

SPEEDIO

HU550Xd1

Horizontal Universal Compact Machining Center



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Horizontal Universal
Compact Machining Center

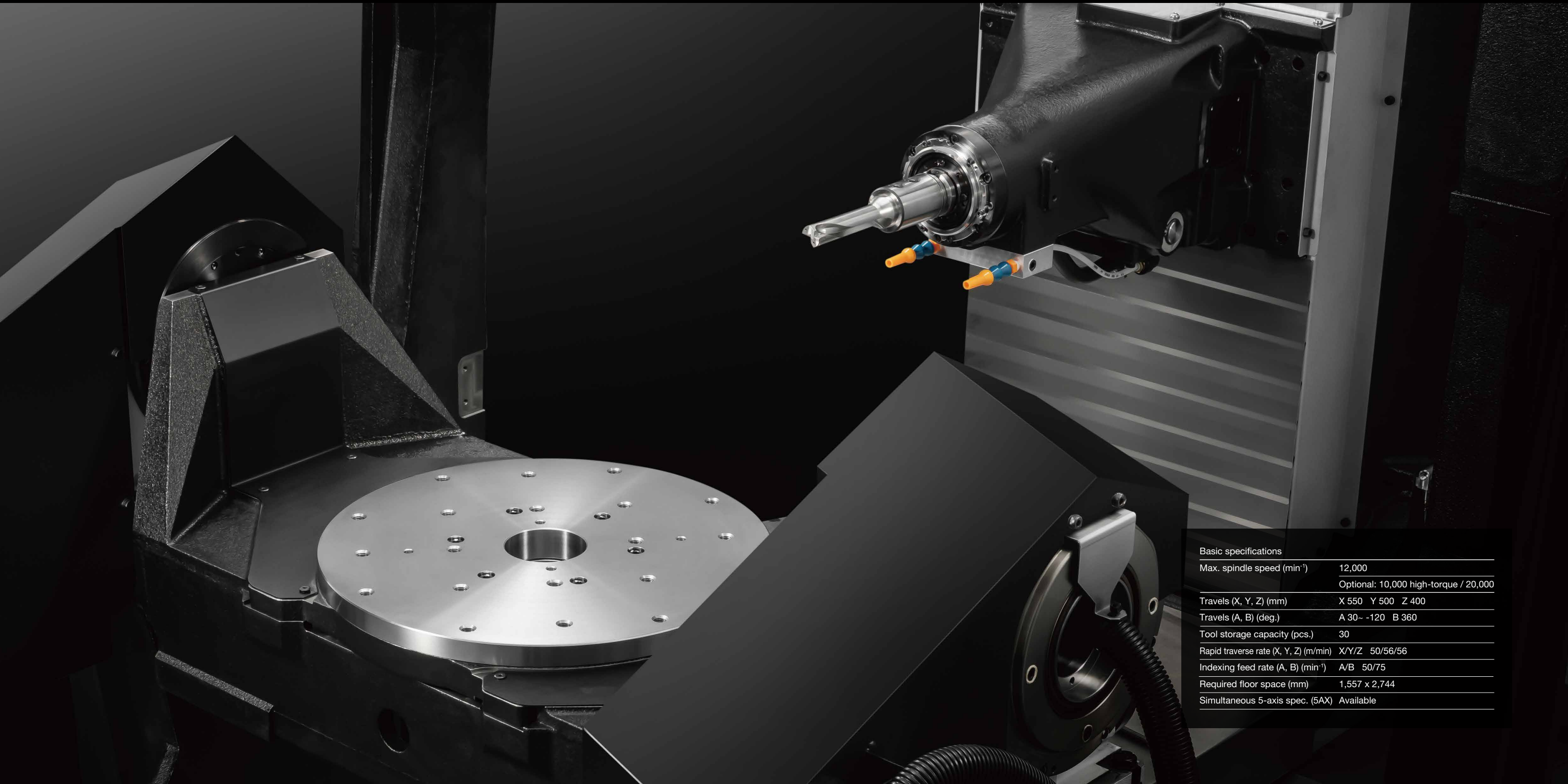
Equipped with ø680 mm tilting rotary table Ever-evolving horizontal universal compact machining center

Standard equipped with a ø680 mm tilting rotary table, the machine enables multi-face machining of large or long workpieces beyond the conventional concept of BT30 machines, further accelerating process integration. This new machine delivers both a space-saving design and high productivity through machine/controller integrated development.

Cutting Out the Waste *SPEEDIO*



HU550Xd1



Basic specifications	
Max. spindle speed (min ⁻¹)	12,000 Optional: 10,000 high-torque / 20,000
Travels (X, Y, Z) (mm)	X 550 Y 500 Z 400
Travels (A, B) (deg.)	A 30~ -120 B 360
Tool storage capacity (pcs.)	30
Rapid traverse rate (X, Y, Z) (m/min)	X/Y/Z 50/56/56
Indexing feed rate (A, B) (min ⁻¹)	A/B 50/75
Required floor space (mm)	1,557 x 2,744
Simultaneous 5-axis spec. (5AX)	Available

Multi-face machining of large or long workpieces using BT30 spindle horizontal machining center

A large tilting rotary table is mounted on the highly productive BT30 spindle horizontal machining center, enabling multi-face machining of large or long workpieces.
This machine supports a broad range of applications, including automobile components.

Automobile



Steering rack housing
Aluminum alloy
Size: 520 x 170 x 130



E-axle case
Aluminum alloy
Size: 290 x 428 x 268



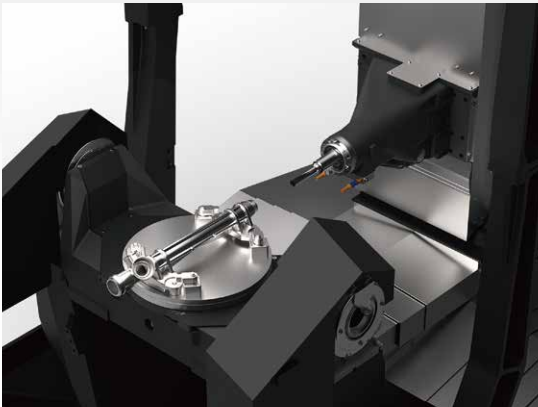
Timing chain cover
Aluminum alloy
Size: 450 x 330 x 80



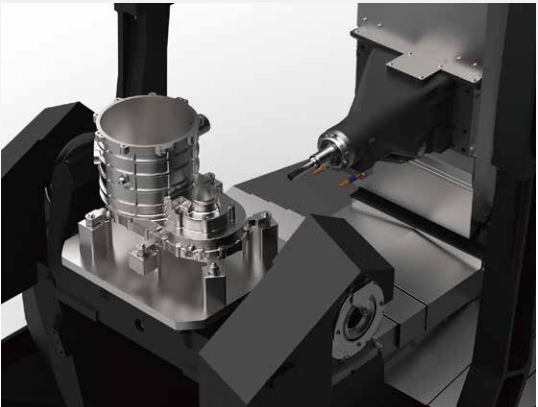
Knuckle
Aluminum alloy
Size: 300 x 255 x 120

Jig mounting examples

Jigs for multi-face machining of large workpieces (approx. 500 mm x 500 mm) or long workpieces (approx. 600 mm in length) can be mounted. The ample jig area (ø680 mm x 400 mm) enables easy mounting of a wide variety of jigs.



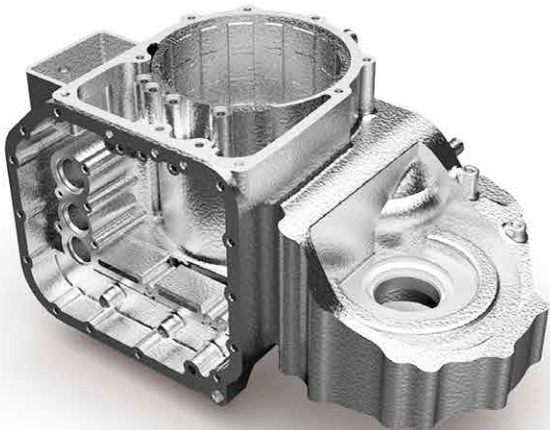
Steering rack housing



E-axle case

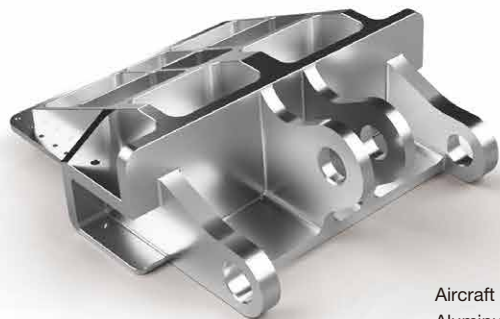


Gearbox housing
Aluminum alloy
Size: 305 x 260 x 90



Transmission case
Aluminum alloy
Size: 550 x 300 x 280

Aircraft



Aircraft parts
Aluminum alloy
Size: 300 x 250 x 100



Turbine blade
Titanium alloy
Size: 140 x 80 x 40

Equipped with ø680 mm tilting rotary table

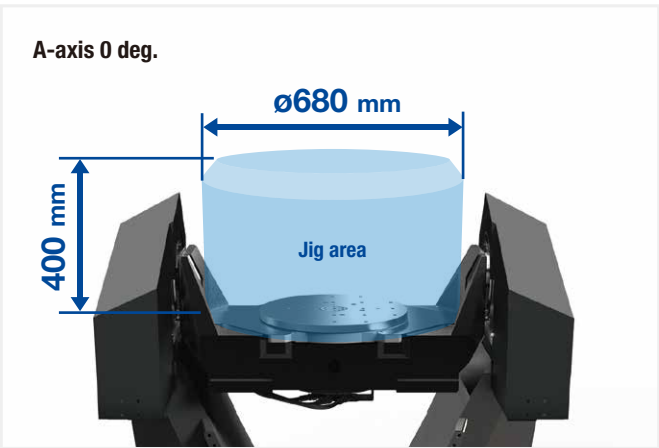
Achieves process integration for machining of large/long workpieces

Advantages of utilizing the HU550Xd1

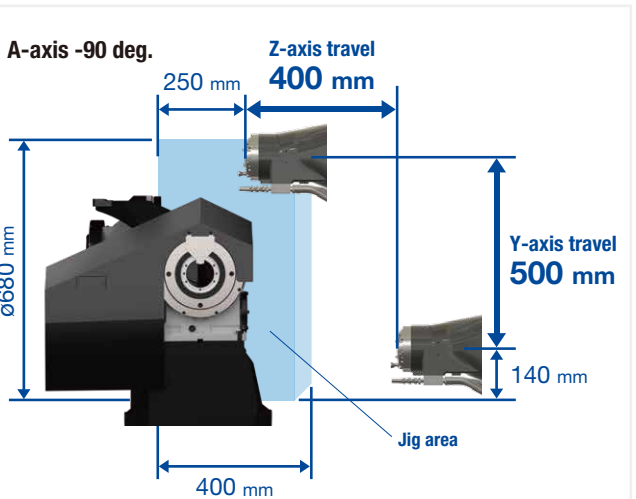
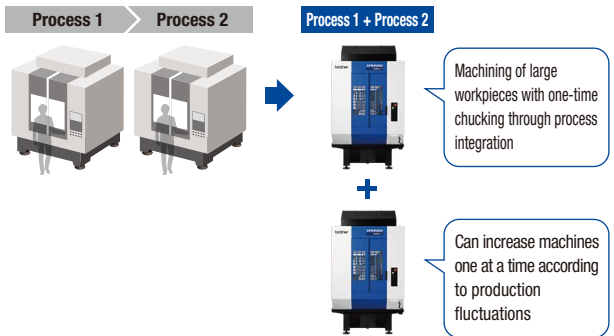
- [1] Enables machining of large/long workpieces within less space.
- [2] Achieves highly accurate machining with one-time chucking through process integration
- [3] Easily adapts to production fluctuations or variations in workpiece geometry.

Jig area

A large tilting rotary table is mounted, providing an ample jig area of ø680 mm x 400 mm. Even when the A-axis is tilted 90 degrees, sufficient machining range and tool accessibility are ensured. The combination of the tilting rotary table and ample jig area can easily adapt to future variations in workpiece geometry.



Max. loading capacity **200 kg**



Space saving

While enabling mounting of large workpieces, the space-saving design makes factory machinery layout easier and maximizes the effective use of installation space.

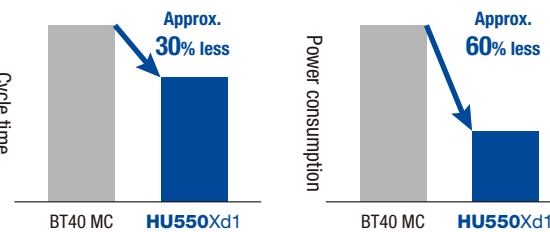


*1. Dimension including coolant tank
*2. Compared to BT40 horizontal MC with equivalent travels

Machining example

Steering rack housing

Material: Aluminum alloy
Size: 520 x 170 x 130



*Compared using a sample program created by Brother

30-tool magazine

Equipped with the direct ATC type 30-tool magazine. Supports maximum tool length of 350 mm, maximum tool diameter of 125 mm, and maximum tool weight of 4 kg, enabling a variety of machining, including long workpieces.

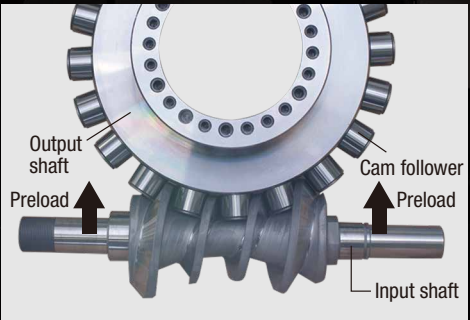


Max. tool length **350 mm**
Max. tool diameter **125 mm**
Max. tool weight **4 kg**



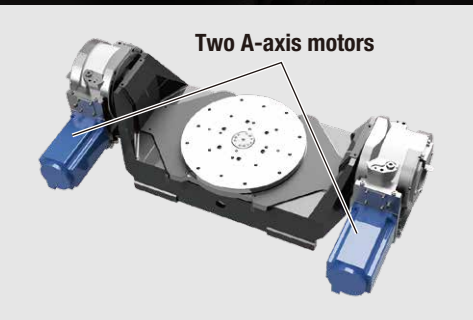
Tilting rotary table

Brother's original large tilting rotary table with a roller gear cam mechanism and tandem control, achieving both high speed and high accuracy.



Rotary gear cam mechanism

A roller gear cam mechanism is used for A and B axes, achieving both high speed and high accuracy. In addition, the maximum loading capacity of the ø400 mm table is 200 kg.



Tandem control

Tandem control using two motors is used for the A-axis. This suppresses distortion in the large tilting rotary table, enabling high-speed indexing.

Max. indexing feed rate

A-axis **50 min⁻¹**
B-axis **75 min⁻¹**

Indexing time (90 deg.)

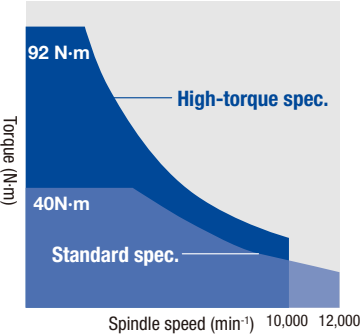
A-axis **1.2 s**
B-axis **1.2 s**

A variety of spindle specifications and optimized machine design enable a broad range of machining

Spindle motors to meet specific applications

A 20,000 min⁻¹ spindle motor has been newly developed. Compatible with Coolant Through Spindle (CTS), it further enhances productivity in small-diameter drilling. Various spindle motor specifications are available for different applications, including the standard 12,000 min⁻¹ spec. and high-torque spec.

Motor torque characteristics



High-torque spec. (optional)	
Max. torque	92 N·m
Max. output	26.2 kW
20,000 min ⁻¹ spec. (optional)	
Max. torque	27 N·m
Max. output	15.4 kW
12,000 min ⁻¹ spec. (standard)	
Max. torque	40 N·m
Max. output	18.9 kW

7 MPa Coolant Through Spindle (CTS) (optional) *1

The CTS option can be selected from 3 MPa or 7 MPa. With this option, the machine can operate to its fullest potential in high-speed drilling or deep-hole drilling.

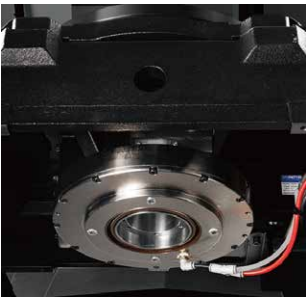
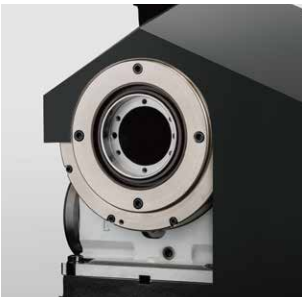
*1. 3 MPa/7 MPa CTS are compatible with all spindle motor specifications.



Clamping torque compatible with high-load machining

Both A and B axes are provided with high clamping torque, demonstrating high retention strength even in high-load machining. Machining with more stringent cutting conditions is possible, improving production efficiency.

A-axis clamping torque *2	1,200 N·m
B-axis clamping torque *2	700 N·m



*2. Value of mechanical clamp (at pneumatic 0.5 MPa) plus servo clamp

Optimal machine design and highly rigid spindle

Both high speed and high rigidity of the machine have been achieved by optimizing the cast geometry utilizing CAE analyses. The high-torque spindle features the SPEEDIO's largest bearing diameter. With these improvements, the machine demonstrates high machining capabilities from highly efficient machining to heavy-duty machining.



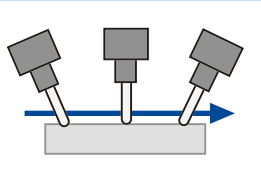
Easy-to-implement simultaneous 5-axis machining function (5AX) *3

Leveraging the standard-equipped tilting rotary table, the simultaneous 5-axis machining function can be easily implemented. Equipped with various functions, including tool center point control, the machine can achieve high-speed and highly accurate simultaneous 5-axis machining, combined with the 20,000 min⁻¹ specification.

*3. Available only on the HU550Xd1-5AX

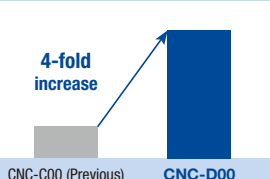
Tool center point control

Equipped with tool center point control where machining is performed by changing the tool direction relative to the workpiece. Optimal acceleration/deceleration is ensured by look-ahead for up to 1,000 blocks.



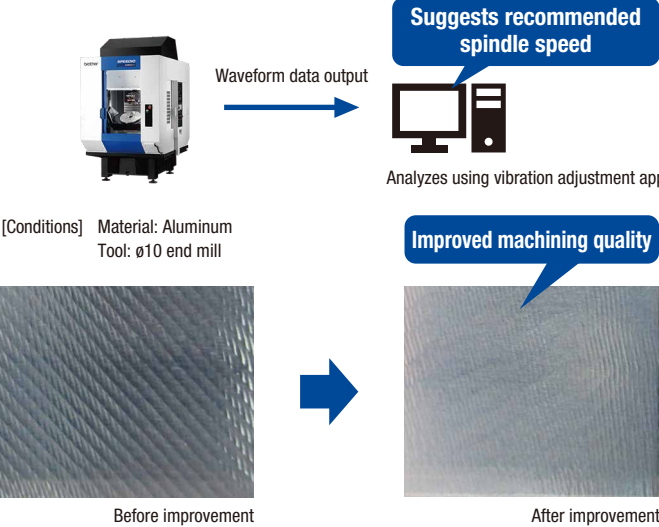
Processing speed of minute line segments

The CPU capacity has been greatly increased to enhance the processing speed of minute line segments by four times the previous controller. This enables high-speed processing of CAM data with small tolerance.



Vibration adjustment (optional) that suggests optimal machining conditions

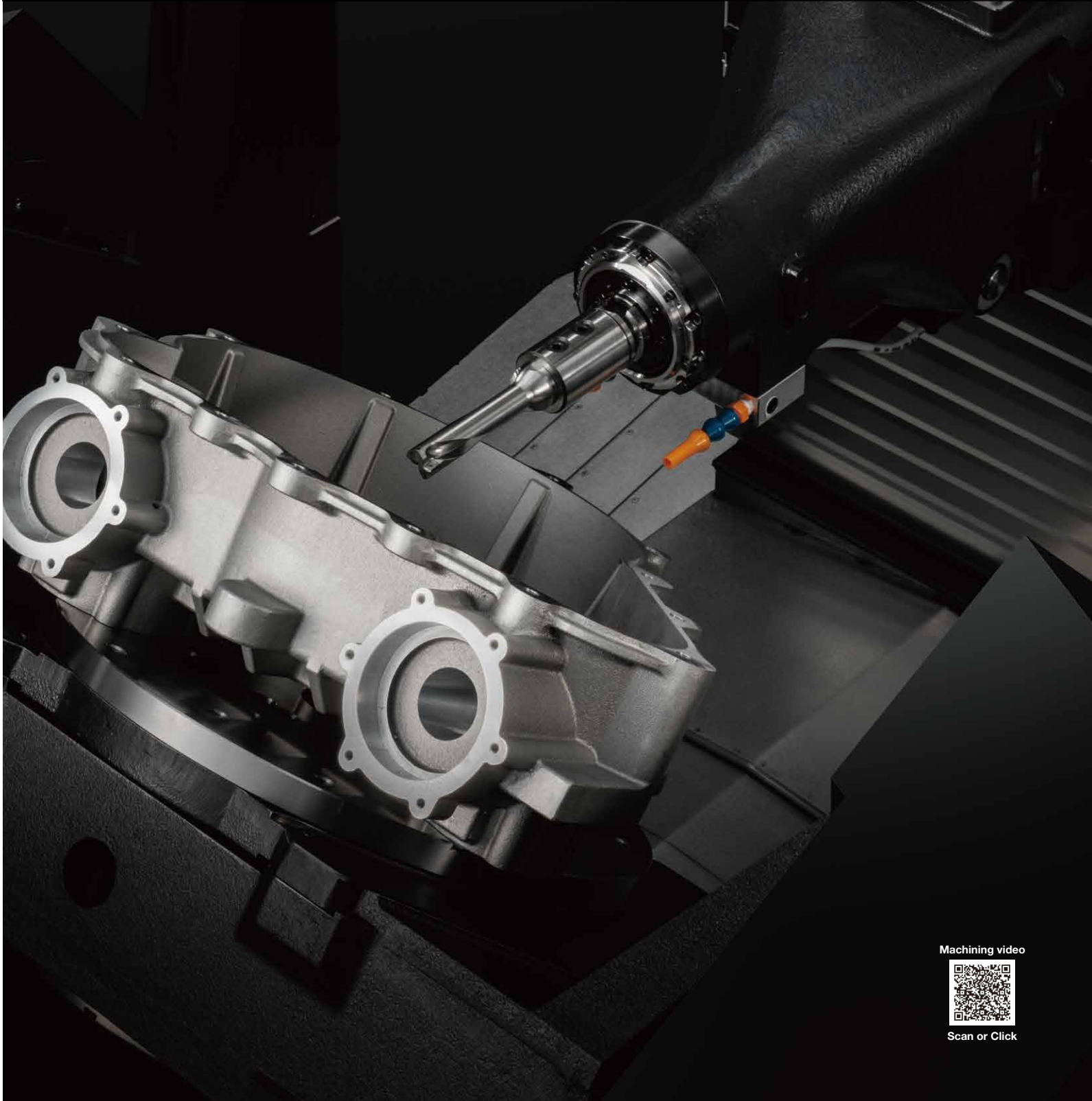
Vibration adjustment analyzes waveform data using a PC app to suggest the recommended spindle speed. Optimal machining conditions drive machining performance to the fullest.



Machining capability

		ADC	Cast iron	Carbon steel
Drilling	12,000min ⁻¹	D30 x 0.2 (1.18 x 0.008)	D30 x 0.15 (1.18 x 0.006)	D22 x 0.1 (0.87 x 0.004)
	10,000 min ⁻¹ high-torque	D33 x 0.2 (1.30 x 0.008)	D33 x 0.15 (1.30 x 0.006)	D24 x 0.1 (0.94 x 0.004)
	20,000min ⁻¹	D23 x 0.2 (0.91 x 0.008)	D23 x 0.15 (0.91 x 0.006)	D19 x 0.1 (0.75 x 0.004)
Tapping	12,000min ⁻¹	M27 x 3.0 (1-8UNC)	M24 x 3.0 (7/8-9UNC)	M20 x 2.5 (3/4-10UNC)
	10,000 min ⁻¹ high-torque	M36 x 4.0 (1 3/8-6UNC)	M33 x 3.5 (1 1/4-7UNC)	M27 x 3.0 (1-8UNC)
	20,000min ⁻¹	M22 x 2.5 (7/8-9UNC)	M22 x 2.5 (7/8-9UNC)	M16 x 2.0 (5/8-11UNC)
Facing	12,000min ⁻¹	1,200: 100 x 4.0 x 3,000 (73.2: 3.94 x 0.16 x 118.1)	101: 40 x 4.4 x 1,492 (6.2: 1.57 x 0.17 x 22.6)	77: 40 x 4.0 x 484 (4.7: 1.57 x 0.16 x 19.1)
	10,000 min ⁻¹ high-torque	1,920: 100 x 6.4 x 3,000 (117.2: 3.94 x 0.25 x 118.1)	358: 40 x 6.0 x 1,492 (21.8: 1.57 x 0.24 x 58.7)	232: 40 x 6.0 x 967 (14.2: 1.57 x 0.24 x 38.1)
	960: 100 x 3.2 x 3,000 (58.6: 3.94 x 0.13 x 118.1)	83: 40 x 3.6 x 573 (5.1: 1.57 x 0.14 x 22.6)	54: 40 x 2.8 x 484 (3.3: 1.57 x 0.11 x 19.1)	
	20,000min ⁻¹			

*These values are based on our actual performance data.
*These values are when the A-axis is at -90 degrees and X/Y axes are at their travel center. The above machining capability may not be achieved under some conditions, including usage environment, tools in use, and coolant.



Machining video



Scan or Click

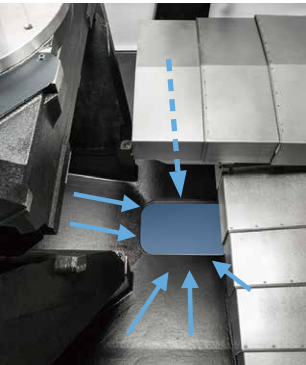
High chip evacuation and robust reliability/maintenance functions achieve stable, high productivity

High chip evacuation with horizontal machining center features

Utilizing horizontal machine features and various other functions, the machine demonstrates high chip evacuation.

Center trough structure

The inclined base and the center trough structure effectively evacuate chips that fall on the base to the outside of the machine.



Head shower (optional) *1

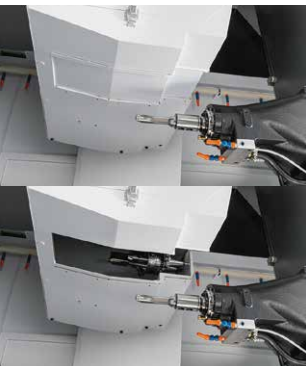
A head shower is available to remove chips from the spindle head.

*1. Included with the coolant nozzle (optional).



Magazine cover ATC shutter

The magazine is separated from the machining chamber by a shutter to minimize the effect of chips on tools.



Chip conveyor (optional)

The hinge and scraper type chip conveyor with drum filter evacuates chips in a variety of sizes and shapes.



Various functions of our original NC enhance reliability and maintainability

Numerous maintenance functions are provided to help prevent possible defects in production sites, and assist with recovery if problems occur.

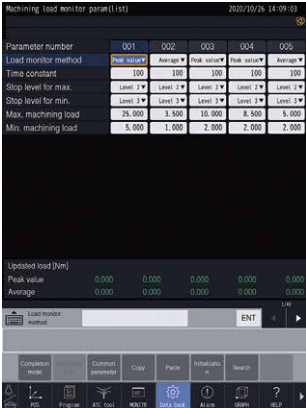
ATC tool monitoring

Checks the presence of a spindle tool before and after tool change, tool over spindle, positional shift of tool key etc. without using a sensor.



Machining load monitoring

Machining load applied to the spindle is monitored to issue an alarm when the load is not within the preset value.



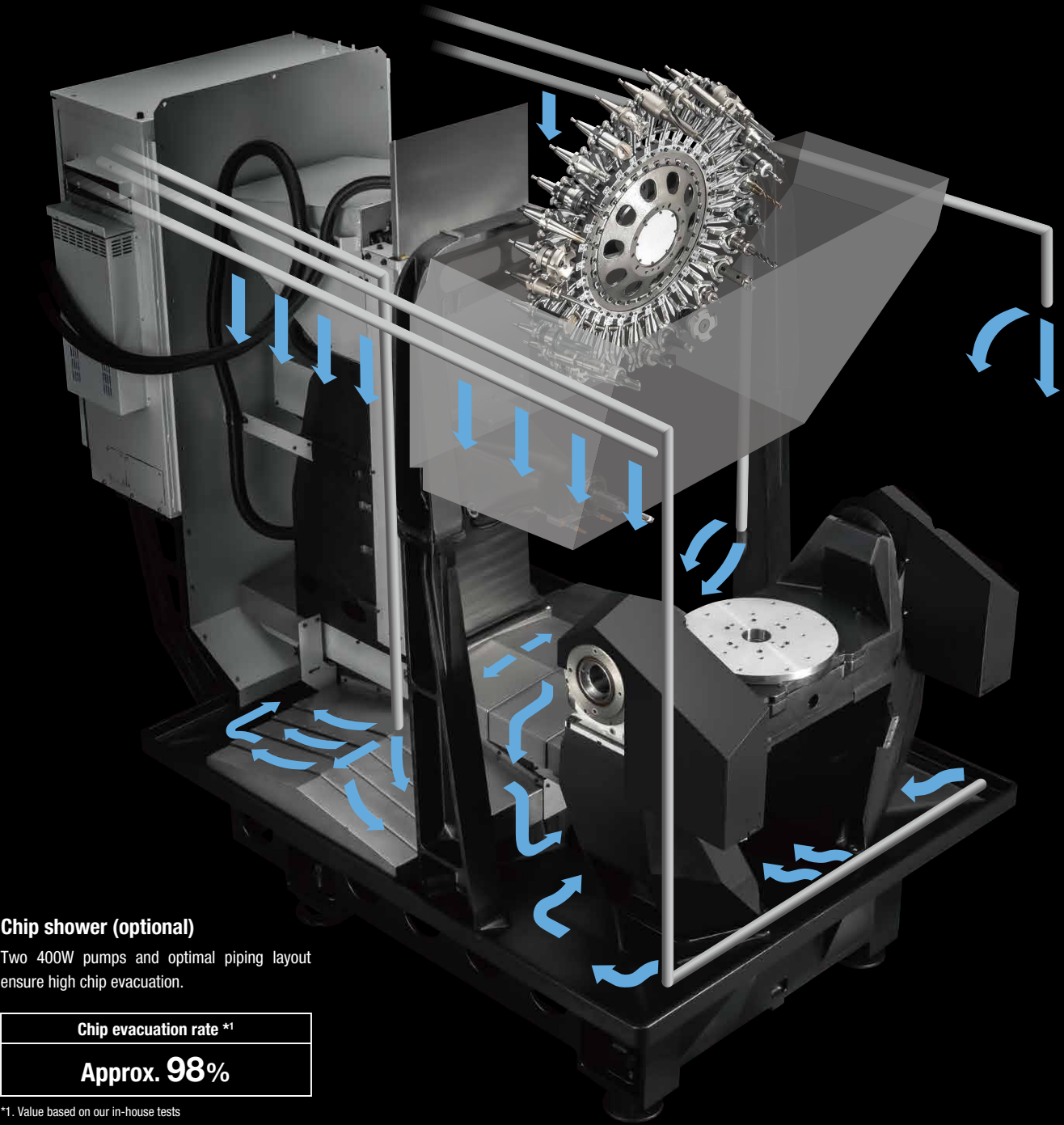
Maintenance notice

Notifies operators of maintenance related issues in advance, such as greasing time.



Alarm log

Displays alarm log details to help identify the cause.



Chip shower (optional)

Two 400W pumps and optimal piping layout ensure high chip evacuation.

Chip evacuation rate *1
Approx. 98%

*1. Value based on our in-house tests

Stuck chips detection function

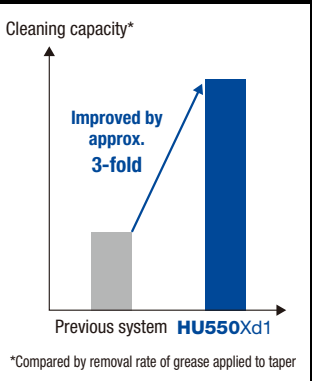
Chips caught between the spindle and the holder during ATC are detected without using a sensor. Detecting any stuck chips during ATC prevents the outflow of defects. A retry function is also provided.



Tool No.	Tool name	Tool status	Assessment	Recovery data
001	TOOL1	0.001	Normal	Value acquired
002	TOOL2	0.002	Normal	Value acquired
003	TOOL3	0.001	Normal	Value acquired
004	TOOL4	0.001	Normal	Value acquired
005	TOOL5	0.000	Normal	Value acquired
006	TOOL6	0.000	Normal	Value acquired
007	TOOL7	0.001	Chips stuck	Not acquired
008	TOOL8	0.002	Normal	Value acquired
009	TOOL9	0.000	Normal	Value acquired
010	TOOL10	0.001	Normal	Value acquired

Tool cleaning system (optional)

The number of discharge holes and the angle of these holes have been optimized to significantly increase the discharge flowrate. This has resulted in a threefold increase in cleaning capacity, compared to the previous system. When CTS is selected, coolant for tool cleaning is discharged from the CTS pump, consuming less air than air-assisted tool cleaning.

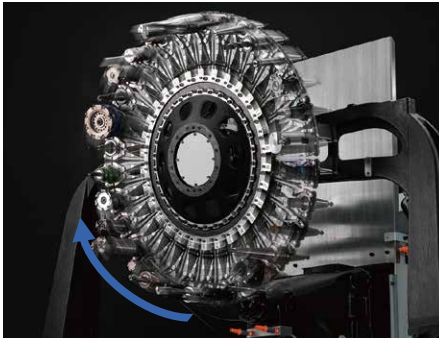


High productivity, made possible through machine/controller integrated development that thoroughly eliminates unnecessary movements

Pursuit of easy setup and workpiece change
Enhanced operability with a controller equipped with support functions

High-speed tool change

By utilizing the advantages of machine/controller integrated development, high-speed tool change has been achieved by fast acceleration/deceleration and optimized operation.



Tool change time	
T-T	1.3 s
C-C	2.5 s

Fast acceleration/deceleration spindle

Using a low inertia spindle and high acceleration/deceleration spindle motor has achieved faster spindle start/stop.



Spindle start/stop time	
	0.15 s or less *1

*1. Value of high-torque spec.

High visibility and easy workpiece change

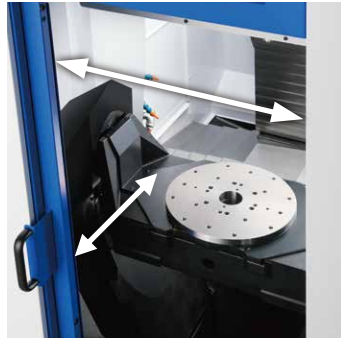
The operation panel is located on the side of the machine to improve visibility into the machining chamber, making setup easier. With a wider front door opening, the table can be tilted toward the operator to enhance accessibility, allowing them to change workpieces in a comfortable posture.



Operation panel on side of machine



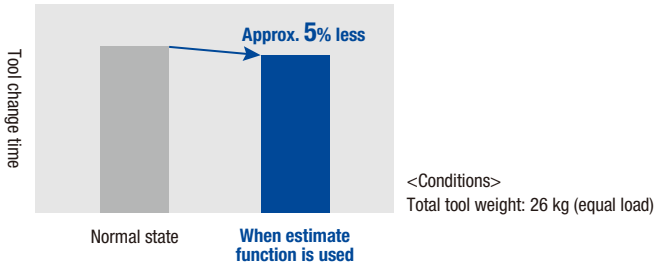
Workpiece change from front of machine



Front door opening width	
	656 mm
From front of machine to center of table	
	550 mm

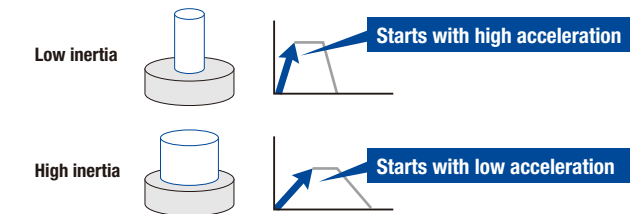
Magazine load conditions estimate

Estimates the inertia and unbalanced load of the tool loaded in the magazine, and sets the optimum value for the acceleration of the magazine axis. In addition, automatically updates the value to the estimated optimum acceleration, even during programmed operation.



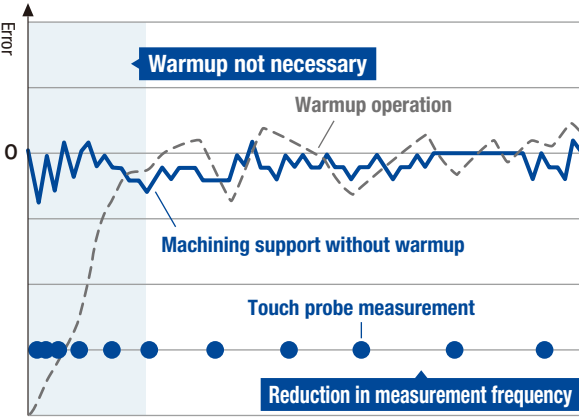
Optimized A/B-axes indexing feed rate

Based on the estimated A/B-axes inertia, the A/B-axes start with optimal acceleration until they reach the indexing feed rate.



Machining support without warmup

Equipped with an original measurement processing function that reduces the number of actual measurements by a touch probe according to the size of displacement. This eliminates the need for warmup operation, minimizing effects on productivity to achieve highly accurate machining.



Reduced setup time with high-speed automatic door

The servo-controlled automatic door enables high-speed door opening and closing, shortening setup time.

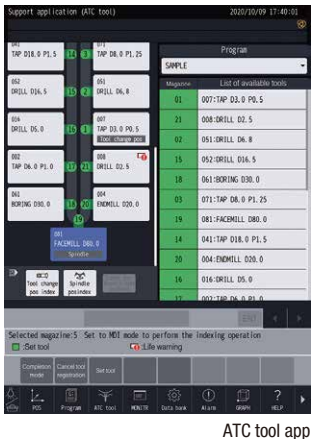
Automatic door opening/closing time:	1.4 s / 1.6 s
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A variety of convenient support functions

Intuitive operation is possible with apps and the vertical touch panel screen. Relevant functions are grouped according to purpose, such as setup and machining, leading to efficient operation. Production and operation states are visualized, allowing faster understanding. Streamlined operation is possible in setup, machining adjustment, production, and recovery processes, leading to improved work efficiency and operating rate.

Setup support

Equipped with functions to easily perform setup, such as an ATC tool app that enables all magazine tool settings to be performed on one screen, menu programming that enables you to create NC programs by following instructions on the screen, and an on-screen help function.



ATC tool app

Machining adjustment support

Equipped with functions to easily perform optimal machining adjustment to improve productivity, such as a machining parameter adjustment app that enables you to easily adjust parameters according to machining details and a machining load waveform display/saving function.



Waveform display app

Production support

Equipped with functions to improve the operating rate, such as real time tool monitoring to eliminate defects, displaying production performance, power consumption etc. as a graph, and PLC/network functions to meet peripheral equipment and automation requirements.



Production performance app

Recovery support

Equipped with functions to prevent failure or ensure quick recovery, such as maintenance time notice, displaying details when an alarm occurs, and guidance for recovery/check work.



Recovery support app

SPEEDIO Blue Technology

Eliminating waste elements at production sites leads to reduction in greenhouse gas emissions, such as carbon dioxide and methane.

Brother's optimal and compact design reduces wasted time, resources, and energy during parts machining.

We are striving to reduce environmental impact by conducting product life cycle assessment, which quantitatively evaluates environmental impact at each stage of production, transportation, use, disposal, and recycling.

SPEEDIO Blue Technology Solves Four Waste Elements at Production Sites

Wasted time reduction



Wasted time is reduced by minimizing non-cutting time in the machining cycle time and reducing setup time and downtime.

Wasted resource reduction



Wasted resources are reduced by using machining adjustment support that prevents cutting defects and production support such as real-time monitoring.

Wasted energy reduction



Optimal design eliminates all waste, including excessive power consumption and air flowrate, achieving industry-leading energy-saving performance.

Wasted installation space reduction

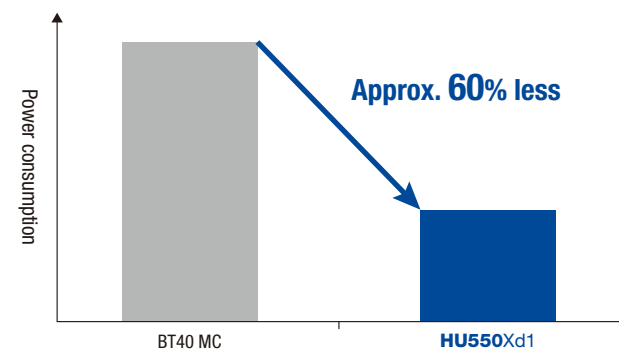


Compact design reduces wasted space with less restrictions on installation locations.

Wasted energy reduction

Saving power

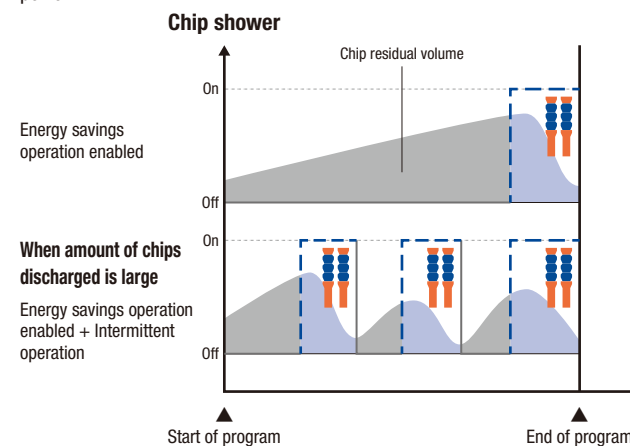
New functions, including chip shower energy savings operation, energy savings mode, and machining support without warmup, have been incorporated. Together with various energy-saving technologies, such as power regeneration and highly efficient spindle motors, power consumption is overwhelmingly low.



*Compared using a sample program created by Brother

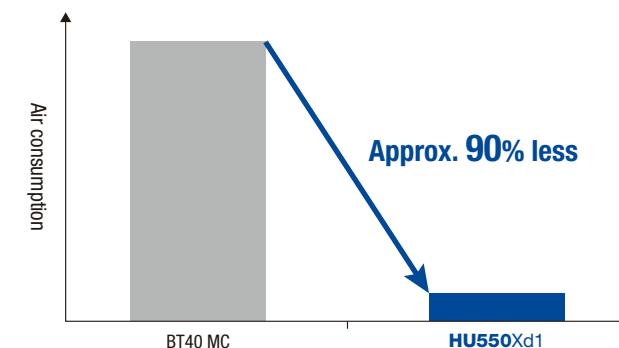
Chip shower energy savings operation

This function controls the on/off timing of the chip shower pump. Operation is switched via parameters according to the amount of chips discharged, contributing to energy saving for chip shower pumps that consume significant amounts of power.



Saving air

Air purge, spindle air blow, and other air-related functions have been reviewed and optimized to eliminate any waste. Air consumption is significantly reduced while maintaining reliability.



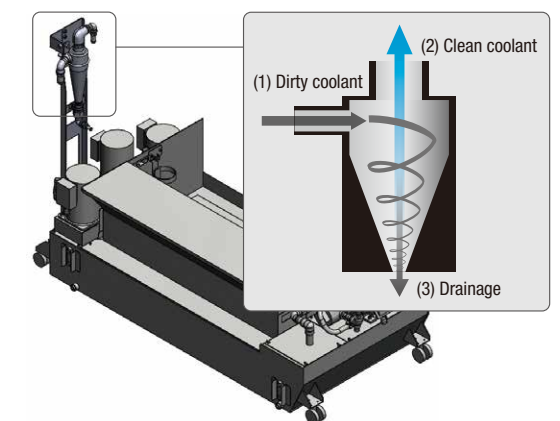
*Compared using a sample program created by Brother

Wasted resource reduction

Tank with cyclone filter and no consumables (special option for CTS)

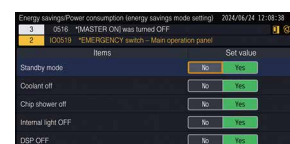
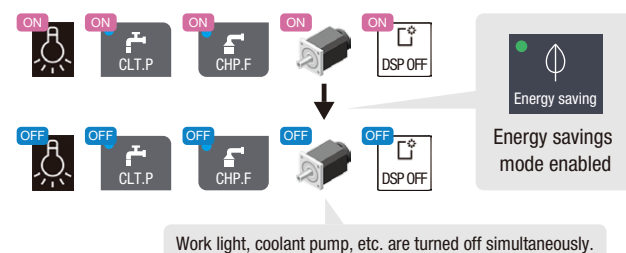
Clean coolant is returned to the clean tank through another tank with a cyclone filter that removes fine chips.

Coolant is kept clean this way to reduce the filter change frequency and extend the service life of the pump.



Energy savings mode

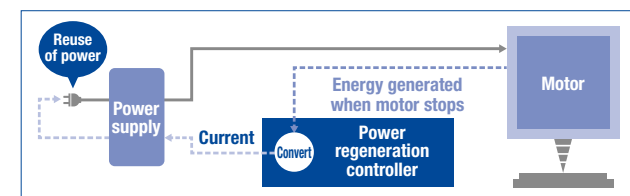
Added a function to turn on/off energy-saving functions simultaneously. Items to be turned on/off can be customized.



- Standby mode
 - Coolant pump
 - Chip shower
 - Work light
 - Display off
- Can be customized

Power regeneration system

Equipped with a power regeneration system that recycles energy generated when a servo motor decelerates.



Power consumption app

Servomotors, pumps, and other equipment are grouped and displayed according to purpose. Calculation is possible for each cycle.



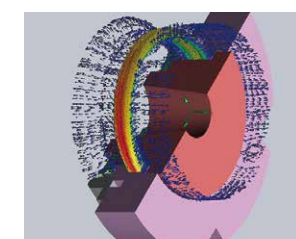
Highly efficient spindle motor

Energy-saving pump

LED work light

Air purge

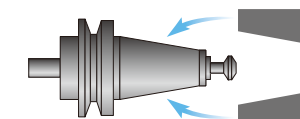
Reinforced the labyrinth structure on the spindle end face to reduce air consumption.



Air flowrate analysis of spindle end face

Spindle air blow

Optimized the air blow start/stop timing during tool change to reduce air consumption.



Automatic oil/grease lubricator that optimizes consumption (optional)

Consumption amount and timing are optimized by the automatic oil/grease lubricator.

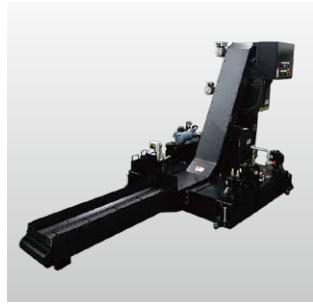
Oil mixing with coolant can be minimized.

Automatic oil lubricator



Automatic grease lubricator





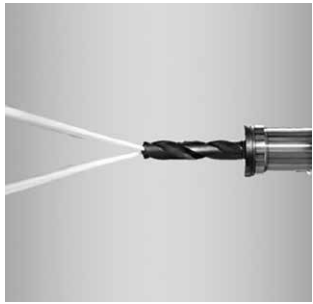
Chip conveyor

A two-step structure (hinged plate and scraper) is used, enabling evacuation of chips in a variety of sizes and shapes. An oil skimmer can be added.



Coolant tank with chute

Coolant flows through the chute to evacuate chips. The chute can be separated from the coolant tank, making maintenance easier.



Coolant Through Spindle (CTS)

Can be selected from 3 MPa or 7 MPa. Pump and tank are not included.



Head coolant nozzle with head shower

Coolant can reliably be applied to the machining section as the tool and nozzles are set in place. In addition, a head shower is provided to remove chips from the head.



Rotary joint

Provided with 6+1 ports and built into the B-axis table, making jig mounting easier.
6 ports: Hydraulic (7 MPa) / Pneumatic (1 MPa)
1 port (center): Coolant (0.3 MPa)



Chip shower

Chip shower pipes are located at the upper section inside the machine for more efficient flow, and flexible shower nozzles can be directed to the side of the machine cover or sections where chips tend to accumulate.



Fixture shower valve unit

Consists of jig washing valves and pipes to the ceiling of the machine. Pipes from the machine to the required location must be prepared by customers.



Cleaning gun

Helps clean the workpiece or chips inside the machine after machining.



Tool cleaning system

High discharge pressure and flowrate powerfully removes chips stuck to the holder. Two types are available: air-assisted type and direct pump type where coolant is discharged directly from the CTS pump.
* The direct pump type can only be selected for CTS specifications.



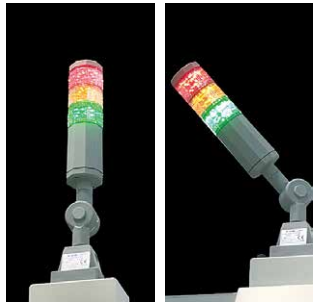
Side cover with transparent window

External light is drawn in to make the inside of the machine brighter and improve visibility.



Work light (2 lamps)

LED lamps are used to extend lamp life and save energy. Locating two lamps at optimal positions helps work from the front or side of the machine.
*Work light (1 lamp) can be selected.



Signal light (1, 2, or 3 lamps)

LED lamps are used. No maintenance required. Can be tilted to improve visibility.



Automatic oil lubricator

Regularly applies oil to all lubricating points on the three axes.
*Automatic oil lubricator or automatic grease lubricator must be selected. Manual greasing is not available.



Automatic grease lubricator

Regularly applies grease to all lubricating points on the three axes.
*Automatic oil lubricator or automatic grease lubricator must be selected. Manual greasing is not available.



Automatic door with switch panel 10 holes

A motor-driven door is used, achieving smooth operation.



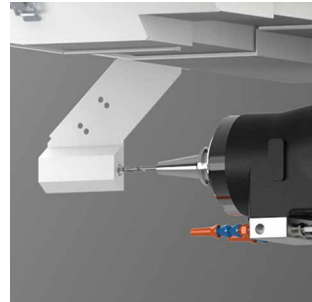
Area sensor

Optical area sensors are used. Use area sensors to prevent operators being caught in the automatic door.



Manual pulse generator

A cable is provided for the manual pulse generator, making setup easier. Equipped with emergency stop and enable switches.



Tool breakage detector, touch type

A touch switch type tool breakage detector is available.
*Cannot be used for tool length measurement.
*Refer to the interference drawings when choosing this option.



Rotary table switch

The A-axis or B-axis table can be operated from the front of the machine, making workpiece change easier.



Spindle override

Spindle speed can be changed without changing the program.



Front switch panel (10 holes)

A 10-hole switch panel is available so that various switches, including automatic door open/close switches, can be located on the front of the machine.



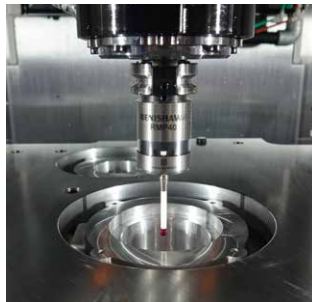
Mist collector

Achieves a safe and hygienic work environment by capturing mist. Installed on the top of the control box.



Data protection switch, key type

Changing the operation level is enabled or disabled by the key.



Touch probe

Zero-point measurements and similar operations can be performed using the probe. Measurement software and an optional datum sphere for measurement are available.

- Please read the instruction manuals and safety manuals before using Brother products for your own safety.

When using oil-based coolant or when machining materials which can cause a fire (ex. magnesium, resin), customers are requested to take thorough safety measures against fire. The types of cutting material, cutting tools, coolant, or lubrication oil may have an influence on the machine's lifecycle.

For further questions, please contact our local distributor.

- Leave 700 mm between machines as maintenance space.

- When exporting our machine, the machine is deemed to be included in the "applicable listed items" controlled by the Foreign Exchange and Foreign Trade Act of Japan. When exporting the machine, please obtain required permissions, including an export license, from the Ministry of Economy, Trade and Industry (METI) or Regional Bureaus of Economy, Trade and Industry before shipment. When re-selling or re-exporting the machine, you may need to obtain permissions from METI, and the government of the country where the machine is installed.

- When exporting our machine, as a machine conforming to Row 2 of Appended Table 1 of Export Trade Control Order, a relocation detection device is installed on the machine depending on the destination country. After relocating the machine with the detection device, the machine is locked and any operation is temporarily impossible.

Please inform your local distributor of machine relocation in advance and apply to perform the release operation of relocated machine.

*The type of coolant may have a significant influence on the machine's lifecycle. It is recommended to use high-lubricity (emulsion type) coolant.

Do not use chemical solution type (synthetic type) coolant, as it may cause damage to the machine.

*When using CTS (Coolant Through Spindle) function, do not use flammable coolant (ex. oil-based type).

*Dry machining may not be possible on 20,000 min⁻¹ CTS machines for some workpiece materials. For detailed conditions, please contact our local distributor.

- Coolant tank
 - 1) Coolant tank with chute, 250L
 - 2) Coolant tank with chute, 250L for 1.5 MPa CTS pump with cyclone filter
 - 3) Chip conveyor tank, 360L
 - 4) Chip conveyor tank, 360L with oil skimmer
 - 5) Chip conveyor tank, 360L for 1.5 MPa CTS pump with cyclone filter
 - 6) Chip conveyor tank, 360L for 1.5 MPa CTS pump with cyclone filter and oil skimmer
- Coolant through spindle (CTS) piping, Max. 3 MPa
- Coolant through spindle (CTS) piping, Max. 7 MPa
- Head coolant nozzle with head shower
- Rotary joint, 6+1 ports
- Chip shower
- Tool cleaning system
- Fixture shower valve unit
- Cleaning gun
- Mesh basket for collecting chips
- Mist collector
- Side cover with transparent window, one side
- Work light (1 or 2 lamps)
- Signal light (1, 2, or 3 lamps)
- Automatic oil lubricator
- Automatic grease lubricator
- Switch panel (8 holes or 10 holes)
- Automatic door with switch panel 10 holes

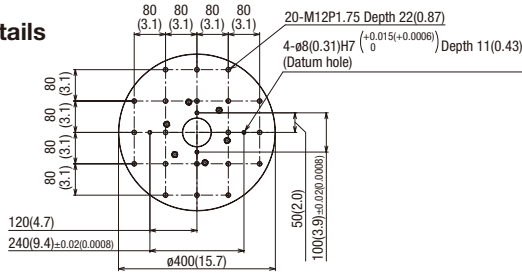
- Area sensor
- Front switch panel (10 holes)
- Manual pulse generator with enable switch
- Connector and hook for manual pulse generator with enable switch
- Tool breakage detector, touch type
- Touch probe with basic measurement software
- Touch probe with rotary center measurement software for additional axes *2
- Datum sphere for measurement
- Rotary table switch (for A-axis, B-axis)
- RS232C 25-pin connector at control box
- Spindle override
- Master on circuit
- Data protection switch, key type
- Folding door (two-door)
- Parts name sticker set
- Origin alignment mark
- 100V outlet in control box
- Power supply expansion 50A
- Transformer box
- Specified color
- EXIO board assembly
 - 1) EXIO board, input 32/output 32, additional #1
 - 2) EXIO board, input 32/output 32, additional #2

- PLC programming software for D00
- Industrial network
 - 1) CC-Link, master station
 - 2) CC-Link, remote device station
 - 3) PROFIBUS-DP, slave
 - 4) DeviceNet, slave
 - 5) PROFINET, slave
 - 6) EtherNet/IP, slave
- Memory expansion 3 Gbytes *1
- High accuracy mode Bil (Look-ahead 1,000 blocks, smooth path offset)
- Submicron command *1
- Interrupt type macro
- Rotary fixture offset
- Feature coordinates setting *1
- Involute interpolation
- Vibration adjustment

*1. Standard on the HU550Xd1-5AX.

*2. Feature coordinates setting must be selected, except for the HU550Xd1-5AX.

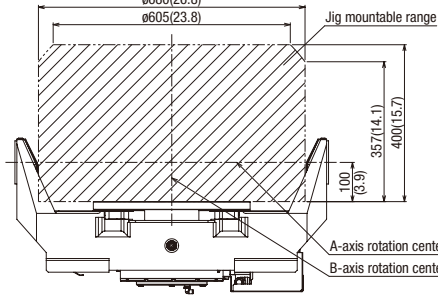
Table details



Jig area*1

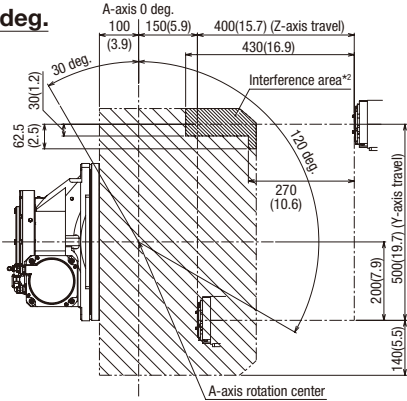
A-axis 0 deg.

(Front of machine)



A-axis -90 deg.

(Side of machine)



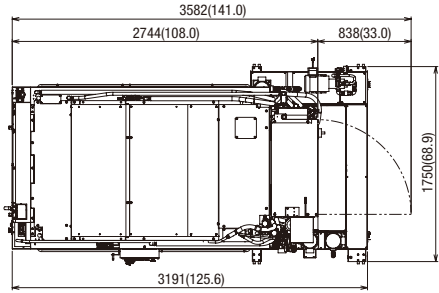
*1. Refer to the appearance and interference drawings provided by Brother when designing jigs or checking for interference.

*2. Interference area when changing largest tool (When tool dia. is 125 mm or tool length is 350 mm)

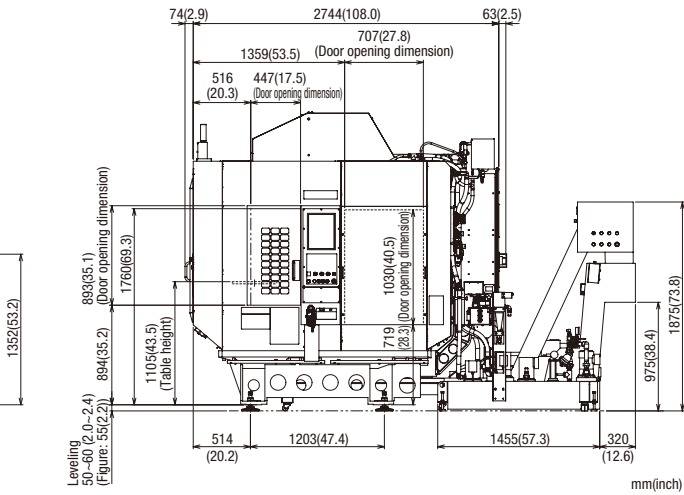
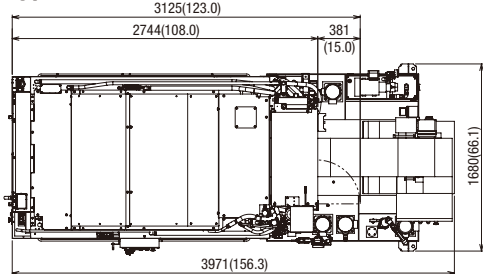
NC unit specifications

<HU550Xd1>	
CNC model	CNC-D00
Control axes	5 axes (X, Y, Z, A, B)
Simultaneously controlled axes (Positioning)	5 axes (X, Y, Z, A, B)
Simultaneously controlled axes (Interpolation)	Linear: 4 axes (X, Y, Z, 1 additional axis) Circular: 2 axes Helical/Conical: 3 axes (X, Y, Z)
Least input increment	0.001 mm, 0.0001 inch, 0.001 deg. 0.0001 mm, 0.00001 inch, 0.0001 deg. (optional)
Max. programmable dimension	±999999.999 mm, ±99999.9999 inch ±999999.9999 mm, ±99999.99999 inch (optional)
Display	15-inch color LCD touch display
Memory capacity	500 Mbytes, 3 Gbytes (optional) (Total capacity of programs and data bank)
External communication	USB memory interface, Ethernet, RS232C (optional)
No. of registrable programs	4,000 (Total capacity of programs and data bank)
Program format	NC language *Conversational language not available

Chute type



Chip conveyor type



<HU550Xd1-5AX>	
CNC model	CNC-D00v (DB)
Control axes	5 axes (X, Y, Z, A, B)
Simultaneously controlled axes (Positioning)	5 axes (X, Y, Z, A, B)
Simultaneously controlled axes (Interpolation)	Linear: 5 axes (X, Y, Z, 2 additional axes) Circular: 2 axes Helical/Conical: 4 axes (3 linear axes + 1 additional axis, 2 linear axes + 2 additional axes)
Least input increment	0.0001 mm, 0.00001 inch, 0.0001 deg.
Max. programmable dimension	±999999.9999 mm, ±99999.99999 inch
Display	15-inch color LCD touch display
Memory capacity	3 Gbytes (Total capacity of programs and data bank)
External communication	USB memory interface, Ethernet, RS232C (optional)
No. of registrable programs	4,000 (Total capacity of programs and data bank)
Program format	NC language *Conversational language not available

""Control axes" and "Simultaneously controlled axes" indicate the maximum number of axes, which will differ depending on the shipping destination or machine specifications.

*Ethernet is a registered trademark of Xerox Corporation in the United States.

Machine specifications

Item			HU550Xd1 HU550Xd1 RD *8	HU550Xd1-5AX HU550Xd1-5AX RD *8
CNC Unit			CNC-D00	CNC-D00v (DB)
Travels	X axis	mm(inch)	550 (21.7)	
	Y axis	mm(inch)	500 (19.7)	
	Z axis	mm(inch)	400 (15.7)	
	A axis	deg.	30~120	
	B axis	deg.	360	
	Distance between table top and spindle center	mm(inch)	-100~400 (-3.9~15.7) (A axis 0 deg)	
Table	Distance between table center and spindle nose end	mm(inch)	150~550 (5.9~21.7) (A axis 0 deg)	
	Work area size	mm(inch)	ø400 (15.7)	
	Max. loading capacity	kg(lbs)	200 (441) *12	
	Max. table load inertia	kg·m ² (lb·inch ²)	4.1 (14,010) [8.8 (30,071) *10]	
Spindle	Spindle speed	min ⁻¹	12,000min ⁻¹ spec.: 1~12,000 10,000min ⁻¹ high-torque spec. (optional): 1~10,000 20,000min ⁻¹ spec. (optional): 1~20,000	
	Speed during tapping	min ⁻¹	MAX. 6,000	
	Tapered hole		7/24 tapered No.30	
	BT dual contact spindle (BIG-PLUS)		Optional	
	Coolant Through Spindle (CTS)		Optional	
Feed rate	Rapid traverse rate (XYZ axes)	m/min(inch/min)	50 x 56 x 56 (1,969 x 2,205 x 2,205)	
	Cutting feed rate	mm/min(inch/min)	X, Y, Z axis: 1~30,000 (0.04~1,181) *7	
	Indexing feed rate (A and B)	min ⁻¹	A axis: 50 B axis: 75 (60 *10)	
ATC unit	Tool shank type		MAS-BT30	
	Pull stud type *4		MAS-P30T-2	
	Tool storage capacity	pcs.	30	
	Max. tool length *1	mm(inch)	350 (13.7)	
	Max. tool diameter *1	mm(inch)	125 (4.9) *11	
	Max. tool weight *1	kg(lbs)	4.0 (8.8) / tool, <TOTAL TOOL WEIGHT: 50 (110.2)>	
	Tool selection method		Random shortcut method	
Tool change time *5	Tool To Tool	sec.	1.3	
	Chip To Chip	sec.	2.5	
Electric motor	Main spindle motor (10min/continuous) *2	kW	12,000min ⁻¹ spec.: 10.1/7.0 10,000min ⁻¹ high-torque spec. (optional): 12.8/9.2 20,000min ⁻¹ spec. (optional): 7.4/5.1	
	Axis feed motor	kW	X,Z axis: 1.0 Y axis: 1.8 A axis: 1.35+1.35 B axis: 0.9	
	Power supply		200 to 230 VAC ±10%, 3-phase, 50/60Hz±2%	
Power source	Power capacity (continuous)	kVA	10.4	
	Air supply Regular air pressure	MPa	0.4~0.6 (recommended value 0.5MPa *6)	
	Required flow	L/min	45	
Machine dimensions	Height	mm(inch)	2,682 (105.6)	
	Required floor space*9 [with control unit door open]	mm(inch)	1,557 x 2,744 [3,582] (61.3 x 108.0 [141.0])	
	Weight	kg(lbs)	3,150 (6,945)	
	Accuracy of bidirectional axis positioning (ISO230-2:1988)		X, Y, Z axis: 0.006~0.020 mm (0.00024~0.00079 inch)	
Accuracy *3	Repeatability of bidirectional axis positioning (ISO230-2:2014)		A, B axis: 28 sec or less	
	Repeatability of bidirectional axis positioning (ISO230-2:2014)		X, Y, Z axis: Less than 0.004 mm (0.00016 inch) A, B axis: 16 sec or less	
Standard accessories			Instruction Manual (DVD 1 set), leveling bolts (4 pcs.), leveling plates (4 pcs.)	

*1. Maximum tool length, diameter, and weight are subject to limitations depending on the spindle speed, geometry, or center of gravity. The figures provided are for reference only. For details, please contact our local distributor.

*2. Spindle motor output differs depending on the spindle speed. *3. Measured in compliance with ISO standards and Brother standards. For details, please contact our local distributor. *4. Brother specifications apply to the pull studs for CTS. *5. Measured in compliance with JIS B6336-9 and MAS011-1987. *6. Regular air pressure varies depending on the machine specifications, machining program details, or use of peripheral equipment. Set the pressure higher than the recommended value. *7. Value when using high accuracy mode B *8. The machine needs to be equipped with a relocation detection device depending on the destination. Machines equipped with a relocation detection device come with "RD" at the end of the model name. *9. Dimensions not including the coolant tank and chip conveyor *10. Value in high inertia mode. Parameter setting needs to be changed. *11. When attaching an adjacent tool, the total diameter of a tool and its adjacent tool must be less than 130 mm.

NC functions

Operation	Dry run	<Optional>	<Optional>	Display off
Monitoring	Machine lock	High accuracy mode BII (Look-ahead 1,000 blocks, smooth path offset)	CC-Link, master station	Menu programming
	Program restart		CC-Link, remote device station	Local coordinate system
	Rapid traverse override		PROFIBUS-DP, slave	Expanded workpiece coordinate system
	Cutting feed override	Machining load monitoring	DeviceNet, slave	One-way positioning
	Background editing	ATC tool monitoring	PROFINET, slave	Inverse time feed
	Screen shot	Overload prediction	EtherNet/IP, slave	Programmable data input
	Operation level	Waveform display / Waveform output to memory card		Tool length compensation
	External input signal key	Automatic thermal distortion compensation (X, Y, and Z axes)		Cutter compensation
	Shortcut keys	Production performance display		Scaling
	<Optional>	Tool life / Spare tool		Mirror image
Programming	Spindle override	Stuck chips detection function		Interrupt type macro
	Absolute / Incremental	Tap return function		Rotary fixture offset
	Inch / Metric	Status log		Feature coordinates setting *3
	Coordinate system setting	Alarm log		Involute interpolation
	Corner C / Corner R	Operation log		Vibration support
	Rotational transformation	Maintenance notice		
	Synchronized tap	Motor insulation resistance measurement		
	Subprogram	Tool washing filter with filter clogging detection		
	Graphic display	Battery-free encoder		
		Brake load test		
Measurement	Automatic workpiece measurement *1			
High speed and high accuracy	Tool length measurement			
	Machining parameter adjustment			
Automatic / Network	High-accuracy mode AIII	Computer remote		
	High-accuracy mode BI	OPC UA		
	(look-ahead 160 blocks)	Auto notification		
	Backlash compensation	Built-in PLC (LD/ST/FBD)		
	Tool center point control *2			
Accessories			File viewer	
			Notebook	
			Calculator	
			Register shortcut	

*1. Measuring instrument must be prepared by users. *2. Available only on the HU550Xd1-5AX. *3. Standard on the HU550Xd1-5AX.

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Specifications may be subject to change without any notice.

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Please check here for detailed information
and the latest information of the base.

<https://machinetool.global.brother/>

