

Standard 40 tools. 80-tool, 160-tool capacity optional.



Hydaulic NC steadyrest

High efficiency machining of long workpieces.

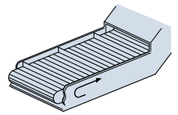
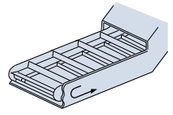
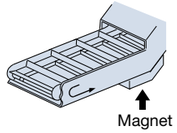
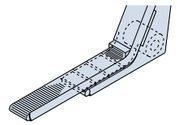
AbsoScale/DD encoder

[AbsoScale]
High speed, high resolution optical positioner. Not affected by ball screw thermal expansion or backlash, for improved finishing accuracy.

[DD encoder]
High accuracy, high resolution rotary encoder for high accuracy C axis control.

Various chip conveyors

■ Chip conveyor types and applications

Name	Hinge	Scraper	Magnetic scraper	Hinge scraper (with drum filter)
Application	● For steel	● For castings	● For castings	● For steel, castings, nonferrous metal
Features	● General use	● Easy for maintenance ● Blade scraper	● Suitable for sludge ● Not suitable for nonferrous metals	● Filtration of long and short chips and coolant
Shape			 Magnet	

Note: The machine may need to be raised (platform) depending on the type of chip conveyor.

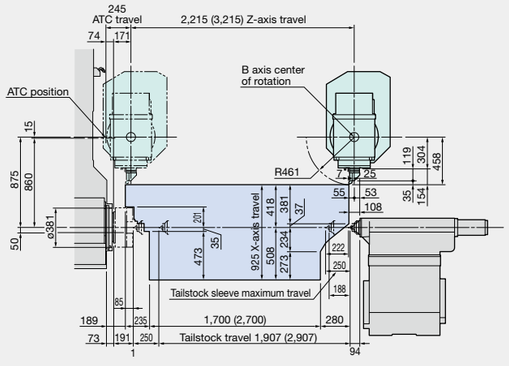
Working Ranges (HSK specs)

MULTUS B550 Tailstock Specifications

Unit: mm

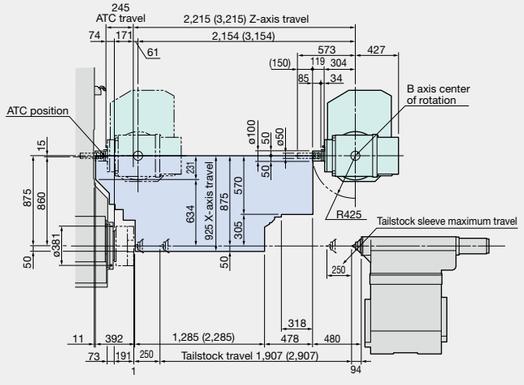
OD-A, B axis 90˚

Distance between centers: 2,000 (3,000)



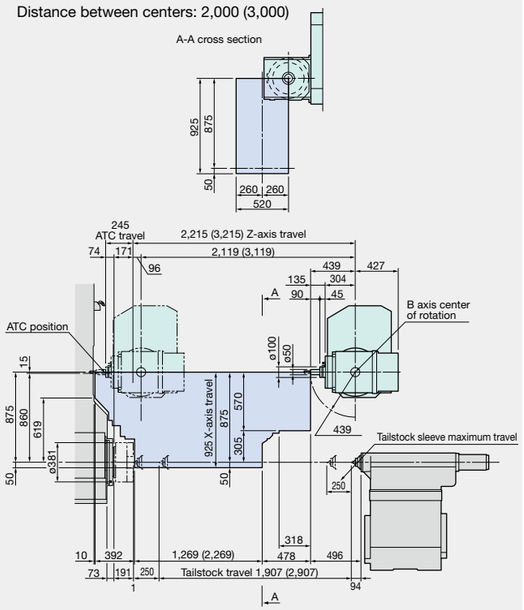
ID-A, B axis 0˚

Distance between centers: 2,000 (3,000)



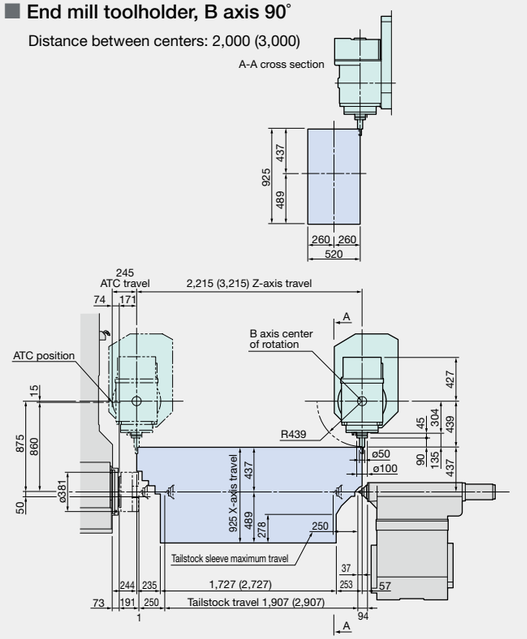
End mill toolholder, B axis 0˚

Distance between centers: 2,000 (3,000)



End mill toolholder, B axis 90˚

Distance between centers: 2,000 (3,000)

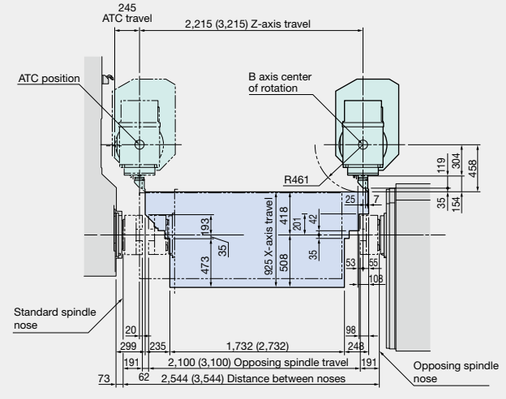


MULTUS B550 Opposing spindle specs

Unit: mm

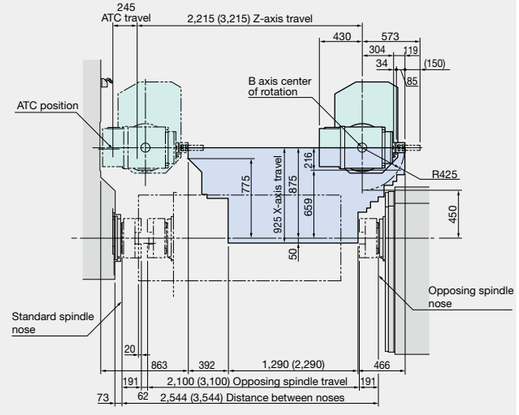
OD-A, B axis 90°

Distance between noses: 2,544 (3,544)



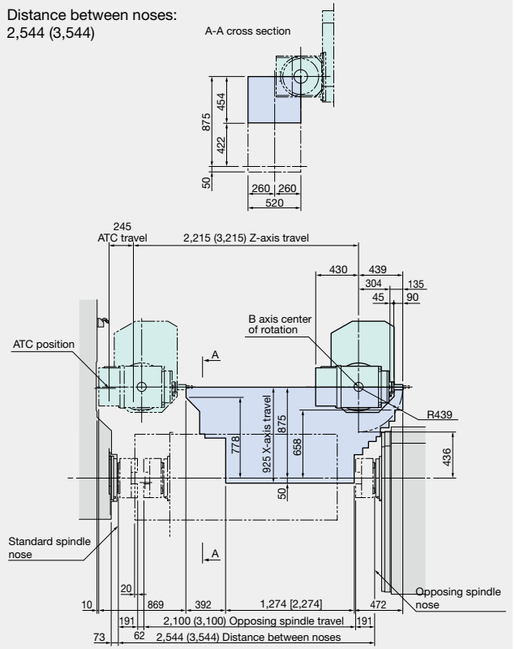
ID, B axis 180°

Distance between noses: 2,544 (3,544)



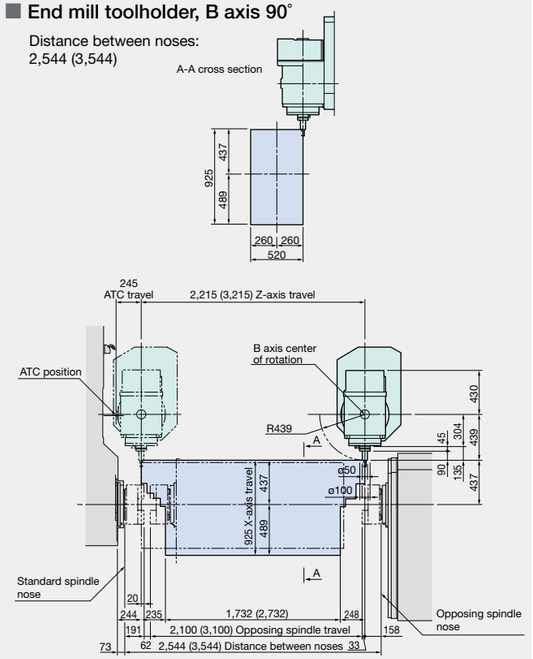
End mill toolholder, B axis 180°

Distance between noses: 2,544 (3,544)



End mill toolholder, B axis 90˚

Distance between noses: 2,544 (3,544)

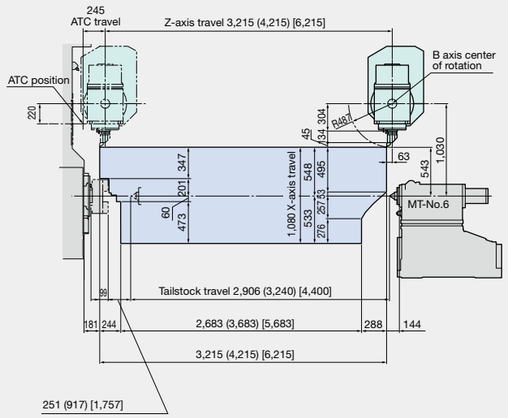


MULTUS B750 Tailstock Specifications

Unit: mm

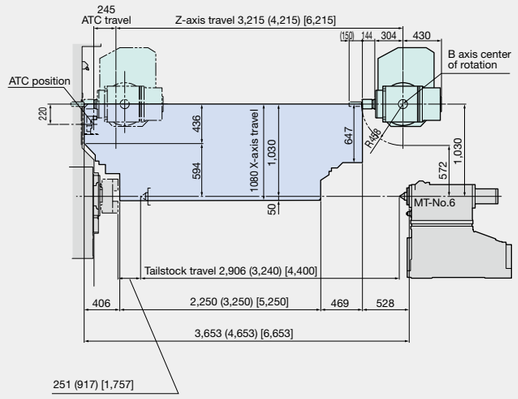
OD-A, B axis 90˚

Distance between centers 3,000 (4,000) [6,000]



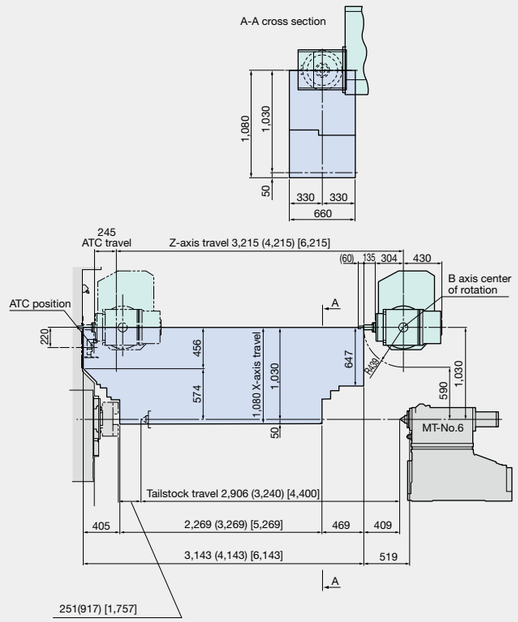
ID, B axis 0˚

Distance between centers 3,000 (4,000) [6,000]



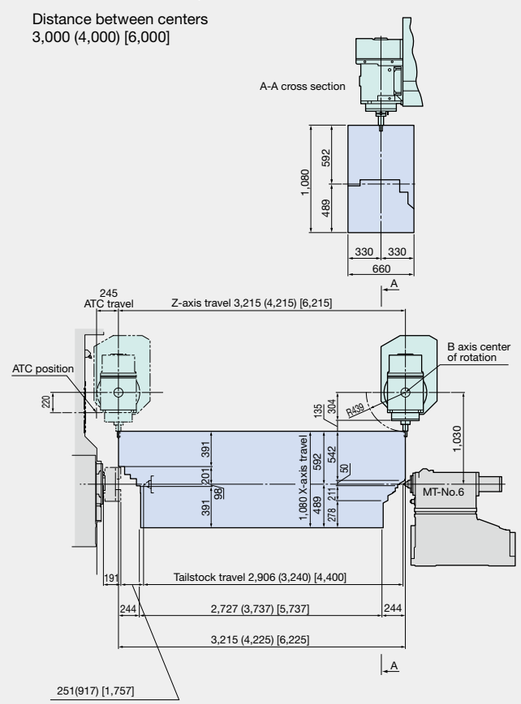
End mill toolholder, B axis 0˚

Distance between centers
3,000 (4,000) [6,000]



End mill toolholder, B axis 90˚

Distance between centers
3,000 (4,000) [6,000]

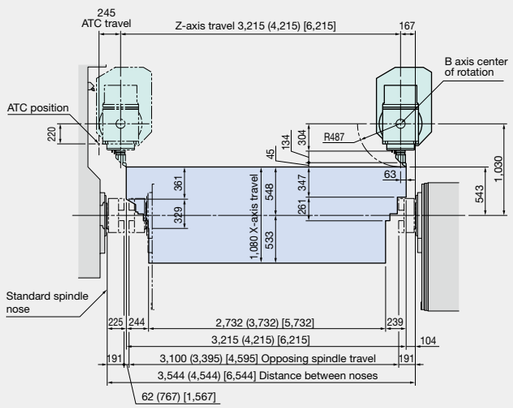


MULTUS B750 Opposing spindle specs

Unit: mm

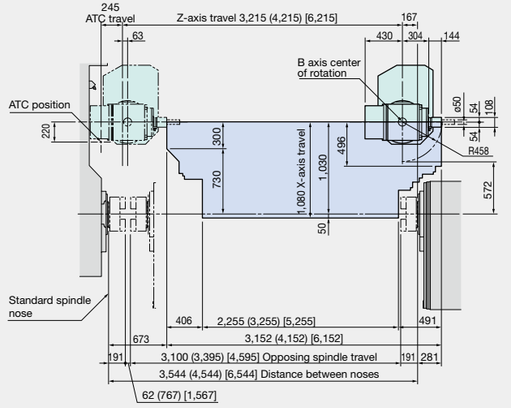
OD-A, B axis 90˚

Distance between noses 3,544 (4,544) [6,544]



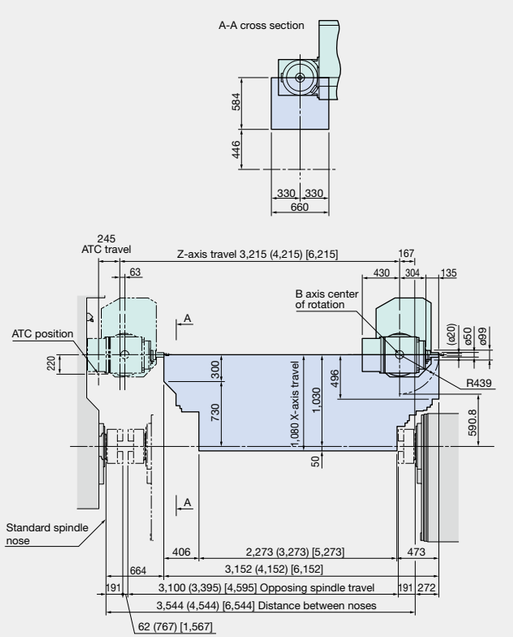
ID, B axis 180˚

Distance between noses 3,544 (4,544) [6,544]



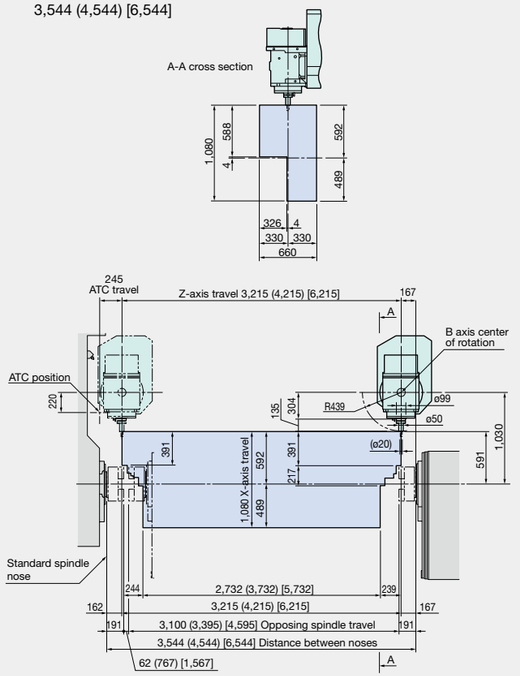
End mill toolholder, B axis 180˚

Distance between noses 3,544 (4,544) [6,544]



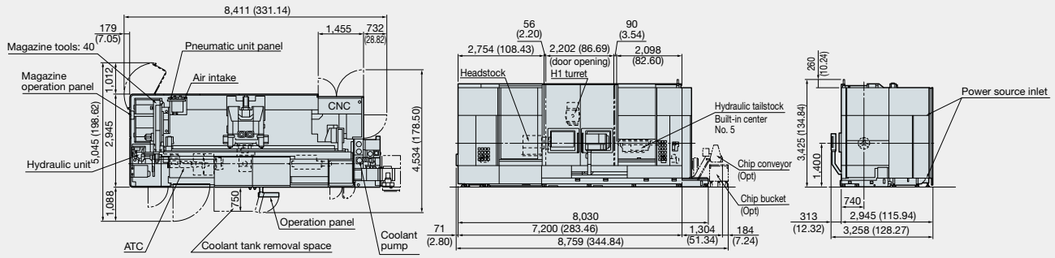
End mill toolholder, B axis 90˚

Distance between noses
3,544 (4,544) [6,544]



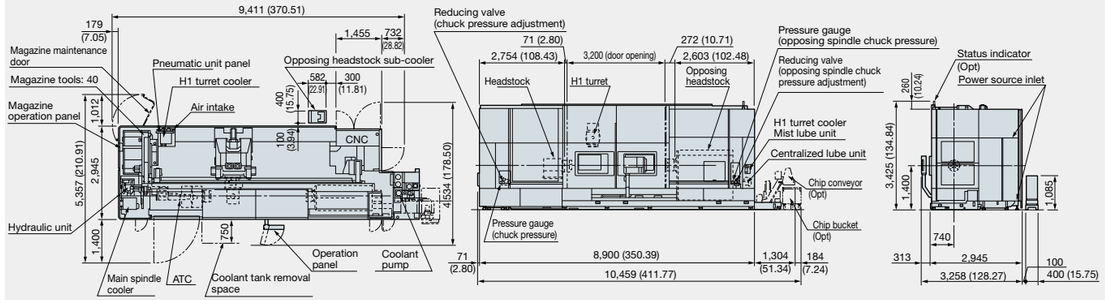
Dimensional and Installation Drawings

MULTUS B550 C × 2000



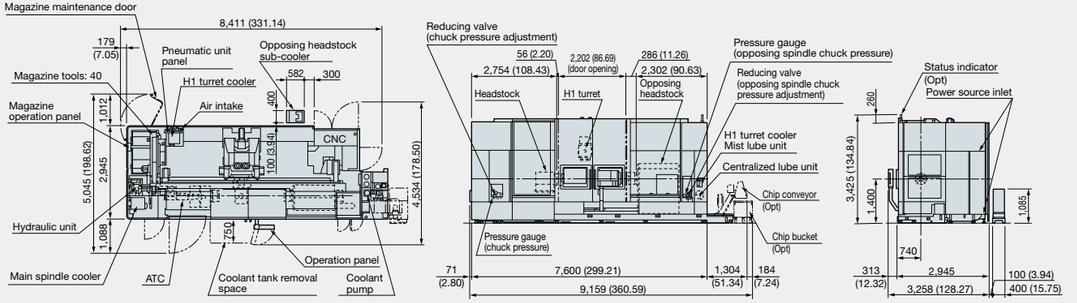
Unit: mm (in.)

MULTUS B550 W × 3000



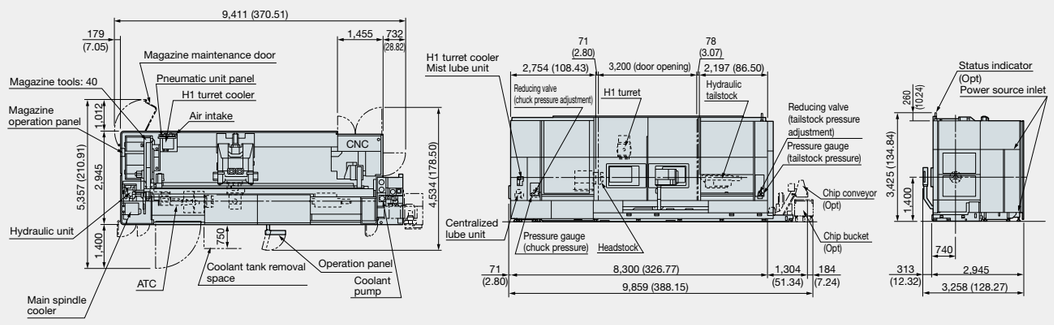
Unit: mm (in.)

MULTUS B550 W × 2000



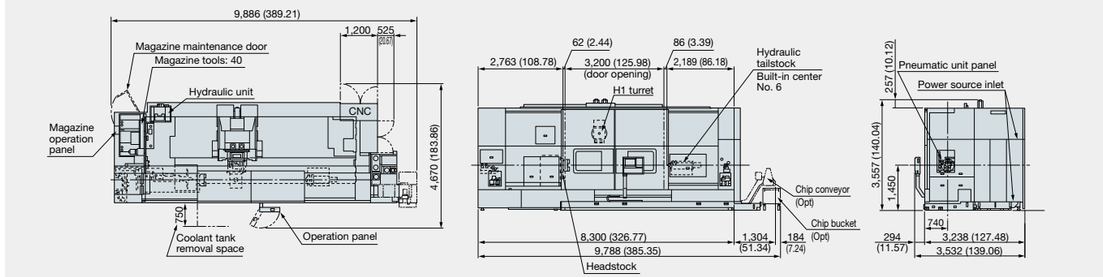
Unit: mm (in.)

MULTUS B550 C × 3000



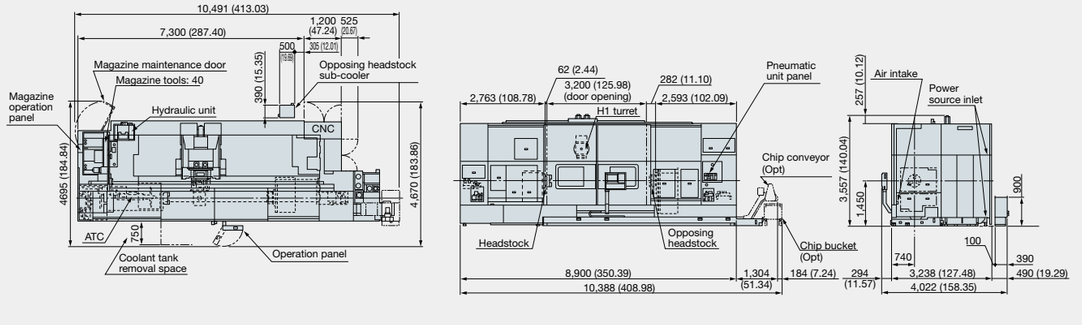
Unit: mm (in.)

MULTUS B750 C × 3000



Unit: mm (in.)

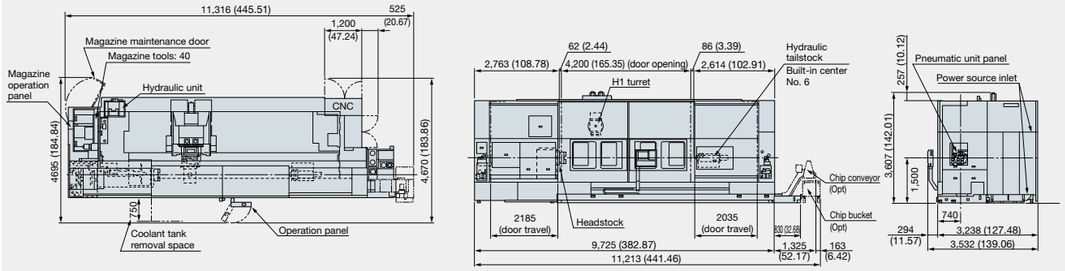
MULTUS B750 W × 3000



Unit: mm (in.)

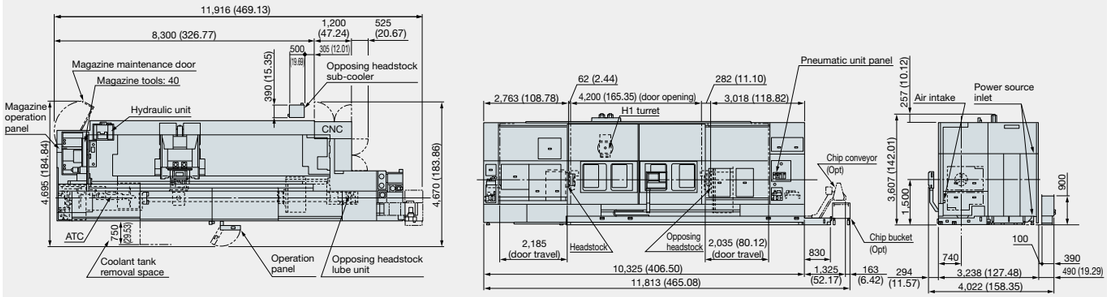
Dimensional and Installation Drawings

MULTUS B750 C × 4000



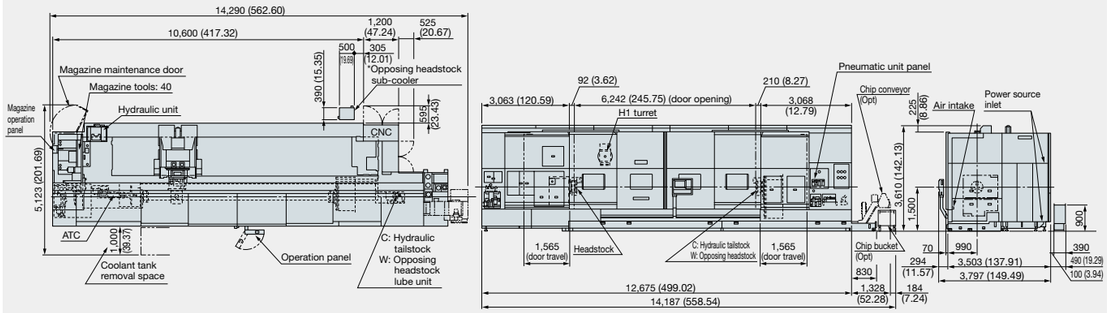
Unit: mm (in.)

MULTUS B750 W × 4000



Unit: mm (in.)

MULTUS B750 C × 6000, W × 6000



*W × 6000 only

Unit: mm (in.)

The Next-Generation Intelligent CNC

OSP suite OSP-P300SA

With revamped operation and responsiveness—ease of use for machine shops first!

Smart factories implement advanced digitization and networking (IoT) in "Monozukuri," (manufacturing) achieving enhanced productivity and added value.
The OSP has evolved tremendously as a CNC control suited to advanced intelligent technology. Okuma's new control uses the latest CPUs for a tremendous boost in operability, rendering performance, and processing speed.
The OSP Suite also features a full range of useful apps that could only come from a machine tool manufacturer, making smart manufacturing a reality.

Smooth, comfortable operation with the feeling of using a smart phone

Improved rendering performance and use of a multi-touch panel achieve intuitive graphical operation. Moving, enlarging, reducing, and rotating 3D models, as well as list views of tool data, programs, and other information can be accomplished through smooth, speedy operations with the same feel as using a smart phone.

"Just what we wanted."— Refreshed OSP suite apps

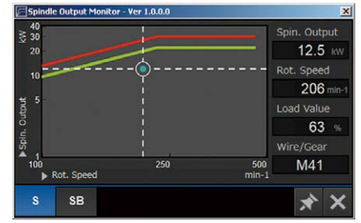
This became possible through the addition of Okuma's machining expertise based on requests we heard from real, machine-shop customers. The brain power packed into the CNC, built by machine tool manufacturer, will "empower shop floor" management.

S11

Increased productivity through visualization of motor power reserve

Spindle Output Monitor

The specified spindle output (red line: short time rating, green line: continuous rating) and the spindle output in current cutting (blue circle) are simultaneously displayed on the screen, for real-time view of power reserve during cutting. This allows speeding up cutting by increasing the spindle speed or feed rate while monitoring the graph to ensure that the blue circle does not cross the lines.



S10

Easy programing without keying in code

Scheduled Program Editor

S15

Monitoring utilization status even when away from the machine

E-mail Notification

The Next-Generation Intelligent CNC

OSP suite OSP-P300SA

Standard Specifications

Control

5-axis machining	Multitasking X-Y-Z-B-C simultaneous:5 axes
Spindle axis	Max 4 axes (= 2 axes + 2 rotary tool axes)
Position feedback	OSP full range absolute position detection
No. of control systems	Max 4 systems (= 2 spindles + 2 turrets)
2-spindle independent control	Each spindle executes an independent part program
Y axis control	X-Y-Z simultaneous 3 axes, orthogonal Y axis
Override structure	Spindle override 50 to 200%
	Milling tool override 30% to 200% (max 300% possible)
	Feed override 0 to 200%
Programmable units	0.0001 mm, 0.001 mm, 0.01 mm, 1 mm, 0.0001°, 0.001°, 0.01°, 1°
Min input	0.0001 mm, 0.0001°
Max input	Decimal 9 digits, ±99999.9999 mm

Display/Operating functions

Suite operation	Shop floor suitable; pointing device not required
Suite apps	Instruction manual viewer
	Maintenance application
Operation panel	15-inch liquid crystal display
	Multi touch panel operations
Program editing	Simultaneous edit 2 files in 1 screen
	Selected part program edit
	A/B turret simultaneous editing (2 turret specs)
	Selected range copy, paste, delete
	Adds files
	Moves edit pointer (designates top, end and number of lines)
	Arranges sequence numbers
	Program editing exceeds editing backup capacity
File name index display	2 file name indexes displayed in 1 screen
	Sorting (by file names, date and size)
Programming operations	Copies, renames, deletes, protects and verifies programs
	Memory initializing, formatting
	Memory available display (pie gragh)
	Multi-level directory
Scheduled programs	Run several programs in a sequence
Sequence number search	Machine from the specified sequence no.
Manual interrupt, auto return	After manual operations, auto mode restarted from interrupted position
Sequence return	Return to specified sequence, auto restart from returned point
PLC monitor	Supports maintenance work after machine shutdown Ladder display, data trace, etc
Parameter I/O	Parameter file input/output, verify

Easy Operation

Single-mode operation	Series of tasks completed on a single screen
Tool information management	Integrated management of collective tool data for each tool no.
	Setup data shared between machining operation, Advanced One-Touch IGF (Optional), and Collision Avoidance System
	Multiple tool management for each turret station
	Display/change of tool comp data for tools commanded in machining program
Setup data save	Setup data saved together with machining program
Soft jaw machining	Automatic machining of soft jaws with set shape, tools, and conditions
Easy zero setting	Auto calculation of zero point offset from jaw and workpiece length
SERVONAVI	Inertia auto setting
Tool position compensation	Dimensional errors corrected with cutting conditions
Tool command (TD command)	Tool orientation, tool comp command based on tool information
Machine operation panel	Clear, straightforward machine operation

Programming

Basic interpolation	Linear/circular interpolation
Tool compensation	No. of registered tools: Max. 1,000 sets Tool offset, tool edge R, amount of wear: 20 sets per tool
Nose-radius comp (2B)	Auto correct of tool nose error (No. of comp sets same as tool comp)
Tool wear compensation	Blade tip position compensation due to tool wear amount (No. of comp sets same as tool comp)
Automatic programming (LAP4)	From roughing to finishing Generates cutting paths according to material shape
Taper fixed cycles	Taper machining with 4 patterns: ID, OD/longitudinal, axial face
mm/min programming	Combined mm/rev & mm/min feed rates
Chamfering, corner R	Chamfering, corner R instructions on drawing commanded in program
Arbitrary angle chamfering	Easy any-angle chamfering (C, R)
Taper angle designate	With command for angle from starting point
Threading	Lead thread ridge designate, variable lead thread Chamfering while threading, threading cycle
Threading slide hold	Temporary stop during threading, excluding G34/G35
User Task 1	GOTO IF statements, arithmetic operations
	Local variables, system variables
	Common variables (Standard: 200 sets)
User Task 2	Sub-programs, functional operation, logical operation
Zero shift	Zero offset calculation, and shift according to G code

Milling programming (milling applications only)

Hole drilling fixed cycles	Drilling, boring and tapping
	Fine boring, back boring
	Deep bore drill cycle gradually decreasing movement
Synchronized tapping	High speed, high accuracy tapping with synchronized control of rotation angle and feed axis position
	Synchronized tapping torque monitor
	Synchronized deep bore tapping
C-axis synchronized control	Cutting with C axis on both main and opposing spindles

Programming capacities

Program storage capacity	4 GB
Operation backup capacity	2 MB

Machining management (data aggregates, displays)

Machining records	Of machining status per selected main program
Operating records	Machine operating times (power ON, cutting, etc)
	Input of reasons for non-operation
Operating history	Time charts of machine operating status
Trouble information	Auto totaling of data required for troubleshooting (alarm history, etc)
Records, trouble information output	Machining, operating, operating history, trouble info

Monitoring

Collision Avoidance System	Prevents interference during manual operation
	Prevents interference during auto operation
	Easy modeling of shape data
	New path assurance: Prevents interference due to sagging paths
Load meter display	Feed and spindle axis loads (With peak value hold)
Chuck barrier	Set up tool off-limit area depending on chuck shape
Tailstock spindle barrier	Set up tool off-limit area depending on tailstock shape
User regular maintenance	Management of maintenance period with respect to any item

External input/output and networking

Ethernet interface	Ethernet (1000 Mbps)
USB interface	USB 2.0 interface 2 ch
DNC-T1	Ethernet part program transfers

High-speed/high-accuracy functions

Hi-G control	Positioning acceleration/deceleration conforming to motor's speed/torque characteristics
Rapid traverse droop	Droop control at feedrate command
Lost motion compensation	Dead zone, elastic deformation compensation during travel direction reversal
Pitch error compensation	Compensates for ball screw pitch error
TAS-S/H1 (spindle)	Thermal deformation from heat generated during milling tool spindle rotation is compensated
TAS-C (construction)	Corrects thermal deformation error generated during shop temperature changes affecting machine construction

Pocket manual functions (online help)

Programming help	Explains part program G, M codes, cycle commands, etc
Operation help	Screen menu functions explained Menu selected operation procedures explained
Alarm help	Alarm causes and remedies explained

Energy saving ECO suite

ECO Idling Stop	Accuracy remains stable with cooler idling stop
ECO Power Monitor	Visualization of power usage

Other functions

Tool compensation function for multi control system	Management of compensation for base, vertical and L-tool index position (when using a turret with B axis control or tool index)

* Ethernet is a registered trademark of Xerox Corp., USA.

Ergonomically-based, operator-friendly operation panel (Optional)

Large 19-inch monitor

Large, easy-to-use 19-inch monitor available. “Single-screen operation,” which lets you see and do all you want on a single operation screen, has even greater visibility with larger monitor.

Adjustable-tilt keyboard

The keyboard angle can be adjusted for ease of use, and reduced work-related stress on the operator.

• Four tilt angle positions from 0° to 45°

OSP suite is even more convenient with large screen

Greater amounts of information on screen makes OSP suite even easier to use.

Ergonomic control panel (Optional)

·19” display ·Adjustable-tilt keyboard

*Standard in certain markets.

Optional Specifications

Optional		Kit spec *1	NML E	NML D	3D E	3D D	AOT-M E	AOT-M D
Interactive Programming								
Advanced One-Touch IGF-L Multitasking (w/Real 3D)							●	●
Programming								
Circular threading				●		●		●
Program notes				●		●		●
User task 2 I/O variables, 8 each								
Work coordinate system select	10 sets		●	●	●	●	●	●
	50 sets							
	100 sets							
1,000 common variables (200 is standard)								
Thread matching								
Threading slide hold (G34, G35)								
Variable spindle speed threading (VSST)								
Inverse time feed								
Spindle synchronized tapping								
Coordinate convert			●	●	●	●	●	●
Profile generate			●	●	●	●	●	●
Flat turning								
Coordinate calculation (with NCYL commands)			●	●	●	●	●	●
Coordinate shifting, rotation, copying			●	●	●	●	●	●
Helical cutting								
Slope machining								
Profile helical cutting								
Hobbing								
Multi-flute cutter function								
3-dimensional coordinate conversion								
Monitoring								
Real 3-D simulation					●	●	●	●
Cycle time over check			●	●	●	●	●	●
Load monitor (spindle, feed axis)					●	●	●	●
Load monitor no-load detection (load monitor ordered)								
Machine Status Logger								
Tool life management				●		●		●
Tool life prior notice								
Operation end buzzer								
Work counters	Count only							
	Cycle stop							
	Start disabled							
Hour meters	Power ON							
	Spindle rotation							
	NC operating							
NC operation monitor (counter, totaling)			●	●	●	●	●	●
NC work counter (Stops at full count with alarm)								
Status indicator (3-color C type) [A type, B type]			●	●	●	●	●	●
Measuring								
In-process work gauging			Included in machine specs					
Z-axis automatic zero offset by touch sensor								
C-axis automatic zero offset by touch sensor								
Y-axis gauging								
Gauge data output	File output							
Post-process work gauging interface	Quantitative compensation (five level, seven level)							
	BCD							
	RS-232-C (w/dedicated channel)							
Touch setter [M, A]			Included in machine specs					

Optional		Kit spec	NML E	NML D	3D E	3D D	AOT-M E	AOT-M D
Energy saving ECO suite								
ECO operation	Chip conveyor intermittent/linked operation							
	Mist collector intermittent/linked operation							
	Spindle power peak cutting							
External Input/Output and Communication Functions								
RS-232-C connector								
DNC links	DNC-T3							
	DNC-C / Ethernet *2							
	DNC-DT							
	FL-Net *2							
USB	2 additional ports possible							
Automation / Untended Operation								
Auto power shutoff M02, alarm								
Warmup function (by calendar timer)								
Tool retract cycle								
External program selections	A (pushbutton), 8 types							
	B (rotary switch), 8 stages							
	C1 (digital switch), 2-digit BCD							
	C2 (external input), 4-digit BCD							
Okuma loader (OGL) interfaces			Included in Loader specs					
Third party robot and loader interface *2	TYPE B (machine)							
	TYPE C (robot and loader)							
	TYPE D							
	TYPE E							
Bar feeders	Bar feeder		Included in machine specs					
	Interface only							
Cycle time reduction*2	Operation time reduction		●	●	●	●	●	●
High-Speed /High-Accuracy Functions								
NC-B axis								
Simultaneous 5-axis kit	Super-NURBS							
	Tool center point control II							
	Inverse time feed							
	DNC-DT							
	Tool posture command							
	3-dimensional coordinate conversion							
	Herical cutting							
	Slope machining							
Hi-Cut Pro			●	●	●	●	●	●
Super-NURBS	Linear axes							
	Linear and rotational axes							
Other Functions								
One-Touch Spreadsheet								
Gear Machining Package								
Machining Navi [M-gII+, M-i]								
Machining Navi [L-g, T-g threading]								
Harmonic spindle speed control (HSSC)			●	●	●	●	●	●
Spindle dead-slow cutting								
Tool center point control II								
Tool tilt command								
Synchronized C-axis control								
Y-axis alignment compensation								
Short circuit breaker								
External M signals [2 sets, 4 sets, 8 sets, ( )]								
Edit interlock								
OSP-VPS (Virus Protection System)								
19-in. display ergonomic control panel								

*1. NML: Normal, 3D: Real 3D simulation, E: Economy, D: Deluxe, AOT-M: Advanced One-Touch IGF-L Multitasking

*2. Engineering discussions required.

MULTUS B series

When using Okuma products, always read the safety precautions mentioned in the instruction manual and attached to the product.

●The specifications, illustrations, and descriptions in this brochure vary in different markets and are subject to change without notice.
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