OKUMA

OPEN POSSIBILITIES

MULTUS BII Series

MULTUS B200II / MULTUS B250II
MULTUS B300II / MULTUS B400II

Intelligent Multitasking Machines

MULTUS BII Series

Intelligent Multitasking Machines

MULTUS B200II / MULTUS B250II
MULTUS B300II / MULTUS B400II

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

High value-added production on easy-to-use machines

Process-intensive with multitasking reduces lead times.
Both high machining capacity and large machining area on a compact machine for high value-added machining of a wide range of parts.

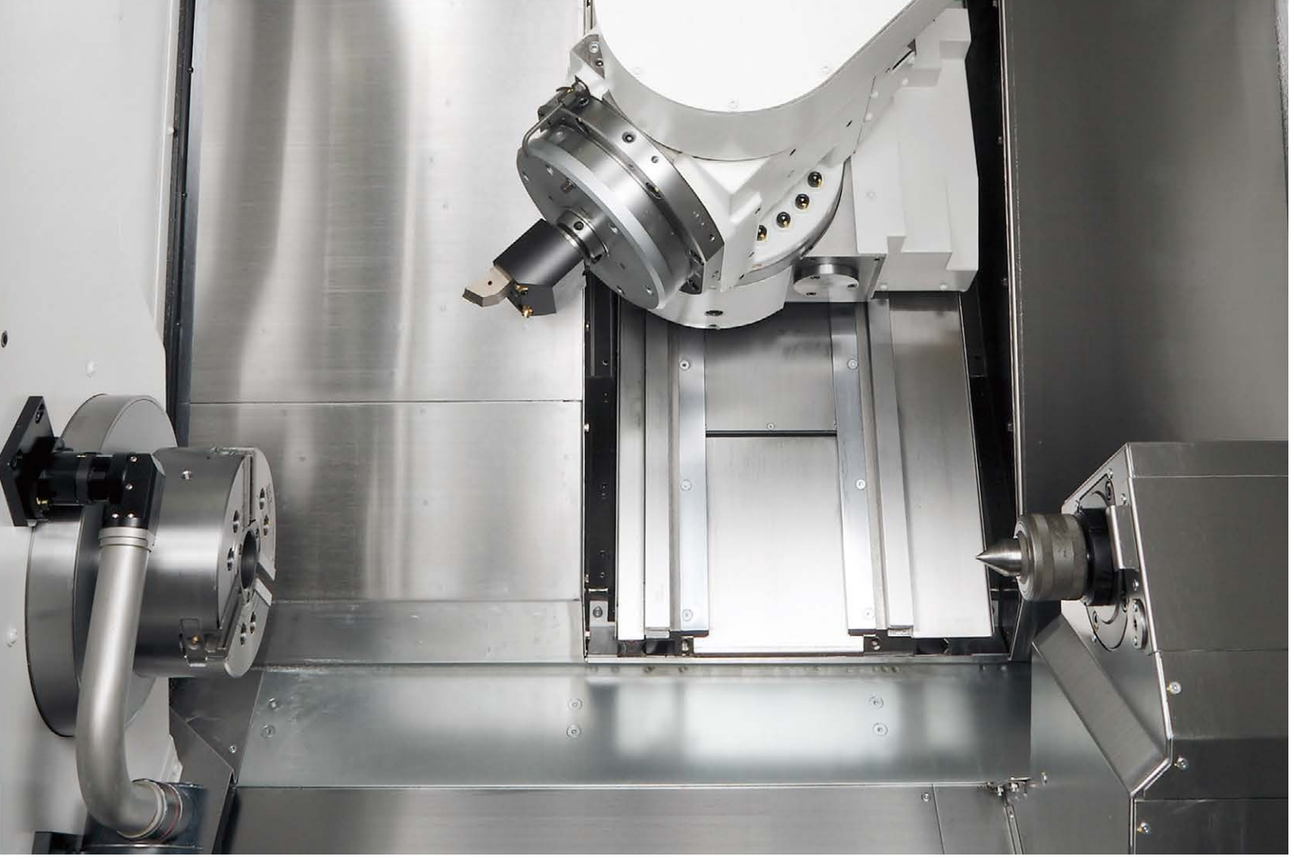
MULTUS B250II

MULTUS B400II

MULTUS B200II

MULTUS B300II

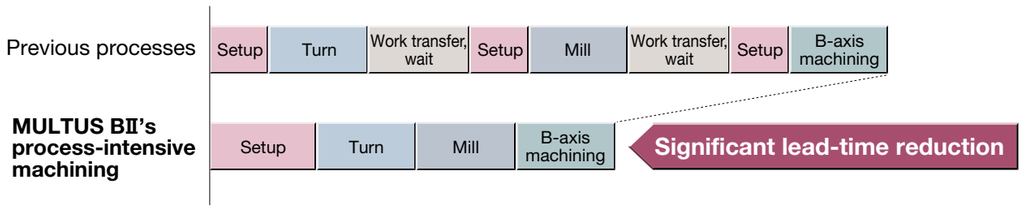
Photographs used in this brochure may show optional equipment.

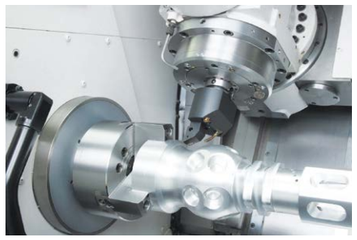


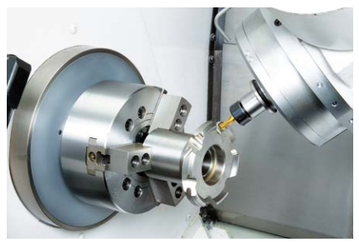
Multitasking is easier than ever

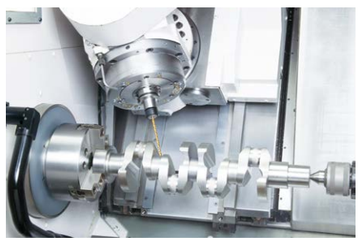
Lathe, vertical or horizontal machining center, and material handling operations consolidated into one machine...

Shorter deliveries and more effective use of floor space, plus fewer setups and operation with fewer workers, result in better process control and greatly reduced total cost.







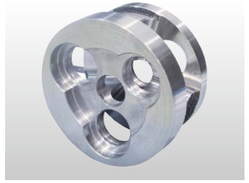


Exceptional operability, accuracy, power

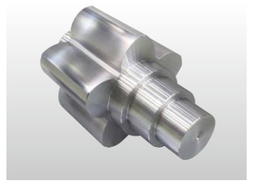
MULTUS BII Series machines are compact multitasking machines with exceptional operability, accuracy and power. Lathe and machining center processes on a single machine enable simple, comfortable operations with maximum incorporation of operator's wishes.

Process-intensive machining of complex shaped workpieces

Abundant lineup handles a wide range of workpieces.



Carrier



Vacuum rotor

Spiral bevel gear

Steady, high productivity

High productivity achieved with a powerful milling spindle and bed structured to maximize use of machine depth.

High operability

The NC tailstock can program sizer and thrust settings, thus shortening setup times.
Machining preparations are also easier with swivel operation panel, lightweight front door, and good tool edge visibility.

Array of intelligent technology supports operators

Dimensional stability is maintained at a high level during machine startup or machining restart with use of the Thermo-Friendly Concept. Work efficiency is improved thanks to fewer compensations.

MULTUS BII machines support operators with Okuma's advanced intelligent technologies, including the Collision Avoidance System to prevent collisions and Machining Navi to find the best cutting conditions.

Steady, high production

Powerful, compact turret

- Compactness and high output with PREX motor
- Highly rigid roller bearings for milling tool spindle (front bearings) (for MULTUS B300Ⅱ/B400Ⅱ)

● Motor output

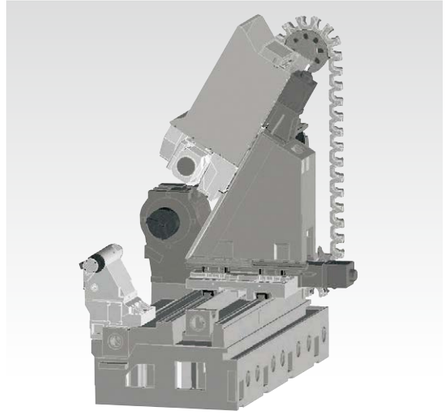
MULTUS B200Ⅱ/ MULTUS B250Ⅱ	12,000 min^{-1} :	12 kW
	20,000 min^{-1} :	9 kW *
MULTUS B300Ⅱ	6,000 min^{-1} :	11 kW
	10,000 min^{-1} :	16 kW
MULTUS B400Ⅱ	6,000 min^{-1} :	14 kW
	10,000 min^{-1} :	20 kW

*HSK-A63

B-axis indexing: 225°
(minimum control angle: 0.001°)

Highly rigid bed and guideways

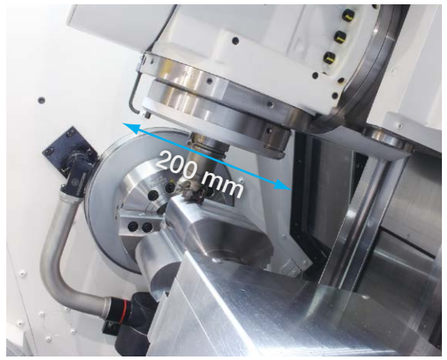
- Stable machining achieved with wide, rigid bed.
- Featuring X-, Y-, Z-axis roller linear guides designed with high rigidity, antiwear, and vibration damping. Roller linear guide rigidity 2.6 to 3.0 times that of ball linear guide.



Large work envelope

■ Y-axis travel

MULTUS B200Ⅱ: 160 mm
MULTUS B250Ⅱ: 200 mm
MULTUS B300Ⅱ: 160 mm
MULTUS B400Ⅱ: 230 mm



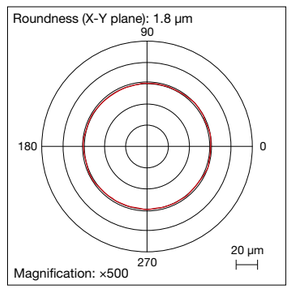
MULTUS B250Ⅱ

Improved machining efficiency with reliable accuracy and power

Machining Capacity [Actual data*]

	MULTUS B200Ⅱ/B250Ⅱ	MULTUS B300Ⅱ	MULTUS B400Ⅱ
Turning	· Heavy-duty: 2.5 mm^2 (379 cm^3/min)	· Heavy-duty: 3.0 mm^2 (490 cm^3/min)	· Heavy-duty: 4.8 mm^2 (726 cm^3/min)
●**OD** (S45C)			
Cutting speed	135 m/min	150 m/min	140 m/min
Cutting depth	5 mm	6 mm	8 mm
Feed rate	0.5 mm/rev	0.5 mm/rev	0.6 mm/rev
●**Insert drill** (S45C)			
	ø40-mm carbide drill	ø50-mm carbide drill	ø63-mm carbide drill
Cutting speed	150 m/min	150 m/min	180 m/min
Feed rate	0.18 mm/rev	0.22 mm/rev	0.22 mm/rev
Milling	· Chip volume: 224 cm^3/min	· Chip volume: 360 cm^3/min	· Chip volume: 450 cm^3/min
●**7-flute, carbide, ø20-mm end mill** (S45C)			
Cutting speed	200 m/min	250 m/min	210 m/min
Cutting depth	2.8 × 20 mm	8 × 20 mm	4 × 20 mm
Feed rate	1.26 mm/rev	0.56 mm/rev	1.68 mm/rev
Chip volume	224 cm^3/min	360 cm^3/min	450 cm^3/min
●**5-blade ø50-mm face mill** (S45C)			
Cutting speed	300 m/min	300 m/min	300 m/min
Cutting depth	2.6 × 35 mm	3.3 × 35 mm	3.8 × 35 mm
Feed rate	1.25 mm/rev	1.5 mm/rev	1.5 mm/rev
Chip volume	217 cm^3/min	330 cm^3/min	380 cm^3/min
●**Insert drill** (S45C)			
	ø30-mm carbide drill	ø40-mm carbide drill	ø40-mm carbide drill
Cutting speed	160 m/min	120 m/min	120 m/min
Feed rate	0.13 mm/rev	0.11 mm/rev	0.13 mm/rev
●**TAP** (S45C)			
	M20 P2.5	M20 P2.5	M24 P3

Contouring accuracy (roundness)
1.8 µm (MULTUS B300Ⅱ actual data)



- Workpiece: Al
- Cutting conditions: ø12-mm end mill (4-flute)
  Spindle speed: 8,000 min^{-1}
  Feedrate: 500 mm/min

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 others.

High operability

Small footprint

MULTUS B200Ⅱ DBC 550: 2,650 mm
DBC 750: 3,190 mm
MULTUS B250Ⅱ: 3,190 mm

MULTUS B300Ⅱ: 3,750 mm
MULTUS B400Ⅱ DBC 1500: 4,950 mm
DBC 2000: 6,250 mm

NC tailstock

- Tailstock positions and thrust settings can be set and changed by program
- Drastically reduces setup times

- Tailstock thrust

MULTUS B200Ⅱ: 0.5 to 3 kN
MULTUS B250Ⅱ: 1 to 5 kN
MULTUS B300Ⅱ: 1 to 5 kN
MULTUS B400Ⅱ: 1.5 to 7 kN
(High thrust specs: to 10 kN)

Spec extensions to handle all kinds of workpieces

Abundant spec extensions

Model	MULTUS B200Ⅱ		MULTUS B250Ⅱ	MULTUS B300Ⅱ	MULTUS B400Ⅱ	
Distance between centers	550	750	750	900	1500	2000
Chuck work specs (T)	○	—	—	○	○	—
Tailstock specs (C)	○	○	○	○	○	○
Opposing spindle specs (W)	—	○	○	○	○	○

Opposing spindle (W specs)

MULTUS B200Ⅱ
MULTUS B250Ⅱ
- Spindle speed 6,000 min^{-1}
- Output 11/7.5 kW

MULTUS B300Ⅱ
- Spindle speed 5,000 min^{-1}
- Output 15/11 kW

MULTUS B400Ⅱ
- Spindle speed 3,800 min^{-1}
- Output 22/15 kW

Machining Capacity [Actual data] (Workpiece: S45C)

MULTUS B200Ⅱ / MULTUS B250Ⅱ	MULTUS B300Ⅱ	MULTUS B400Ⅱ
OD Turning : 2.0 mm^2	OD Turning : 2.5 mm^2	OD Turning : 3.0 mm^2
Cutting speed : 150 m/min	Cutting speed : 100 m/min	Cutting speed : 100 m/min
Cutting depth : 5 mm	Cutting depth : 5 mm	Cutting depth : 6 mm
Feed rate : 0.4 mm/rev	Feed rate : 0.5 mm/rev	Feed rate : 0.5 mm/rev

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 others.

Gear Machining Package (option)
High accuracy gear machining with a multitasking machine

Gear machining that previously required complex programming can now be done with ease. With the Gear Machining Package, simply input the tool type, gear data, and cutting conditions. Programming time is reduced to about one-tenth that of manual input.

Process-intensive machining is achieved, including the gear machining that used to be done on expensive special-purpose machines.

Skiving
(ID splines)

Contribution to the realization of a carbon-free society

Highly productive, accurate and eco-friendly Green-Smart Machine

Okuma has worked to reduce energy consumption in order to achieve carbon neutrality at the three factories in Japan which are our main production bases.
We have realized high productivity through automation and process-intensive machining, in addition to high-accuracy machining, and we then introduced the use of green energy to transform the three domestic factories into carbon-neutral factories.
“Green-Smart Machines” is our definition of Okuma’s intelligent machine tools, which autonomously achieve stable dimensional accuracy and reduced energy consumption, to support environmentally friendly production. Our policy is to deploy “Green-Smart Machines” fully, to help achieve a carbon-free society.
Starting with products manufactured at those carbon-neutral factories and supplying them all over the world, we will work together with our customers to help solve the social issues faced by the manufacturing industry.

Green-Smart Machines are **environmentally friendly**
products that autonomously achieve stable dimensional accuracies and reduced energy consumption.

Green-Smart Machine Technology that achieves Green-Smart Machine

Thermo-Friendly Concept

The Okuma Intelligent Technology that enables machines to autonomously maintain high accuracy stability

The unique concept of accepting temperature changes achieves consistent high accuracy without special coolers or excessive air conditioning.

Reduction of warm-ups and dimensional compensation

Reduce the time needed for daily warm-ups and dimensional compensation to adjust to ambient temperature changes

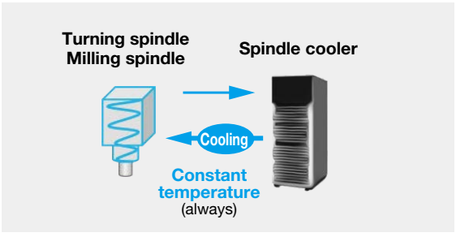
Reduction of power used for air conditioning

Maintain high stability of dimensional accuracy even if the air conditioning temperature range is expanded.

Reduction of machine body coolers

Achieve outstanding dimensional accuracy without any special machine body cooling being required to maintain accuracy

The Okuma way to cool



By always setting a constant coolant supply temperature, the cooler power consumption is reduced.

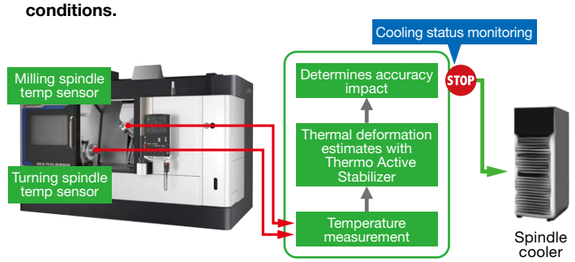
ECO suite plus

A system for an energy-saving society

ECO Idling Stop

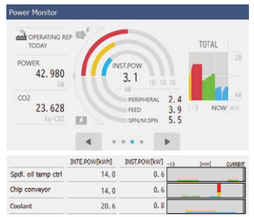
Auxiliary equipment consume a substantial portion of the power used in a factory. This function enables each of them to be turned off when not needed to reduce power consumption.
In addition to when automatic operation is suspended, it is now possible to stop idling during manual operation. Power consumption and carbon dioxide emissions are reduced without conscious effort by the operator.

The machine monitors the cooling level when not machining, and proactively turns off the cooler while maintaining high accuracy conditions.



ECO Power Monitor

Power is shown individually for spindle, feed axes, and auxiliaries on the OSP operation screen.
In addition to regenerative power, the energy-saving benefits from auxiliary equipment stopped with ECO Idling Stop can be confirmed on the spot.



ECO Operation

By using only the required peripherals (chip conveyor, mist collector), energy-saving operations are possible.

Troublesome coolant tank cleaning work is reduced dramatically to increase productivity. In addition, the environmental impact caused by the disposal of coolant is reduced.

Sludgeless Tank (option)

Reducing waste oil by suppressing coolant deterioratio

It is important to remove impurities (sludge) contained in the coolant for the stable operation of the machine, and coolant tank cleaning is indispensable. The Sludgeless Tank (option) circulates coolant at a constant speed in the tank to effectively collect sludge even during non-machining while reducing defects caused by the sludge contained in the coolant, such as scratches on machined surfaces and troubles of cutters, as well. Sludge accumulation in the tank is suppressed, which also drastically reduces the frequency of troublesome tank cleaning and enables stable operation over long hours. In addition, the frequency of coolant replacement can be greatly reduced, which also reduces the environmental impact of coolant disposal. Thru-spindle coolant specifications (option) collect even finer sludge with a bag filter to improve the quality of machined surfaces.

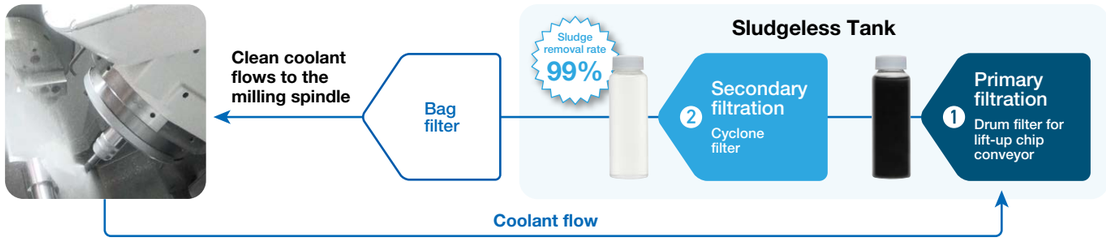
* It is necessary to select the drum filter type chip conveyor if the Sludgeless Tank option is chosen.
* Please contact us for delivery timescale for the Sludgeless Tank.

Sludge removal rate **99%** (when the material is casting and aluminum)

Note: · After secondary filtration (cyclone filter) permeation
· Okuma evaluated removal rate

No tank cleaning for 3 years (okuma equipment actual data)

No coolant replacement for 3 years (okuma equipment actual data)



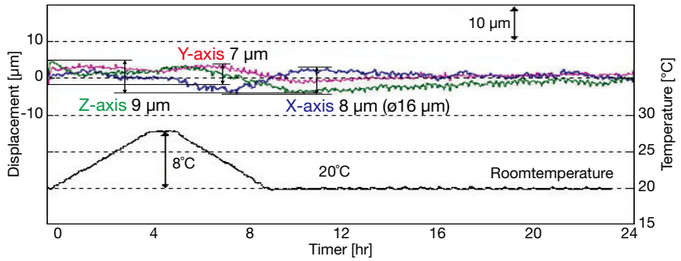
To support long and stable machining accuracies

Thermo-Friendly Concept

Thermal Deformation–Accurately Controlled

Okuma's "Thermo-friendly" concept enables remarkable machining accuracy through original structural design and thermal deformation control technology. Free from troublesome dimensional compensation and warm-up, it exhibits excellent dimensional stability even during consecutive operation over long periods and environmental temperature change in the plant.

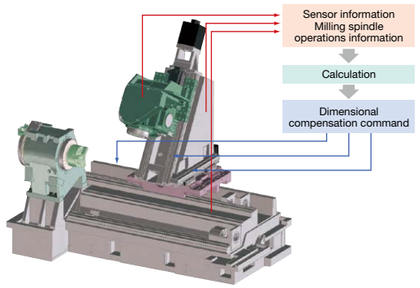
Less than 10 µm Thermal deformation over time (MULTUS B300Ⅱ actual data)



[Operating conditions]

Main spindle	3,800 min^{-1}	2.5 min
Milling tool spindle	6,000 min^{-1}	6 min
	10,000 min^{-1}	6 min
Interval		0.5 min
Cycle time	Total	15 min

Coolant: Used



■ TAS-C

(Thermo Active Stabilizer—Construction)

The machine is optimally controlled and machining accuracy is maintained when the ambient temperature changes.

■ TAS-S

(Thermo Active Stabilizer—Spindle)

Even when the spindle speed changes frequently, the thermal deformation of the milling tool spindle is accurately controlled.

5-Axis Auto Tuning System (option)

Gauging and compensation of geometric error

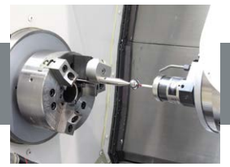
On five-axis control machines there is "geometric error," such as spindle misalignment, that have huge effects on machining accuracy. The 5-Axis Auto Tuning System measures geometric error with a touch probe and datum sphere, and tunes five-axis control machines for better operating accuracy through 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.

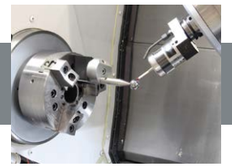
*Optional on MULTUS B300Ⅱ and MULTUS B400Ⅱ
*May not be available for certain specifications

Start of tuning



Set datum sphere on the chuck and move probe directly above it

Press START MEASURE key and cycle start button



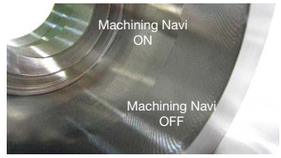
Auto measurement and then auto setting of compensation parameters

Tuning complete

Maximizing machine tool performance

Machining Navi Cutting Conditions Search Function (option)

With optimal cutting conditions: longer tool life, shorter cycle time



Machining Navi instantly searches for the optimum cutting conditions and "visualizes" the machining status to help maximize machine and tooling capabilities, and provide improvements in productivity.

For turning

Machining Navi L-*g*Ⅱ (guidance)

Chatter-free applications for lathes

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

Machining Navi T-*g* (threading)

Threading chatter can be easily controlled by anyone

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

For milling

Machining Navi M-*g*Ⅱ+

(Optimum M spindle speed/harmonic M spindle speed control)

Adjust cutting conditions while monitoring the data

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

Machining Navi M-*i*

(Intelligently optimized M spindle speed control)

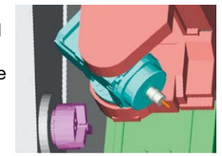
Simple, auto-mode—leave it to the machine
Finding optimum cutting conditions quickly

Chatter vibration is measured by built-in sensors, and M 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.

Collision Avoidance System

Setup, trial cut times reduced by 40%—preventing collisions

NC controller (OSP) with 3D model data of workpiece, tool, chuck, fixture and machine components such as 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. Operators (novice or pro) will benefit from reduced setup and first-part cycle time, and the confidence to focus on manufacturing parts.



Interference check precedes actual movement

Stop before collision

■ Eliminate collision-related machine down time

When a multitasking machine breaks down, both L and M machining stop; causing large productivity losses. The Collision Avoidance System simply prevents this problem from occurring.

Machine Specifications

Specifications			MULTUS B200Ⅱ				MULTUS B250Ⅱ		MULTUS B300Ⅱ			MULTUS B400Ⅱ				
			×550		×750		×750		×900			×1500			×2000	
			T	C	C	W	C	W	T	C	W	T	C	W	C	W
Capacity	Swing over saddle	mm (in)	ø600 (23.62)				ø600 (23.62) [*1]		ø630 (24.8) (Y=0)			ø710 (27.95) (Y=0)				
	Max machining dia	mm (in)	ø600 (23.62)						ø630 (24.8)			ø710 (27.95)				
	Distance between centers	mm (in)	550 (21.65)		750 (29.53)		750 (29.53)		900 (35.43)			1,500 (59.06)			2,000 (78.74)	
Travel	X-axis	mm (in)	500 (+480 to –20) (19.69 (+18.9 to –0.79))						580 (+560 to –20) (22.83 (+22.05 to –0.79))			690 (+670 to –20) (27.17 (+26.38 to –0.79))				
	Z-axis	mm (in)	600 (23.62)		800 (31.5)		800 (31.5)		935 (36.81)			1,545 (60.83)			2,045 (80.51)	
	Y-axis	mm (in)	160 (+80 to –80) (6.3 (+3.15 to –3.15))				200 (+100 to –100) (7.87 (+3.94 to –3.94))		160 (+80 to –80) (6.3 (+3.15 to –3.15))			230 (+115 to –115) (9.06 (+4.53 to –4.53)) [*2]				
	W-axis	mm (in)	–			810 (31.89)	–	810 (31.89)	–		1,000 (39.37)	–		1,550 (61.02)	–	2,050 (80.71)
	C-axis control	degree	360 (min control angle 0.001)						360 (min control angle 0.001)							
	B-axis indexing angle	degree	225 (–30 to 195 (min control angle 0.001))						225 (–30 to 195 (min control angle 0.001))							
Main spindle	Speed	min^{-1}	50 to 6,000 [45 to 5,000]				45 to 5,000		45 to 5,000 [38 to 3,800]			38 to 3,800 [30 to 2,800]				
	Ranges		2 auto ranges (2-speed motor coil switching)						2 auto ranges (2-speed motor coil switching)							
	Nose		ø140 flat [JIS A2-6]				JIS A2-6		JIS A2-6 [JIS A2-8]			JIS A2-8 [JIS A2-11]				
	Tapered bore / Bearing dia	mm (in)	ø62/ø100 [ø80/ø120] (ø2.44/ø3.94 [ø3.15/ø4.72])						ø62/ø100 [ø80/ø120] (ø2.44/ø3.94 [ø3.15/ø4.72])			ø80/ø120 [ø110/ø150] (ø3.15/ø4.72 [ø4.33/ø5.91])				
Opposing spindle	Speed	min^{-1}	–			50 to 6,000	–	50 to 6,000	–		45 to 5,000	–		38 to 3,800 [*3]	–	38 to 3,800 [*3]
	Ranges		–			2 auto ranges (motor coil switching)	–	2 auto ranges (motor coil switching)	–		2 auto ranges (motor coil switching)	–		2 auto ranges (motor coil switching)	–	2 auto ranges (motor coil switching)
	Nose		–			ø140 flat	–	ø140 flat	–		JIS A2-6	–		JIS A2-8 [*3]	–	JIS A2-8 [*3]
	Tapered bore / Bearing dia	mm (in)	–			ø62/ø100 (ø2.44/ø3.94)	–	ø62/ø100 (ø2.44/ø3.94)	–		ø62/ø100 (ø2.44/ø3.94)	–		ø80/ø120 (ø3.15/ø4.72) [*3]	–	ø80/ø120 (ø3.15/ø4.72) [*3]
Turret	Type		H1 ATC						H1 ATC							
	No. of tool station		1 for both L and M tools						1 for both L and M tools							
	OD tool shank dimensions/ ID tool shank diameter	mm (in)	□20/ø32 (□3/4/ø1-1/4)				□25/ø32 (□1/ø1-1/4)		□25/ø40 (□1/ø1-1/2)							
Milling tool spindle	Speed range	min^{-1}	50 to 12,000 [20,000 [*4]]						50 to 6,000 [50 to 10,000]							
	Max torque	N-m	40.1/26.3 (5 min/cont) [23.9/15.9 (5 min/cont) [*4]]						65.7/44.8 (3 min/cont) [57.3/38.2 (5 min/cont)]			85/59.6 (5 min/cont) [65.5/45 (5 min/cont)]				
Feed rate	Rapid traverse	mm/min	X : 40,000 Z : 40,000 Y : 26,000									X : 40,000 Z : 40,000 Y : 26,000				
			–	W : 12,000 (tailstock)		W : 20,000	W : 12,000 (tailstock)	W : 20,000	–	W : 12,000 (tailstock)	W : 20,000	–	W : 12,000 (tailstock)	W : 20,000	W : 12,000 (tailstock)	W : 20,000
		min^{-1}	C : 200, B : 30									C : 200 B : 30				
NC tailstock	Tapered bore type		–	MT No. 4		–	MT No. 5	–	–	MT No. 5	–	–	MT No. 5	–	MT No. 5	–
	Travel	mm (in)	–	720 (28.35)	810 (31.89)	–	810 (31.89)	–	–	1,000 (39.37)	–	–	1,550 (61.02)	–	2,050 (80.71)	–
ATC	Tool shank		HSK-A63 [CAPTO C6]						HSK-A63 [CAPTO C6]							
	No. of tools	tools	20 [40, 60]						20 [40, 60, 120]			20 [40, 80, 120]				
	Max tool dia	mm (in)	ø90 (3.54) (ø130 (5.12) w/o adjacent tools)						ø90 (3.54) (ø130 (5.12) w/o adjacent tools)							
	Max tool length	mm (in)	200 (7.87) (from gauge line)						300 (11.81) (from gauge line)			400 (15.75) (from gauge line)				
	Max tool mass	kg (lb)	4 (9)						8 (18)			10 (22)				
Motor	Main spindle	kW (hp)	11/7.5 (15/10) (20 min/cont) [22/15 (30/20) (20 min/cont)]				15/11 (20/15) (20 min/cont) [22/15 (30/20) (30 min/cont)]		15/11 (20/15) (20 min/cont) [22/15 (30/20) (20 min/cont)]			22/15 (30/20) (50%ED/cont) [30/22 (40/30) (50%ED/cont)]				
	Opposing spindle	kW (hp)	–			11/7.5 (15/10) (20 min/cont)	–	11/7.5 (15/10) (20 min/cont)	–		15/11 (20/15) (20 min/cont)	–		22/15 (30/20) [*3] (20 min/cont)	–	22/15 (30/20) [*3] (20 min/cont)
	Milling tool spindle	kW (hp)	12/8 (16/11) (5 min/cont) [9/6 (12/8) (5 min/cont) [*4]]						11/7.5 (15/10) (5 min/cont) [16/11 (21/15) (5 min/cont)]			14/10 (19/13) (5 min/cont) [20/14 (27/19) (5 min/cont)]				
	Axis drive motors	kW (hp)	X : 3.5 (5), Y : 2.9 (4), Z : 2.8 (4)						X : 3.5 (5), Y : 2.9 (4), Z : 3.5 (5)			X : 3.5 (5), Y : 2.8 (4), Z : 4.6 (6)				
	W-axis motor	kW (hp)	–	2.9 (4) (tailstock)		2.9 (4)	2.9 (4) (tailstock)	2.9 (4)	–	2.9 (4) (tailstock)	2.9 (4)	–	2.8 (4) (tailstock)	2.8 (4)	2.8 (4) (tailstock)	2.8 (4)
	Coolant pump motor (50/60Hz)	kW (hp)	0.55/0.75 (0.7/1) × 3						0.55/0.75 (0.7/1) × 3			0.55/0.75 (0.7/1) × 3				
Machine size	Height	mm (in)	2,582 (101.65)						2,587 (101.85) [*5]			3,000 (118.11) [*5]			3,137 (123.5) [*5]	
	Floor space (with tank)	mm×mm (in)	3,080 [*5] × 2,289 (121.26 [*5] × 90.12)		3,620 [*5] × 2,289 (142.52 [*5] × 90.12)		3,620 [*5] × 2,289 (142.52 [*5] × 90.12)		4,035 [*5] × 2,309 (158.86 [*5] × 90.91)			5,750 [*5] × 2,797 (226.38 [*5] × 110.12)			7,050 [*5] × 2,797 (277.56 [*5] × 110.12)	
	Mass (with CNC)	kg (lb)	7,000 (15,400)		7,800 (17,160)	8,000 (17,600)	7,900 (17,380)	8,100 (17,820)	9,700 (21,340)	10,000 (22,000)	10,300 (22.660)	14,200 (31,240)	14,500 (31,900)	15,500 (34,100)	16,500 (36,300)	17,500 (38,500)

[ ]: Optional
*1 Swing over saddle is limited to a range of ø450 to 600 mm when Y-axis is in + region.
*2 Travel limitations may exist depending on the turret position when using Big-Bore opposing spindles.
*3 Big-Bore opposing spindle specs are available. 30 to 3,000 min^{-1}, JIS A2-11, ø110/ø150 mm, 22/15 kW (30 min/cont).
*4 HSK-A63 only.
*5 With hinged chip conveyor specs

Standard Specifications and Accessories

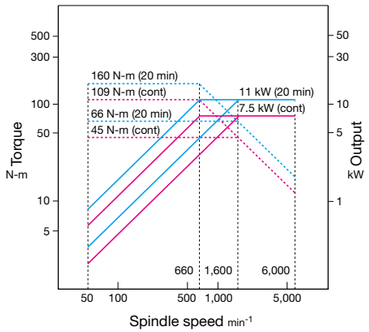
	MULTUS B200Ⅱ	MULTUS B250Ⅱ	MULTUS B300Ⅱ	MULTUS B400Ⅱ
Headstock	ø140 flat (11/7.5 kW 6,000 min^{-1})	JIS A2-6 (15/11 kW 5,000 min^{-1})	JIS A2-6 (15/11 kW 5,000 min^{-1})	JIS A2-8 (22/15 kW 3,800 min^{-1})
Milling tool spindle	12/8 kW 12,000 min^{-1}	12/8 kW 12,000 min^{-1}	11/7.5 kW 6,000 min^{-1}	14/10 kW 6,000 min^{-1}
Turret	H1-ATC, L/M			
NC tailstock	C specs, dead MT No. 4	C specs, dead MT No. 5		
Auto tool changer	20 tools, HSK-A63 tool shanks			
Coolant system	Removable coolant tank, pump			
In-machine work lamp	LED lamp, mounted above spindle			
Full-enclosure shielding	○			
Foundation washers, leveling bolts	○			
Hand tools	○			
NC controller	OSP-P500S			
Swivel operation panel	15-inch color TFT display			
Pulse handle	1 pc, portable (electronic handwheel)			
Thermo Active Stabilizer — Spindle (TAS-S)	○			
Thermo Active Stabilizer — Construction (TAS-C)	○			
Collision Avoidance System (CAS)	○			
C-axis control	○			
Synchronized tapping	○			

Spindle torque/output diagrams (standard)

Main spindle

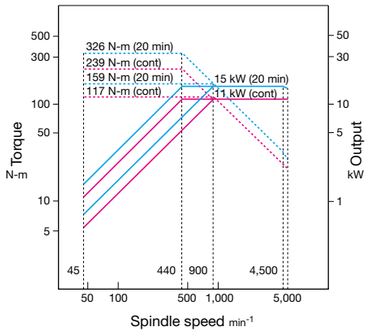
MULTUS B200Ⅱ

- Spindle speed 6,000 min^{-1}
- Output 11/7.5 kW (20 min/cont)
- Torque 160/109 N-m (20 min/cont)



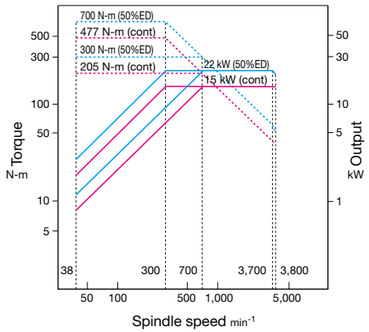
MULTUS B250Ⅱ
MULTUS B300Ⅱ

- Spindle speed 5,000 min^{-1}
- Output 15/11 kW (20 min/cont)
- Torque 326/239 N-m (20 min/cont)



MULTUS B400Ⅱ

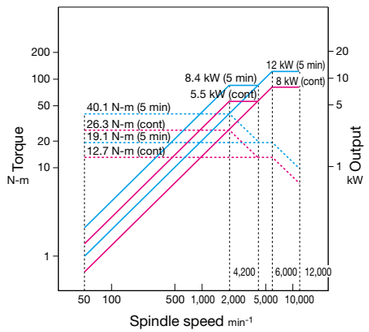
- Spindle speed 3,800 min^{-1}
- Output 22/15 kW (50%ED/cont)
- Torque 700/477 N-m (50%ED/cont)



Milling tool spindle

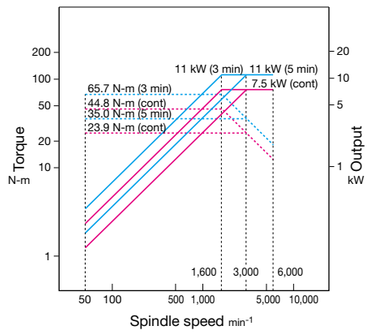
MULTUS B200Ⅱ
MULTUS B250Ⅱ

- Spindle speed 12,000 min^{-1}
- Output 12/8 kW (5 min/cont)
- Torque 40.1/26.3 N-m (5 min/cont)



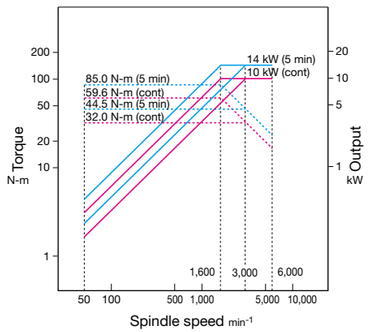
MULTUS B300Ⅱ

- Spindle speed 6,000 min^{-1}
- Output 11/7.5 kW (5 min/cont)
- Torque 65.7/44.8 N-m (3 min/cont)



MULTUS B400Ⅱ

- Spindle speed 6,000 min^{-1}
- Output 14/10 kW (5 min/cont)
- Torque 85/59.6 N-m (5 min/cont)

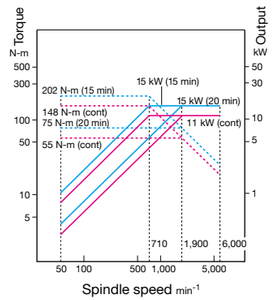


Spindle torque/output diagrams (option)

High power spindle

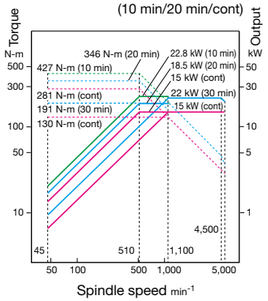
MULTUS B200Ⅱ

- Spindle speed 6,000 min^{-1}
- Output 15/11 kW (20 min/cont)
- Torque 202/148 N-m (15 min/cont)



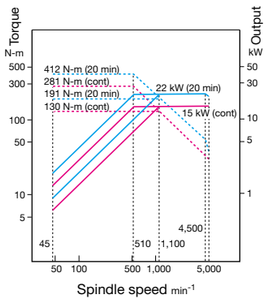
MULTUS B250Ⅱ

- Spindle speed 5,000 min^{-1}
- Output 22/15 kW(30 min/cont)
- Torque 427/346/281 N-m (10 min/20 min/cont)



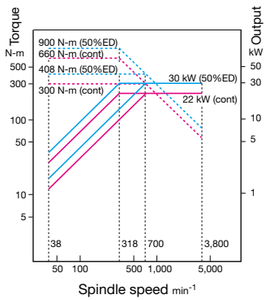
MULTUS B300Ⅱ

- Spindle speed 5,000 min^{-1}
- Output 22/15 kW (20 min/cont)
- Torque 412/281 N-m (20 min/cont)



MULTUS B400Ⅱ

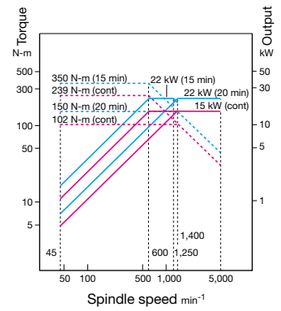
- Spindle speed 3,800 min^{-1}
- Output 30/22 kW (50%ED/cont)
- Torque 900/660 N-m (50%ED/cont)



Big-Bore spindle

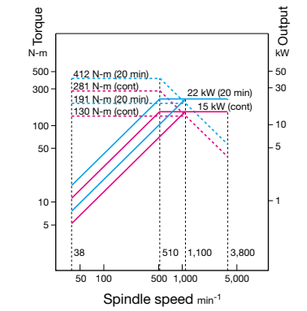
MULTUS B200Ⅱ

- Spindle speed 5,000 min^{-1}
- Output 22/15 kW (20 min/cont)
- Torque 350/239 N-m (15 min/cont)



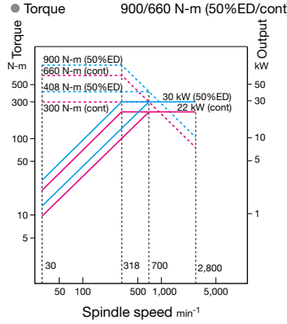
MULTUS B300Ⅱ

- Spindle speed 3,800 min^{-1}
- Output 22/15 kW (20 min/cont)
- Torque 412/281 N-m (20 min/cont)



MULTUS B400Ⅱ

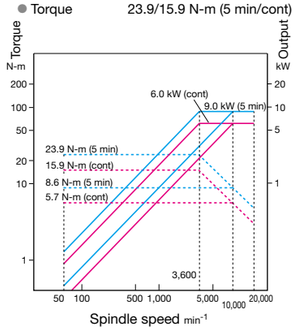
- Spindle speed 2,800 min^{-1}
- Output 30/22 kW (50%ED/cont)
- Torque 900/660 N-m (50%ED/cont)



Milling tool high speed spindle

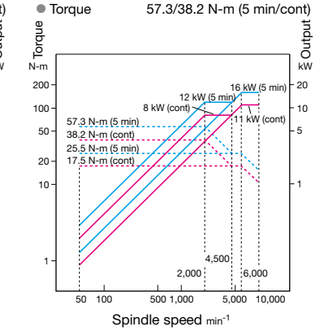
MULTUS B200Ⅱ
MULTUS B250Ⅱ

- Spindle speed 20,000 min^{-1}
- Output 9/6 kW (5 min/cont)
- Torque 23.9/15.9 N-m (5 min/cont)



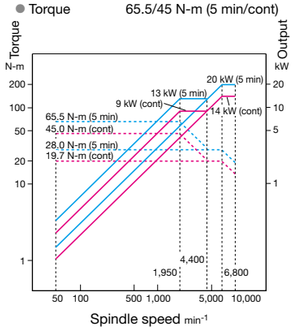
MULTUS B300Ⅱ

- Spindle speed 10,000 min^{-1}
- Output 16/11 kW (5 min/cont)
- Torque 57.3/38.2 N-m (5 min/cont)



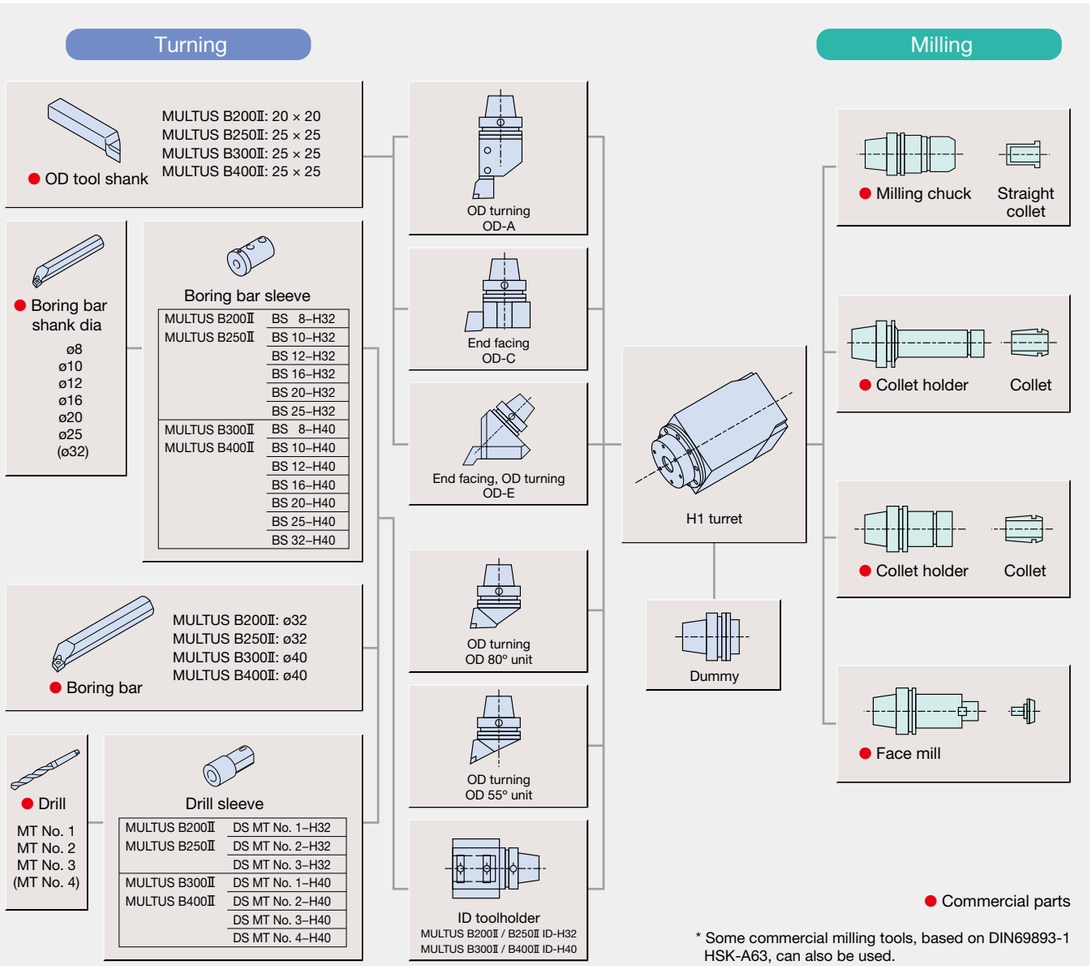
MULTUS B400Ⅱ

- Spindle speed 10,000 min^{-1}
- Output 20/14 kW (5 min/cont)
- Torque 65.5/45 N-m (5 min/cont)



Tooling System (HSK-A63)

Unit : mm

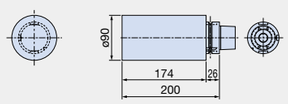


* Some commercial milling tools, based on DIN69893-1 HSK-A63, can also be used.

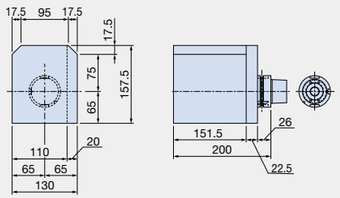
Max tool dimensions

MULTUS B200Ⅱ / MULTUS B250Ⅱ

■ Std tool



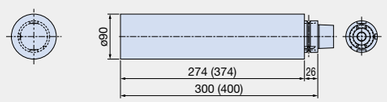
■ Super large diameter tool



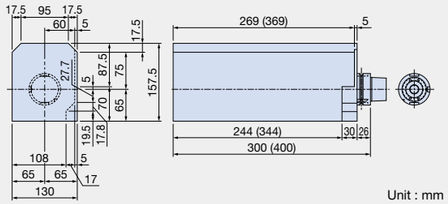
Unit : mm

MULTUS B300Ⅱ / MULTUS B400Ⅱ ( ): MULTUS B400Ⅱ

■ Std tool



■ Super large diameter tool



Unit : mm

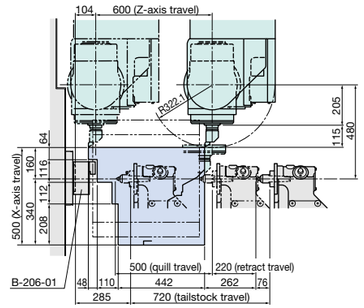
Working Ranges

MULTUS B200Ⅱ

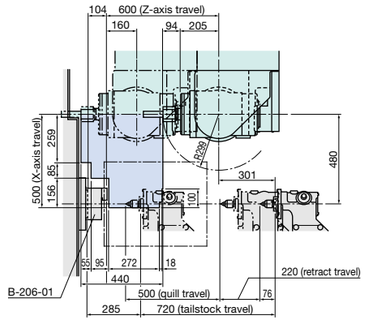
Unit : mm

Main spindle [550 distance between centers]

● OD-A (B-axis 90°)



● ID-H32 (B-axis 0°)



Main spindle [750 distance between centers]

● OD-A (B-axis 90°)

● ID-H32 (B-axis 0°)

Opposing spindle [750 distance between centers]

● OD-A (B-axis 90°)

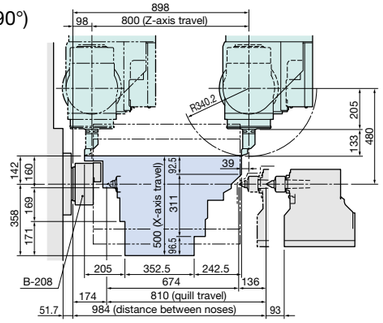
● ID-H32 (B-axis 180°)

MULTUS B250Ⅱ

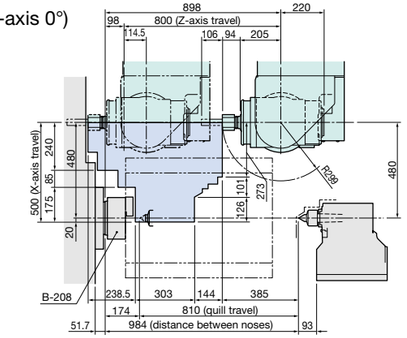
Unit : mm

Main spindle [750 distance between centers]

● OD-A (B-axis 90°)



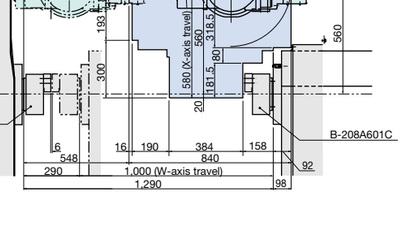
● ID-H40 (B-axis 0°)



Opposing spindle [750 distance between centers]

● OD-A (B-axis 90°)

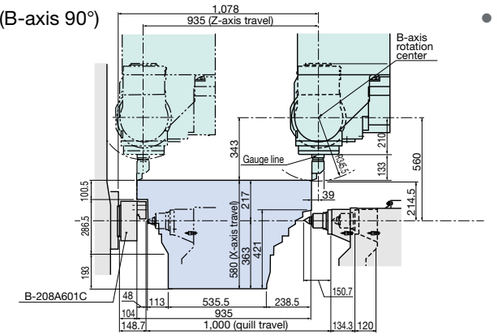
● ID-H40 (B-axis 180°)



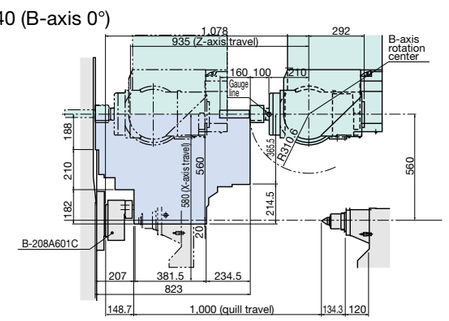
MULTUS B300Ⅱ

Main spindle [900 distance between centers]

● OD-A (B-axis 90°)

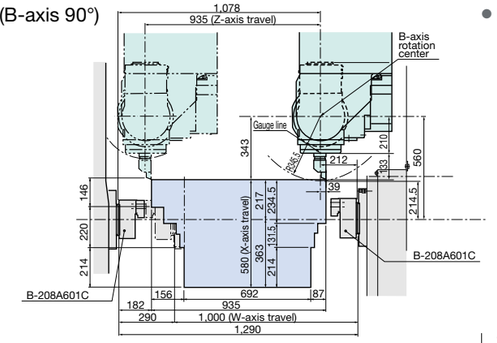


● ID-H40 (B-axis 0°)



Opposing spindle [900 distance between centers]

● OD-A (B-axis 90°)



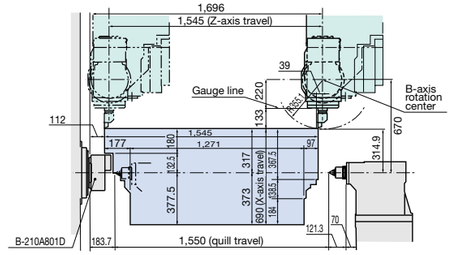
● ID-H40 (B-axis 180°)

MULTUS B400Ⅱ

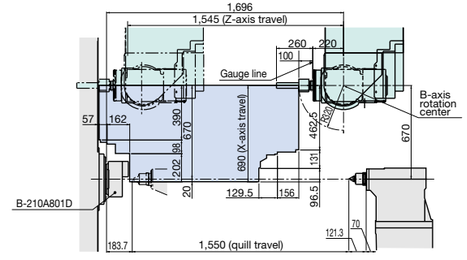
Unit : mm

Main spindle [1500 distance between centers]

● OD-A (B-axis 90°)

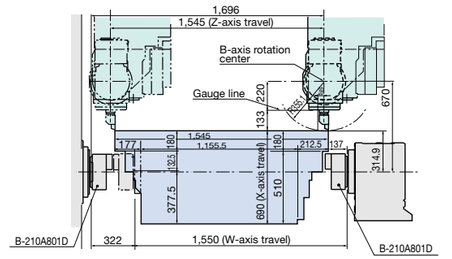


● ID-H40 (B-axis 0°)

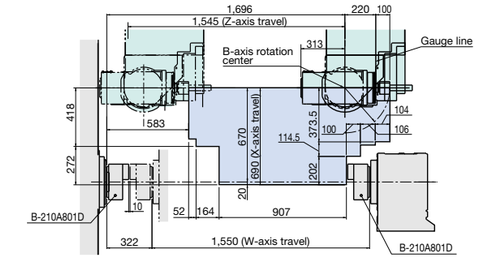


Opposing spindle [1500 distance between centers]

● OD-A (B-axis 90°)

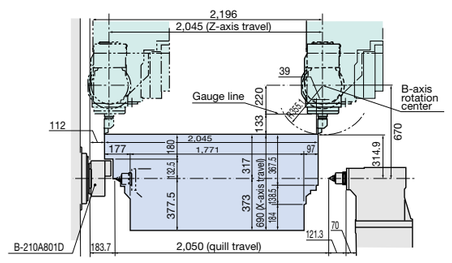


● ID-H40 (B-axis 180°)

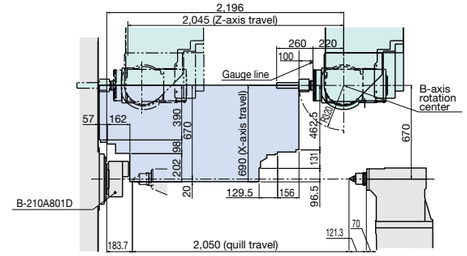


Main spindle [2000 distance between centers]

● OD-A (B-axis 90°)

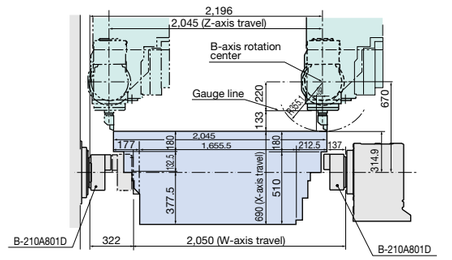


● ID-H40 (B-axis 0°)

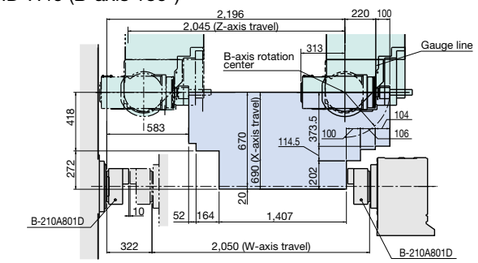


Opposing spindle [2000 distance between centers]

● OD-A (B-axis 90°)



● ID-H40 (B-axis 180°)



Optional Specifications and Accessories

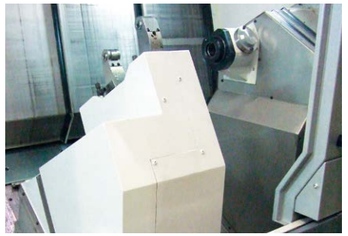
Big-Bore spindle	MULTUS B200Ⅱ	ø120 A2-6 5,000 min^{-1} High-power spindle 22/15 kW included
	MULTUS B300Ⅱ	ø120 A2-8 3,800 min^{-1} High-power spindle 22/15 kW included
	MULTUS B400Ⅱ	ø150 A2-11 2,800 min^{-1} High-power spindle 30/22 kW included
High power spindle	MULTUS B200Ⅱ	15/11 kW (20 min/cont)
	MULTUS B250Ⅱ	22/15 kW (30 min/cont)
	MULTUS B300Ⅱ	22/15 kW (20 min/cont)
	MULTUS B400Ⅱ	30/22 kW (50%ED/cont)
Milling tool high speed spindle	MULTUS B200Ⅱ, MULTUS B250Ⅱ	20,000 min^{-1} 9/6 kW (5 min/cont) HSK-A63 only
	MULTUS B300Ⅱ	10,000 min^{-1} 16/11 kW (5 min/cont)
	MULTUS B400Ⅱ	10,000 min^{-1} 20/14 kW (5 min/cont)
Tool shank		CAPTO C6
Thru-spindle coolant for M spindle		
Tailstock tapered bore	MULTUS B200Ⅱ	Built-in MT No. 3
	MULTUS B250Ⅱ, MULTUS B300Ⅱ	Built-in MT No. 4
	MULTUS B400Ⅱ	Built-in MT No. 4/Built-in MT No. 5
ATC tool magazine capacity	MULTUS B200Ⅱ, MULTUS B250Ⅱ	40, 60 tools
	MULTUS B300Ⅱ	40, 60, 120 tools
	MULTUS B400Ⅱ	40, 80, 120 tools
Chip conveyor		Side discharge drum filter type, hinge type
Chip bucket		L type, H type
High pressure coolant		4 kW 7 MPa
Turret coolant high/low presure switch		L/M thru high/low pressure switch, M peripheral low pressure
Coolant sensors		Level detection, flow sensor, level + flow sensor
Coolant tank		With line filter
		With reverse washing filter (separate)
Coolant sludge prevention	MULTUS B200Ⅱ, MULTUS B250Ⅱ	Oil skimmer (screw type, belt system)
	MULTUS B300Ⅱ, MULTUS B400Ⅱ	Oil skimmer (screw type, belt system), magnet separator
Lube monitor		B-2 with alarm lamp
Tool breakage detection		
Touch Setter		M (manual), A (auto)
In-process workpiece gauging		Renishaw radio transmission
AbsoScale		X-Y-Z axes
High accuracy C-axis		
B-axis indexing		NC B-axis
Automated systems		Bar feeder, parts catcher
		OGL loader
		Robot, loader
Built-in robot	MULTUS B250Ⅱ, MULTUS B300Ⅱ	ARMROID
Opposite spindle control as tailstock		Tailstock attachment
Air blower (air blast)		Chuck, tailstock, within spindle, turret
Coolant blower		Shower coolant system, Within spindle
5-Axis Auto Tuning System	MULTUS B300Ⅱ, MULTUS B400Ⅱ	Standard / high spec
NC Gage	MULTUS B300Ⅱ, MULTUS B400Ⅱ	Standard / high spec
Mist collector		
Steadyrest		
Raised base	MULTUS B300Ⅱ, MULTUS B400Ⅱ	50 mm / 100 mm / 200 mm
Hydraulic power chuck		Solid chuck, hollow chuck
Workpiece stopper in spindle		
Chuck pressure high/low switch		
Chucking miss detection		
Workpiece stand		
Front cover auto open/close		Area sensor, safe tape switch
Coolant gun		
Air blow gun		
Tooling		Please refer to the tooling system

Optional Specifications and Accessories

Touch Setter

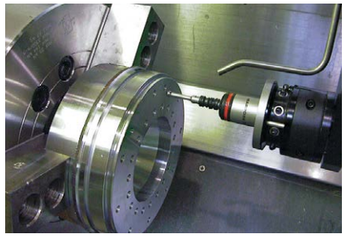
Cutting-point auto measurement and tool offset/breakage detection

Steadyrest



For highly efficient turning/maching of long workpieces

In-process workpiece gauging



By ATC-delivered, high-precision wireless touch sensor – for superb auto workpiece gauging (dual dia/radius gauging).

Multiple tool ATC magazine

A large capacity tool magazine to handle a wider variety of workpieces

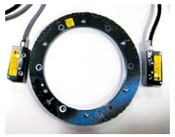
MULTUS B200Ⅱ/B250Ⅱ : 60-tool magazine
MULTUS B300Ⅱ : 60, 120-tool magazine
MULTUS B400Ⅱ : 80, 120-tool magazine

CAPTO C6

Sandvik quick-change tooling system

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.

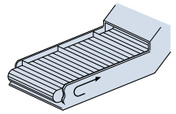
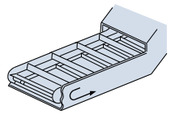
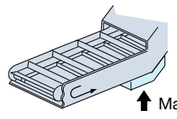
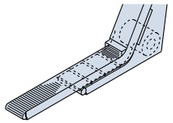
Chip conveyor

Hinged chip conveyor

Hinge + scraper (w/drum filter) chip conveyor

Various chip conveyors

Chip conveyor types and applications

Type	Hinge	Scraper	Magnet scraper	Hinge + scraper (w/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	
Remarks	Filter unit is included the conveyor as set.			–

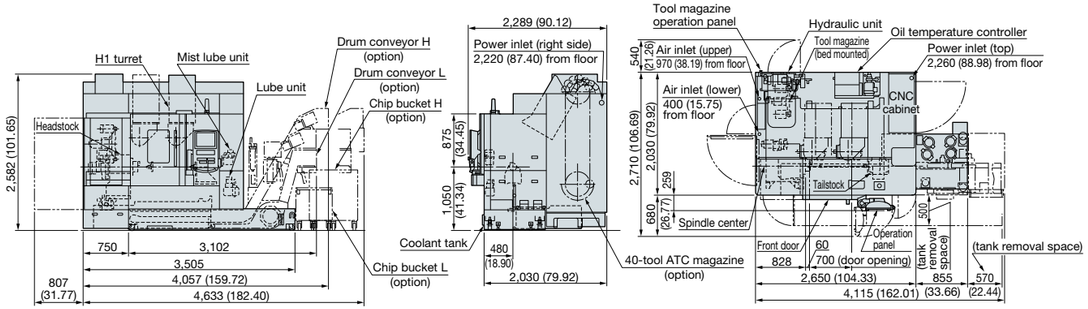
*The machine may need to be raised depending on the type of conveyor.

Dimensional/Installation Drawings

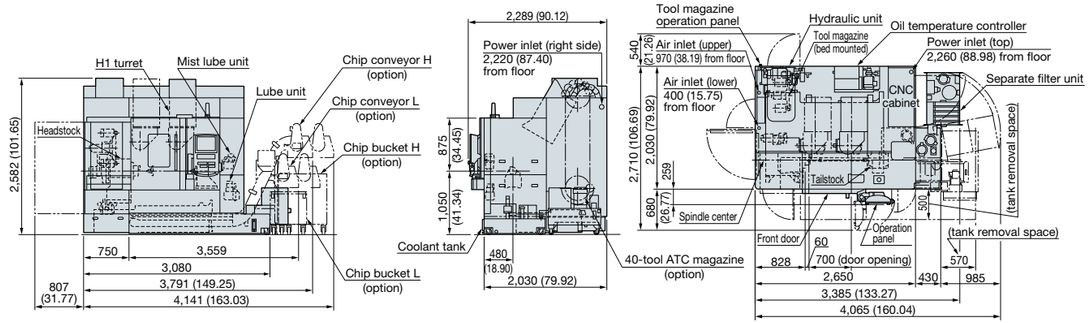
MULTUS B200Ⅱ

Units: mm (in)

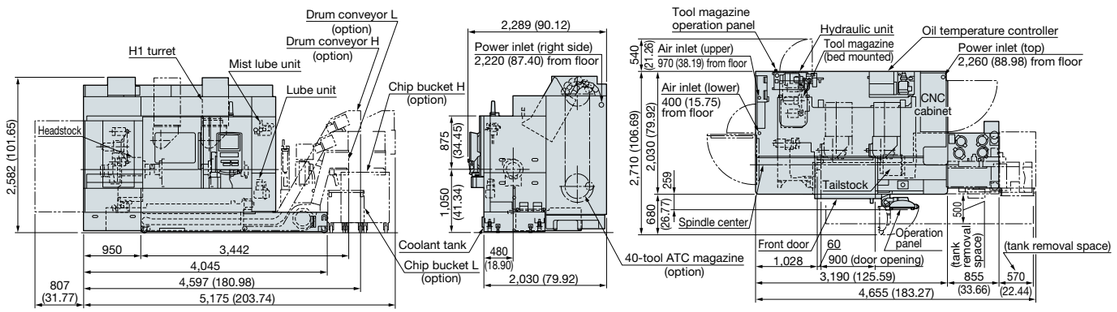
Chip conveyor with drum filter [550 distance between centers]



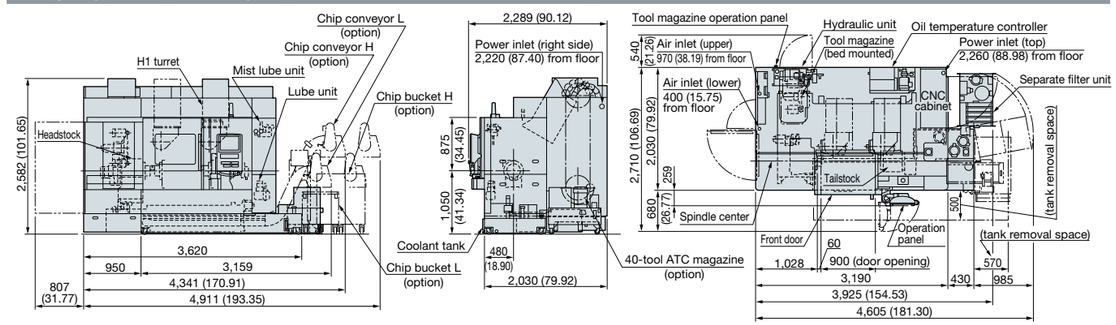
Hinge-type chip conveyor [550 distance between centers]



Chip conveyor with drum filter [750 distance between centers]



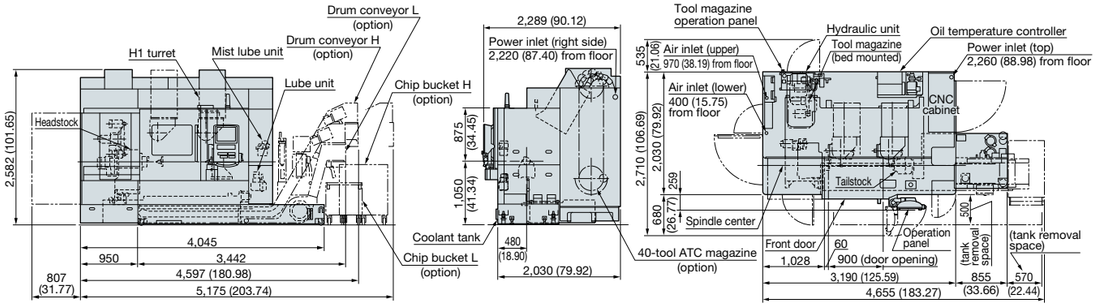
Hinge-type chip conveyor [750 distance between centers]



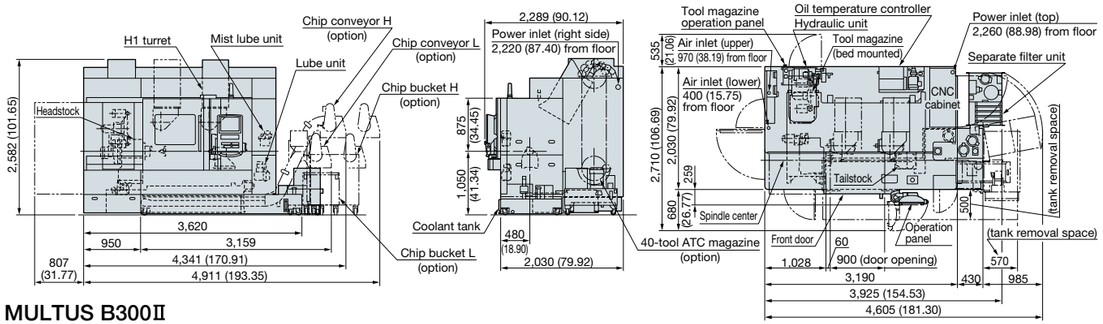
MULTUS B250Ⅱ

Units: mm (in)

Chip conveyor with drum filter [750 distance between centers]

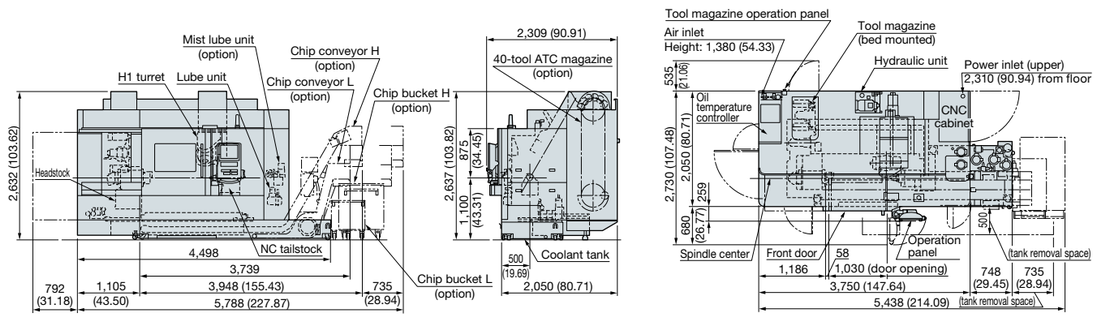


Hinge-type chip conveyor [750 distance between centers]

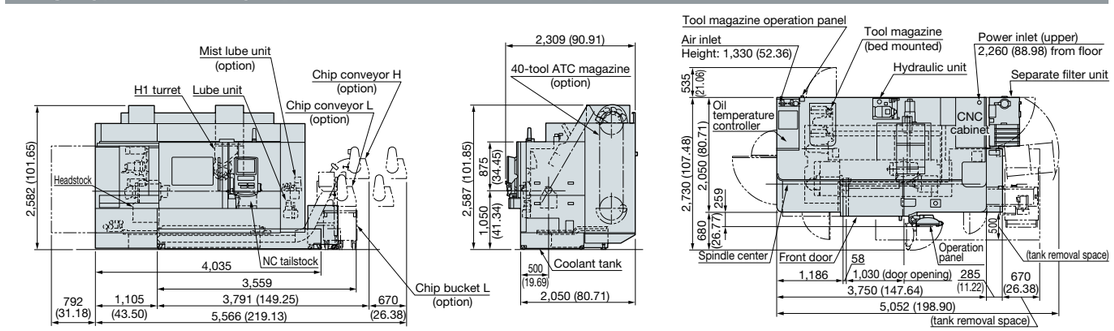


MULTUS B300Ⅱ

Chip conveyor with drum filter [900 distance between centers]



Hinge-type chip conveyor [900 distance between centers]

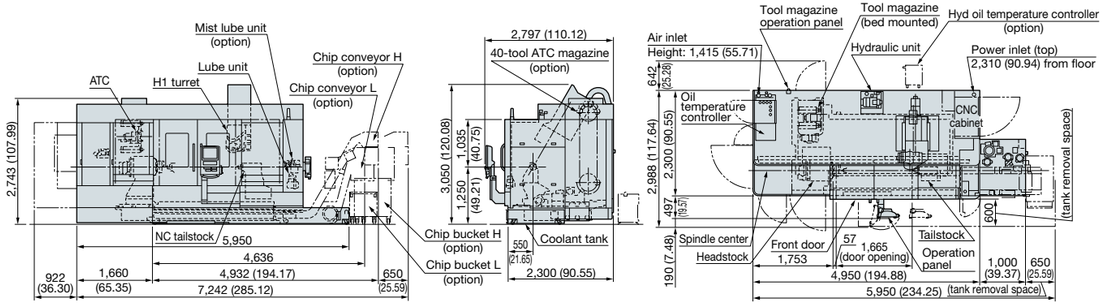


Dimensional/Installation Drawings

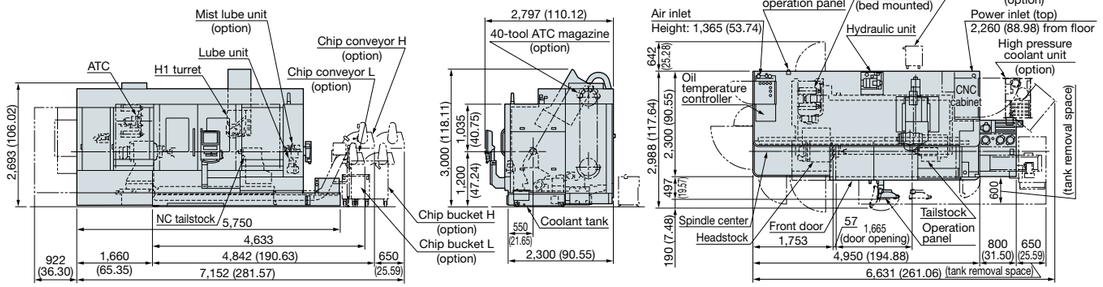
MULTUS B400Ⅱ

Units: mm (in)

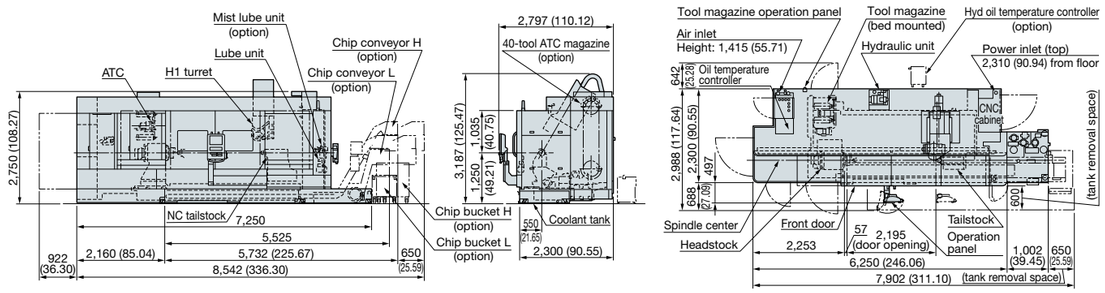
Chip conveyor with drum filter [1500 distance between centers]



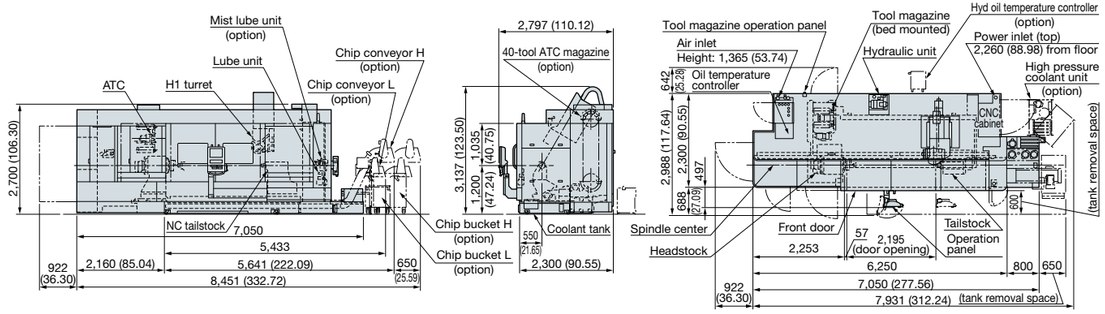
Hinge-type chip conveyor [1500 distance between centers]



Chip conveyor with drum filter [2000 distance between centers]



Hinge-type chip conveyor [2000 distance between centers]



A next-generation CNC that makes manufacturing DX (digital transformation) a reality

OSP-P500

Improved productivity and stable production

As Your Single Source for M-E-I-K (Mechanics - Electronics - IT - Knowledge) merging technologies, Okuma offers this CNC to build an advanced “digital twin” that faithfully reproduces machine control and machining operations and creates new value. In addition, Okuma offers productivity improvement and stable production with ease of use that allows customers to use their machining know-how, an energy-saving solutions that achieve both high accuracy/productivity and eco-friendly products, with robust security protection against increasing threats of cyber attacks.

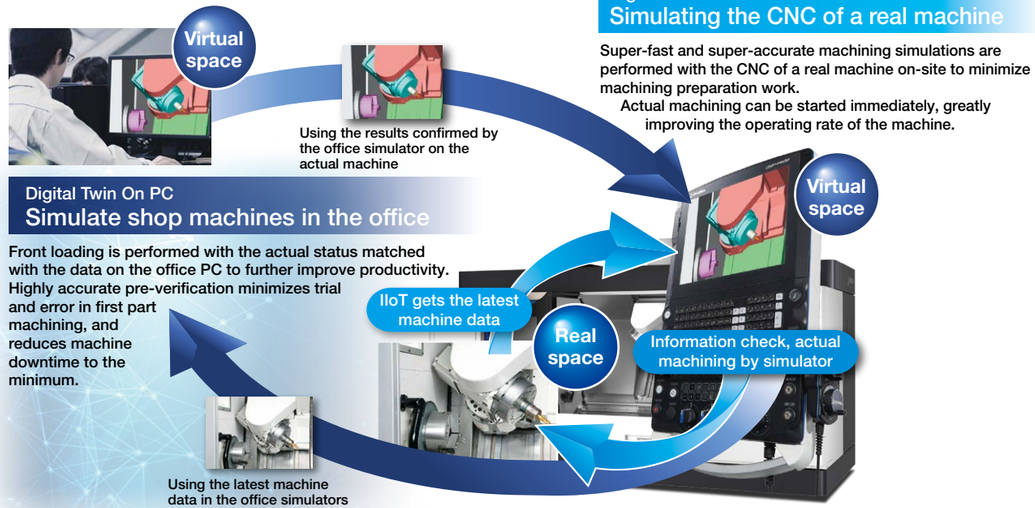
15-inch operation panel

Faithful reproduction of machines and processing — Digital support for shop floor work

Digital Twin (option)

“Okuma’s two digital twins” made possible by an office PC and a next-generation CNC reduce machine downtime and improve machine utilization

The same simulation can be run on the CNC of a real machine as well as on an office PC.
When a problem occurs on the shop floor, it can be solved quickly on site without going back to the office.
The CNC control, data, and 3D models, the same as those on the real machine, are used to faithfully simulate a virtual machine and improve simulation accuracy.
Pre-verification can be conducted in a short time through super high-speed simulation.



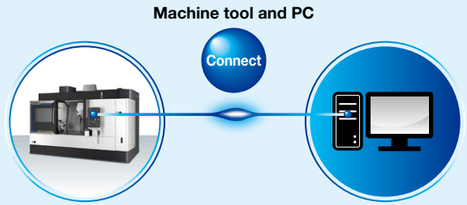
* The screens above are examples of the Collision Avoidance System (option).

Connect Plan

Get Connected, Get Started, and Get Innovative with Okuma “*Monozukuri*”

Connect, Visualize, Improve

Okuma’s Connect Plan is a system that provides analytics for improved utilization by connecting machine tools and visual control of factory operation results and machining records. Simply connect the OSP and a PC and install Connect Plan on the PC to see the machine operation status from the shop floor, from an office, from anywhere. The Connect Plan is an ideal solution for customers trying to raise their machine utilization.



A next-generation CNC OSP-P500 Standard Specifications

Basic Specs	Control	Turning: X, Z simultaneous 2-axis, Multitasking: X, Y, Z, B, C simultaneous 5-axis, Spindle control max 3 axes (2 spindles, milling tool spindle)
	Position feedback	OSP full range absolute position feedback (zero point return not required)
	Min / Max command	±99999.999 mm, ±99999.999° 8-digit decimal, command unit: 0.001 mm, 0.01 mm, 1 mm, 0.001°, 0.01°, 1°
	Feed	Override: 0 to 200%
	Spindle control	Direct spindle speed commands override 50~200%, Milling tool override 30-200%, Constant cutting speed, optimum turning speed designate
	Tool commands	2-digit tool no. + 4-digit tool no. (max tool registration: 1,000 sets)
	Tool compensation	Tool offset, nose R comp: 20 sets per tool, multi-coordinate tool compensation
	Display	15-inch color display operational panel, multi touch panel operations
	Security	Operator authentication, lock screen, OSP-VPSⅡ-STD
Programming	Program capacity	Program storage: 4 GB, operation buffer: 2 MB
	Programming	Program management, editing, scheduled programs, G-/M-code macros, fixed cycles, special fixed cycles, M-spindle synchronized tapping, fixed drilling cycles, user task, auto programming (LAP4), programming help, block skip
Operations	OSP suite	Various “suite” apps support the series of machining operations, and “suite operation” enables one-touch access to those apps
	Easy Operation	“Single-mode operation” for a series of operations from a single screen. Easy-to-use operation panel supports complete machine control.
	Collision Avoidance System	Prevents interference during manual, automatic operation Easy modeling of shape data (there are limits in interference prevention unit, unit movement)
	Machine operations	MDI, manual (rapid traverse, pulse handle), load meter, operations help, alarm help, sequence return, manual interrupt & auto return, easy parameter setting
	MacMan plus	Machining management: machining results, machine utilization, fault data compile & report, visualization of power consumption, external output
Communications / Networking		USB ports, Ethernet, DNC-T1, Smart I/F
High speed/ accuracy	Thermo-Friendly Concept	TAS-C (Thermo Active Stabilizer—Construction): corrects machine construction thermal deformation error during shop temperature change. TAS-S (Thermo Active Stabilizer—Spindle): corrects milling tool spindle thermal deformation error during spindle rotation.
	High speed/accuracy	Hi-G control, Machining time shortening function
Energy-saving	ECO suite plus	ECO Idling Stop, ECO Operation, ECO Power Monitor (on machine watt meter is optional)
	Power Regeneration System	Regenerative power is used when the spindle and feed axes decelerate to reduce energy waste.

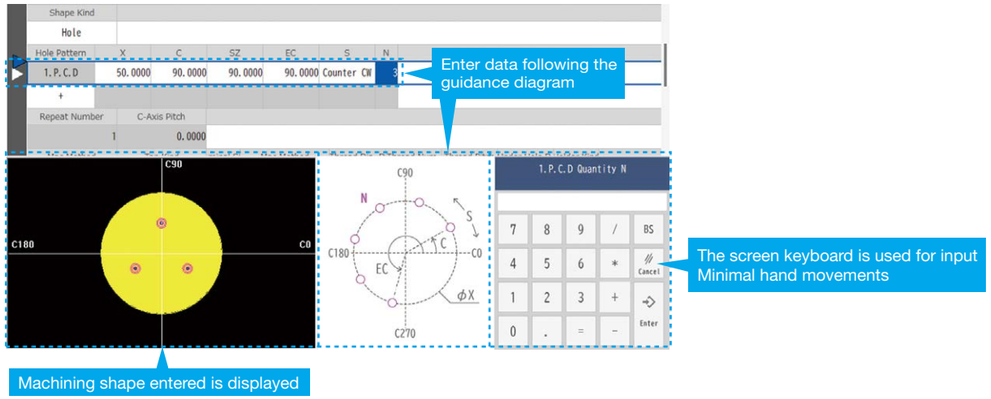
Novice-friendly smart operation

Innovative operability

It’s possible to speed up preparation for machining, even without knowledge of NC programs

While preparation for machining is conventionally conducted by writing GM code programs for machining settings and processes based on the drawing, this product enables the machining processes to be determined automatically, simply by following the guidance and entering drawing information.

■ **Machining preparation for tapping** (part of the process)



A next-generation CNC OSP-P500S Kit Specifications/Optional Specifications

Item	Kit spec	NML E	NML D	AOT-M E	AOT-M D	DT E	DT D	DT AOT-M E	DT AOT-M D
Digital twin									
Virtual Machining						● (VE)	● (VD)	● (VE)	● (VD)
Quick Modeling						● (VE)	● (VD)	● (VE)	● (VD)
OPC UA for Machine Tools						●	●	●	●
OSP API KIT						●	●	●	●
Interactive Programming									
Advanced One-Touch IGF-L Multitasking (w/Real 3D)				●	●			●	●
Smart OSP Operation				●	●	●	●	●	●
Programming									
Operation buffer (10 MB)		●	●	●	●	●	●	●	●
Circular threading			●		●		●		●
Program notes			●		●		●		●
User task I/O variables, 24 each 1,000 common variables									
Work coordinate system select	10 sets	●	●	●	●	●	●	●	●
	100 sets								
Thread matching									
Pause for threading during non-fixed cycle		●	●	●	●	●	●	●	●
Variable Spindle Speed Threading (VSST)									
Inverse time feed									
Mid-block sequence return			●		●		●		●
Coordinate convert		●	●	●	●	●	●	●	●
Profile generate		●	●	●	●	●	●	●	●
Flat turning									
Coordinate calculation (with NCYL commands)		●	●	●	●	●	●	●	●
Coordinate shifting, rotation, copying		●	●	●	●	●	●	●	●
Enlarge/reduce			●		●		●		●
Helical cutting									
Slope machining (Type I, Type II)									
B-axis slope machining		●	●	●	●	●	●	●	●
Profile helical cutting									
Harmonic spindle speed control		●	●	●	●	●	●	●	●
Tool life management (include prior notice)			●		●		●		●
Turn-Cut									
Hobbing									
Multi-flute cutter function									
Block skip; 9 sets									
Home position									
Dynamic tilt turning									
Monitoring									
Real 3-D simulation				●	●	●	●	●	●
Cycle time over check		●	●	●	●	●	●	●	●
Load monitor (spindle, feed axis) No-load detection, part number expansion, workpiece ejection detection				●	●	●	●	●	●
AI machine diagnostics (M-spindle, feed axes)*1									
Machine Status Logger									
Cutting Status Monitor									
Operation end buzzer									
Work counters	Count only								
	Cycle stop								
	Start disabled								
Hour meters	Power ON								
	Spindle rotation								
	NC operating								
NC operation monitor (counter, totaling)		●	●	●	●	●	●	●	●
Status indicator (3-color C type) [A type, B type]		●	●	●	●	●	●	●	●
External Input/Output and Communication Functions									
RS-232C connector									
Ethernet/IP									
Networking	DNC-DT, DNC-T3								
	DNC-C/Ethernet								

Item	Kit spec	NML E	NML D	AOT-M E	AOT-M D	DT E	DT D	DT AOT-M E	DT AOT-M D
Measuring									
In-process workpiece gauging	Tool compensation								
	Z-axis automatic zero offset								
	C-axis automatic zero offset								
	Y-axis zero offset and tool offset								
	Y-axis slope gauging								
	3-point gauging								
Gauge data output	File output								
Post-process workpiece gauging	Quantitative compensation (five level, seven level)								
	BCD								
	RS-232C (w/dedicated channel)								
Energy saving ECO suite plus									
Spindle power peak limiter									
ECO Power Monitor	On-machine wattmeter								
Automation / Unattended Operation									
Auto power shutoff M02, alarm		●	●	●	●	●	●	●	●
Warm-up function (by calendar timer)									
Tool retract cycle									
External program	pushbutton, rotary switch digital switch, BCD								
Connection with automated devices	Robot, loader I/F								
	Bar feeder I/F								
	FMS link I/F								
High-Speed /High-Accuracy									
B axis NC control									
Simultaneous 5-axis kit (NC B-axis)	Hyper-Surface II (5 axes)								
	Tool center point control II								
	Tool posture command								
	DNC-DT								
	Inverse time feed								
	Herical cutting								
	Slope machining, B-axis slope machining								
Cycle time reduction*2	Operation time reduction	●	●	●	●	●	●	●	●
	Chuck and tailstock movement during spindle rotation								
0.1 μm control*2									
Pitch error compensation									
AbsoScale detection*2									
Hi-Cut Pro		●	●	●	●	●	●	●	●
Dynamic displacement compensation		●	●	●	●	●	●	●	●
Hyper-Surface II	3 linear axes								
	3 linear axes + 2 rotary axes								
5-Axis Auto Tuning System kit	Standard, high spec								
NC Gage kit	Standard, high spec								
Other									
One-Touch Spreadsheet									
Gear machining package									
Machining Navi [M-gII+, M-i]									
Machining Navi [L-gII, T-g threading]									
Spindle dead-slow cutting									
Synchronized C-axis control									
Y-axis center hight offset									
Feed axis retraction									
Short circuit breaker									
External M signals [2 sets, 4 sets, 8 sets, 16 sets]									
OSP-VPSII-EX (Virus Protection System)									

Note. NML: Normal, AOT-M: Advanced One-Touch IGF-L Multitasking, DT: Digital twin,
DT AOT-M: Digital twin Advanced One-Touch IGF-L Multitasking, E: Economy, D: Deluxe
VE and VD kits are also equipped with the Digital Twin on PC function, allowing running from a PC.
*1. Engineering discussions required. With AbsoScale detection specs, ball screw wear detection is possible.
*2. Engineering discussions required.
Specifications, etc. are subject to change without notice.

29

30

MULTUS B II 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.
Pub.No.MULTUS B2 Series-E-(14a)-300 (Aug 2023)

OKUMA

OKUMA Corporation

Oguchi-cho, Niwa-gun,
Aichi 480-0193, Japan
TEL: +81-587-95-7825 FAX: +81-587-95-6074