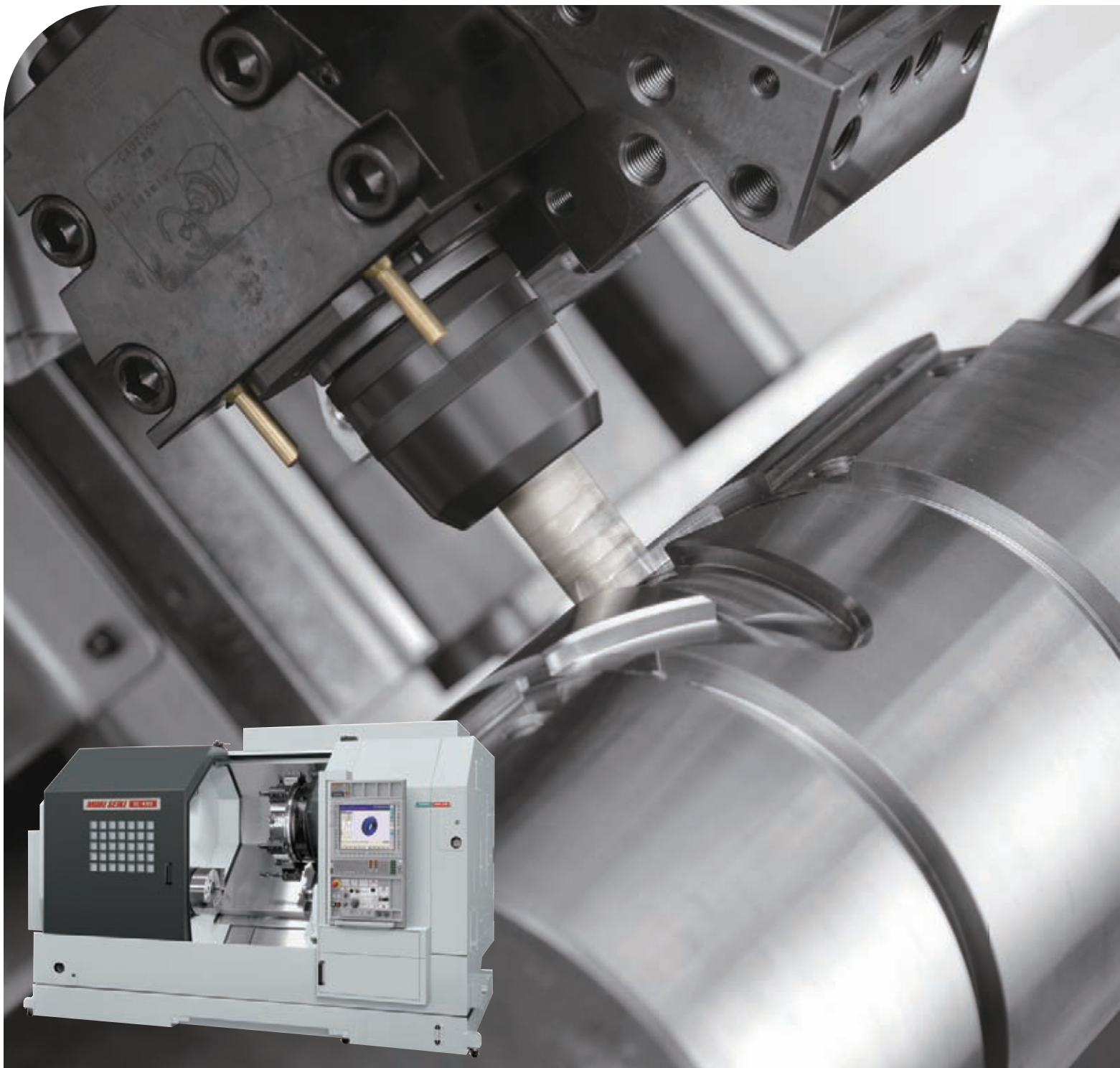


CNC Lathe

SL-403

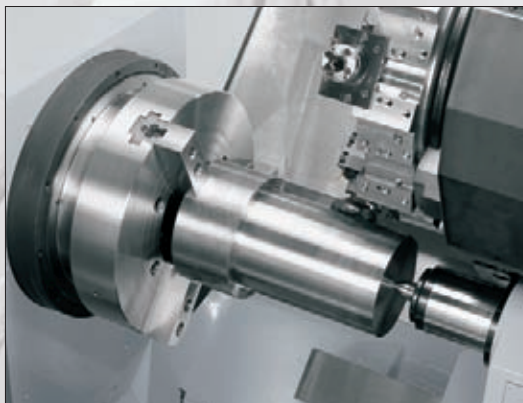
SL-403



SL-403

CNC Lathe

A machine that maximizes and stabilizes speed and high precision.



Machine variations

Through-spindle hole diameter

B-type <130 mm (5.1 in.)>

C-type <185 mm (7.3 in.)>

Distance between centers

800 type

2000 type

800 type

2000 type

Turret

Standard
Milling

Standard
Milling

Standard
Milling

Standard
Milling



SL-403B/2000



SL-403B/800

- The photo shows the machine equipped with options.
- Actual nameplate may differ from the photo.

Spindle



The spindle drive utilizes a high-output, high-torque AC spindle motor that can handle heavy and/or continuous cutting of a variety of workpieces.

Spindle lubrication

Uses an oil-air lubrication system for the spindle, to allow stable rotation of the large-diameter bearing at high speeds.

<Air consumption>

B-type: **600** L/min (158.4 gpm) <ANR>

C-type: **300** L/min (79.2 gpm) <ANR>

Spindle cooling

Oil cooler included as standard equipment (C-type)

To control heating, the spindle is wrapped in an oil jacket which is fed by an oil cooler.

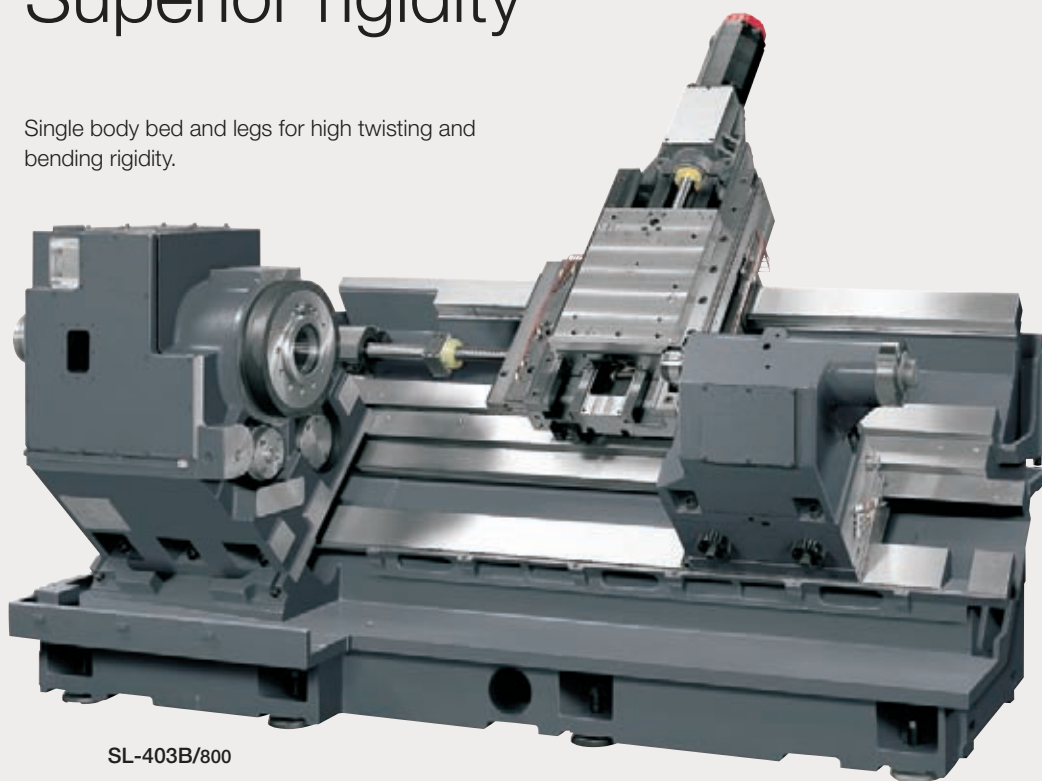
Through-spindle hole diameter

B-type: **130** mm (5.1 in.)

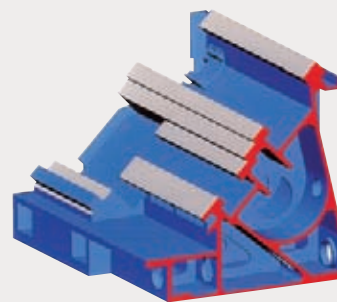
C-type: **185** mm (7.3 in.)

Superior rigidity

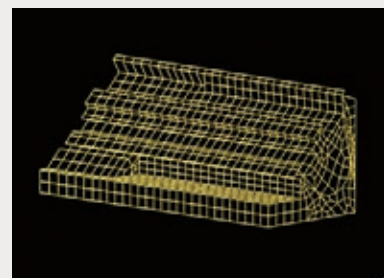
Single body bed and legs for high twisting and bending rigidity.



SL-403B/800



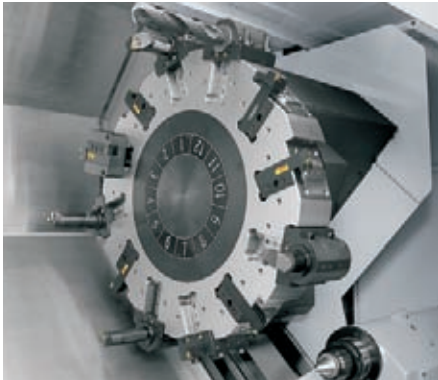
Bed and legs are cast as a single unit for high precision machining.



Ribbing was optimized by FEM analysis.

FEM: Finite Element Method

Turret, Feed



■ Turret indexing time

0.4 sec. (1-station)

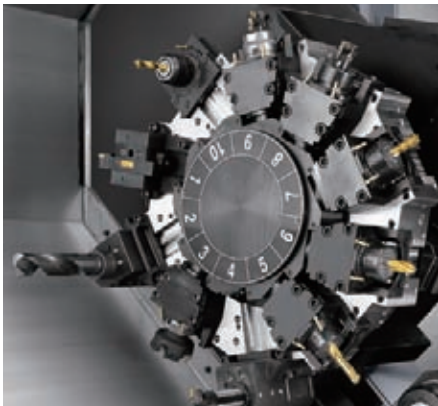
■ Rapid traverse rate

X-axis: **20** m/min (787.4 ipm)

Z-axis: **24** m/min (944.9 ipm)

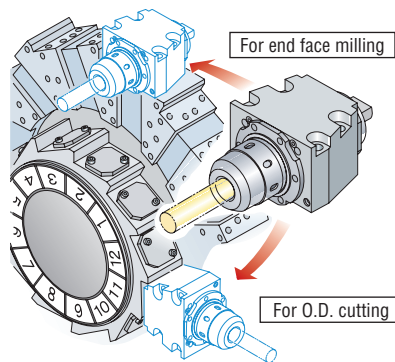
The turret employs DMG MORI SEIKI's own nonstop random indexing system driven by a servo motor.

■ Milling specifications



Once-only chucking lets you turn, mill, drill, or tap.

■ Rotary-tool holders

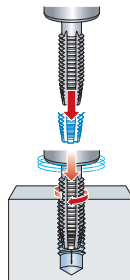


Rotary-tool holders can be mounted in all stations and used for O.D. cutting or end face milling.

■ Synchronized tapping function (standard)

Rotating speed of the rotary tool spindle is synchronized with X and Z axes feed.

- Max. speed of rotary tool spindle is 3,000 min⁻¹.
- Max. pressure for oil-hole tool holder is 0.7 MPa (101.5 psi).
- The oil-hole tool holder requires coolant spraying.



■ C-axis control

With C-axis control, users get synchronized control on 3 axes that enables integrated processing, such as milling while the spindle turns.

■ Rapid traverse rate

C-axis: **56** min⁻¹
(BMC, CMC)

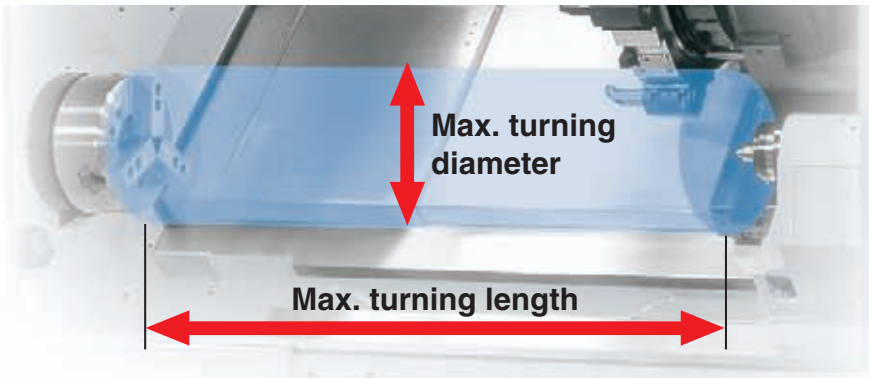
Ideal for shaft workpieces



SL-403B/2000

• The photo shows the machine equipped with options.

■ Machining range



Max. turning diameter

620 mm (24.4 in.)
<B, C>

650 mm (25.5 in.)
<BMC, CMC>

Max. turning length

958 mm (37.7 in.) <SL-403B/800>

2,158 mm (84.9 in.) <SL-403B/2000>

868 mm (34.1 in.) <SL-403C/800>

2,068 mm (81.4 in.) <SL-403C/2000>

863 mm (33.9 in.) <SL-403BMC/800>

2,063 mm (81.2 in.) <SL-403BMC/2000>

773 mm (30.4 in.) <SL-403CMC/800>

1,973 mm (77.6 in.) <SL-403CMC/2000>

■ Tailstock travel

SL-403/800

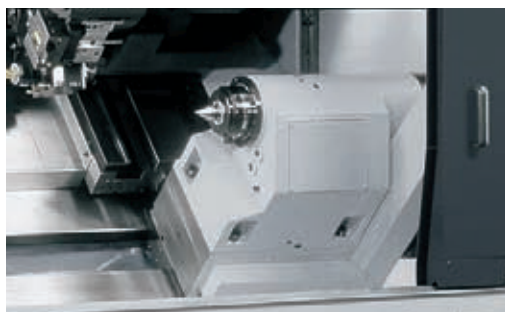
850 mm (33.5 in.)

800 mm (31.5 in.) OP
<built-in center>

SL-403/2000

2,000 mm
(78.7 in.)

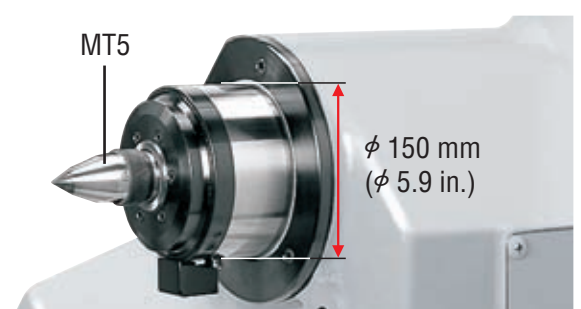
Programmable tailstock (carriage direct-coupled) OP



The tailstock can be moved easily to any position, which shortens setup time between differing workpiece sizes.

<a distance between centers of 2,000 mm (78.7 in.) is standard>

Built-in tailstock spindle (distance between centers 2000 type)



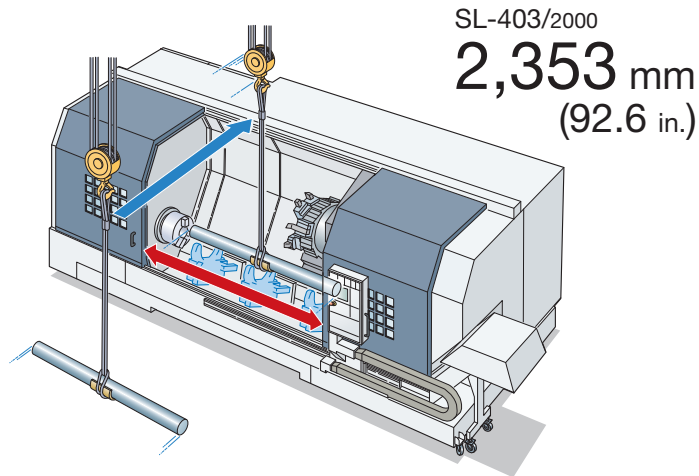
A highly rigid built-in tailstock stabilize long or large workpieces.

(a carbide center is an option)

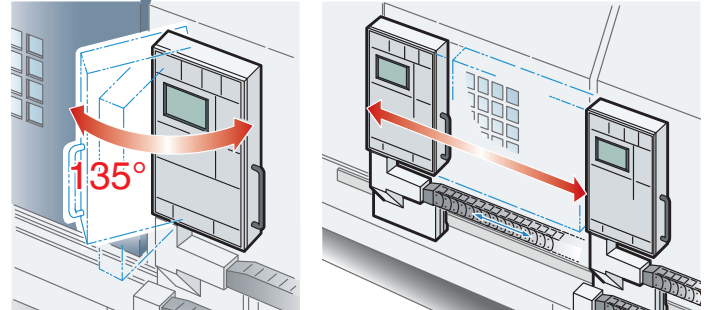
In order to achieve high-speed, high-precision machining of long workpieces, we have installed a highly rigid bed and specialized functions and equipment for bar workpieces. It is the definitive bar work machine, eliminating all compromise.

■ Door opening (max.)

To improve operability when using a crane, it is equipped with a wide door opening.



■ Operability

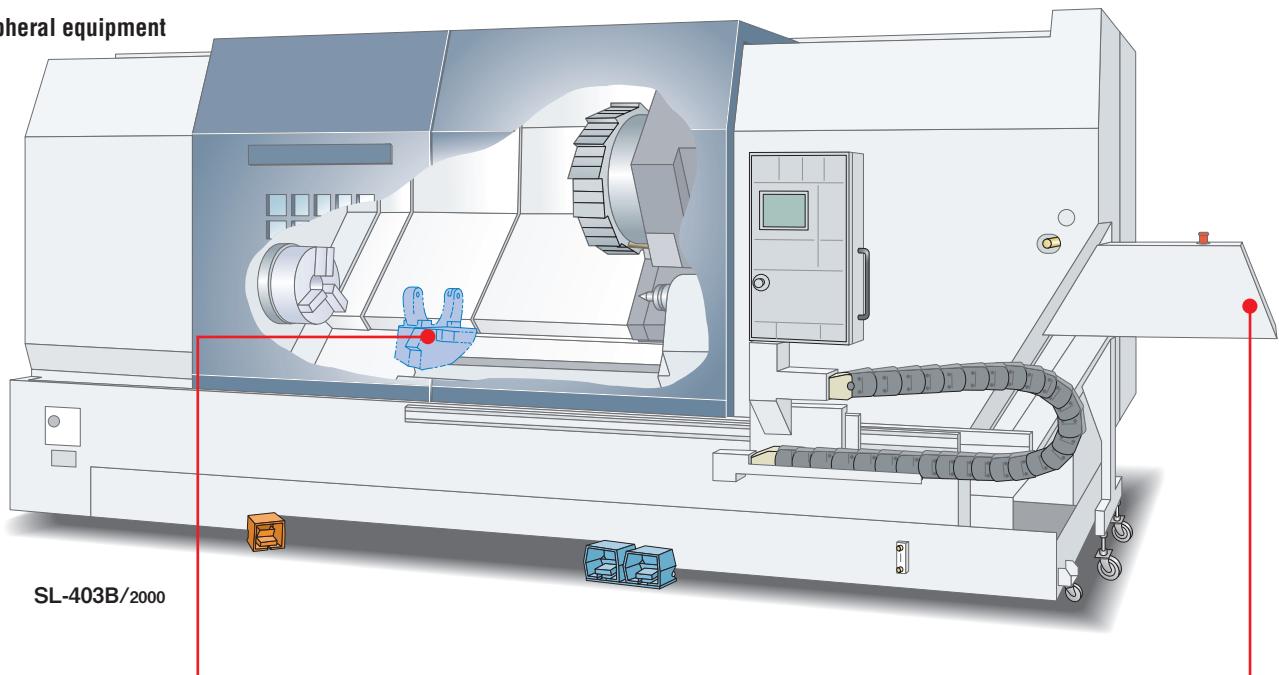


Depending on machining situation, the operator can slide the operation panel for ease and comfort.

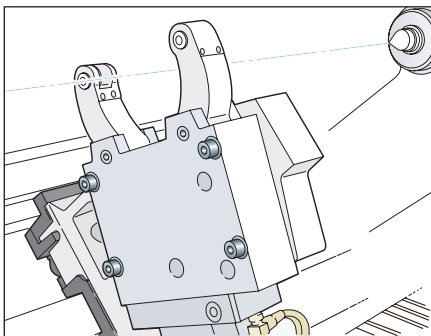
Operation panel travel

SL-403/2000 **1,650 mm** (65.0 in.)

■ Peripheral equipment

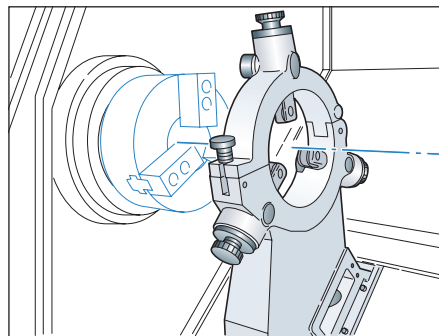


Center rest



Hydraulic steady rest

The hydraulic steady rest can be set up in less time and without any manual setting thanks to automatic centering.



Steady rest

Bolts are tightened manually, supporting the workpiece.

Chip conveyor outside machine



Chips are continuously transported out of the machine to prevent buildup inside.

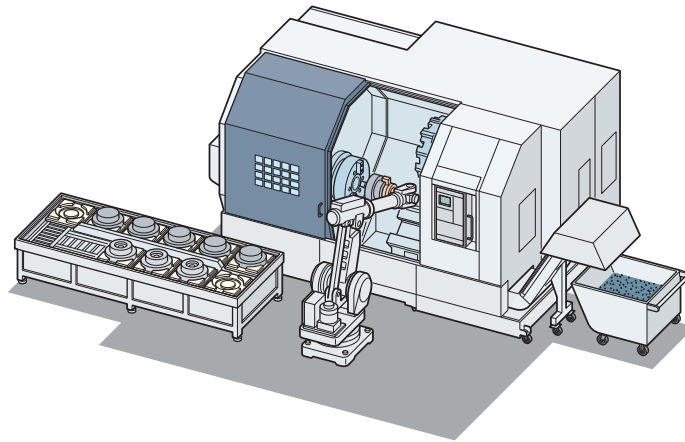
- The hinge type chip conveyor is standard for the machines with distances between centers of 2000.

System examples

Robots make workpiece loading and unloading more efficient, which improves productivity.

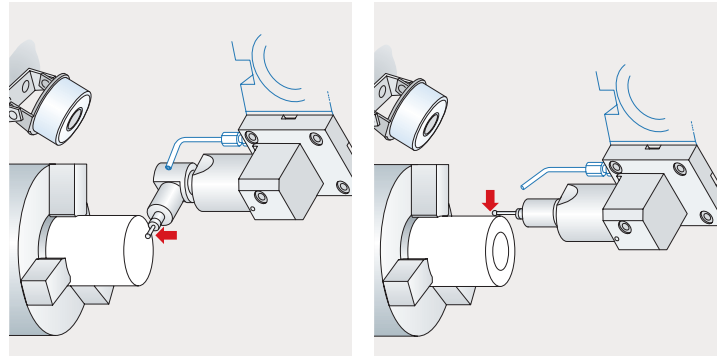
Add any of the below options. <Consultation is required>

- Robot (interface)
- Work stoker
- Workpiece holding detector
- Guard fence, etc.



Coolant cooling system (separate type) <Consultation is required>

Raised coolant temperature causes thermal displacement in the fixtures and workpiece, affecting the machining accuracy of the workpiece. Use this unit to prevent the coolant from heating up. When using oil-based coolant, the coolant temperature can become extremely high even with the standard coolant pump, so please be sure to select this unit.



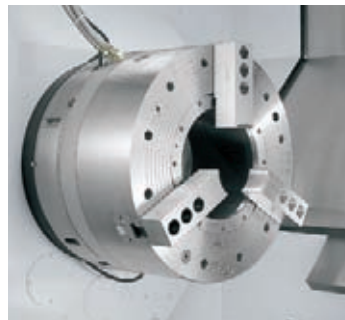
In-machine workpiece measuring system

When using oil-based coolant, please be sure to consult with our sales representative.

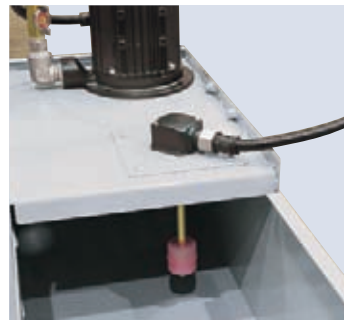
- While this unit is not the only way to completely control the temperature of the coolant, it makes a major contribution to preventing increases in the oil temperature.



Mist collector <Consultation is required>



Air chuck <Consultation is required>



Coolant float switch <Consultation is required>



Oil skimmer <Consultation is required>

Chip disposal

Specifications	Workpiece material and chip size						
					Aluminum/non-ferrous metal		
	Long	Steel Short	Powdery	Cast iron Short	Long	Short	Powdery
Hinge type	○	○	×	×	○	×	×
Scraper type <Consultation is required>	×	○	○	○	×	×	×
Hinge type+drum filter type <Consultation is required>	○	○	○	○	○	○	○
Hinge type+scraper type+drum filter type <Consultation is required>	○	○	○	○	○	○	○

- Chip size guidelines
Short: chips 50 mm (2.0 in.) or less in length, bundles of chips ϕ 40 mm (ϕ 1.6 in.) or less
Long: bigger than the above

- Please select a chip conveyor to suit the shape of your chips. When using special or difficult-to-cut material (chip hardness HRC45 or higher), please consult with our sales representative.
- Chip conveyors are available in various types for handling chips of different shape and material. For details, please consult with our sales representative.
- The options table below the general options when using coolant. Changes may be necessary if you are not using coolant, or depending on the amount of coolant, compatibility with machines, or the specifications required.

MAPPS IV

A New High-Performance Operating System
for CNC Lathes



● 19-inch operation panel

A new high-performance operating system that pursues ease of use, and combines the best hardware in the industry with the advanced application/network systems.

- ▶ Outstanding operability thanks to upgraded hardware
- ▶ New functions for easier setup and maintenance
- ▶ Various types of monitoring, including internal monitoring, are possible on the screen (option)
- ▶ In the event of trouble, DMG MORI SEIKI's remote maintenance service solves it smoothly
MORI-NET Global Edition Advance [OP]

Outstanding operability

Vertical soft-keys

Vertical soft-keys are arranged on the left and right sides of the screen. The vertical soft-keys can be used as option buttons or shortcut keys to which you can assign your desired screens and functions, allowing you to quickly display the screen you want.

Keyboard

A PC-type keyboard is used as standard, making key input easy. A keyboard with a conventional key layout is also available as an option.



Advanced hardware

Reduction of drawing time

Shorter drawing time was achieved thanks to increased CPU performance.



MAPPS III	57 sec.	Approx. Reduced by 27%
MAPPS IV	42 sec.	

Main specifications

Main memory	3 GB
User area	Standard: 6 GB Option: 20 GB
Interface	<ul style="list-style-type: none"> • USB 2.0 3 ports (Screen side: 1, Bottom and back of operation panel: each 1) • LAN 2 ports (100BASE-T) • RS-232-C port • Memory card slot
Soft-keys	Left/right 12 keys Bottom 12 keys

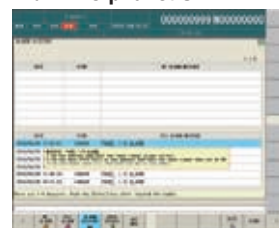
Improved ease of setup and maintenance

MAPPS IV is packed with new functions for easier setup and maintenance, including the File Display and Memo function that displays operating instructions and manuals on the screen and the Alarm help function that provides instructions when alarms occur.

File display and Memo function



Alarm help function



Improved work efficiency

Fixed-point in-machine camera [OP] [Consultation is required]

Images taken by cameras installed inside/outside the machine can be viewed on the programming screen. This function is useful for maintenance.



Examples of camera locations

- Inside machine (to check machining)
- Tool magazine (to check cutting tools)
- Chip bucket (to check chip accumulation)

Network application systems

Remote Maintenance/Machine Operation Monitoring Service

MORI-NET Global Edition Advance [OP]

This system enables access to customer support services as well as high-speed, large-capacity data transmission between the machines and Service Center, by using a network that combines the internal LAN and the Internet.

- Download data
- Remote alarm support
- Transmission of alarm information

Application for Data Transmission

MORI-SERVER [Standard features]

This enables high-speed transfer of programming data between your office computer and machine, reducing the lead time of pre-machining processes.

● The photo shown may differ from actual machine.
● Information about the screen is current as of May 2012.

Machine specifications

Item		SL-403B/800	SL-403C/800	SL-403BMC/800	SL-403CMC/800
Capacity	Swing over bed	710 (28.0) <interference with front cover>			
	Swing over cross slide	738 (29.1)			
	Between centers	1,125 (44.3)	1,106 (43.5)	1,125 (44.3)	1,106 (43.5)
	Max. turning diameter	620 (24.4)		650 (25.5)	
	Standard turning diameter	368 (14.4) [456 (17.9) <10-station turret head>]		374 (14.7) [461 (18.1) <10-station turret head>]	
	Max. turning length	958 (37.7)	868 (34.1)	863 (33.9)	773 (30.4)
Travel	X-axis	345 (13.6) <310 (12.2)+35 (1.4) (travel in the minus direction from the spindle center)>		345 (13.6) <325 (12.8)+20 (0.8) (travel in the minus direction from the spindle center)>	
	Z-axis	995 (39.2)		900 (35.4)	
Spindle	Max. spindle speed	2,400 [1,900]	1,500	2,400 [1,900]	1,500
	Number of spindle speed ranges	2			
	Type of spindle nose	JIS A2-11	JIS A2-15	JIS A2-11	JIS A2-15
	Through-spindle hole diameter	130 (5.1)	185 (7.3)	130 (5.1)	185 (7.3)
	Min. spindle indexing angle	—			
	Spindle bearing inner diameter	180 (7.1)	260 (10.2)	180 (7.1)	260 (10.2)
Turret	Number of tool stations	12 [10]		12 [10] <rotary tools: 12 [10]>	
	Shank height for square tool	32 (1 1/4)			
	Shank diameter for boring bar	Max. 60 (2 1/2)			
	Turret indexing time	0.4			
	Max. rotary tool spindle speed	—		3,000	
Feedrate	Rapid traverse rate	X: 20,000 (787.4) Z: 24,000 (944.9)		X: 20,000 (787.4) Z: 24,000 (944.9) C: 56 min ⁻¹	
	Jog feedrate	X, Z: 0—5,000 (0—197.0) <20 steps>			
Tailstock	Tailstock travel	850 (33.5) [800 (31.5) <built-in center>]			
	Tailstock spindle diameter	110 (4.3) <live center MT5> [110 (4.3) <built-in center MT4>] [150 (5.9) <built-in center MT5>]			
	Taper hole of tailstock spindle	MT5 <live center> [MT4 <built-in center>] [MT5 <built-in center>]			
	Tailstock spindle travel	150 (5.9)			
Motor	Spindle drive motor <30 min/cont>	30/22 (40/30) [37/30 (50/40)]			
	Feed motor <X/Z-axis>	7.0/4.5 (9.3/6)		6.0/4.5 (8/6)	
	Rotary tool spindle drive motor <30 min/cont>	—		9/7.5 (12/10)	
	Coolant pump motor	0.52 (0.69)			
Power sources	Electrical power supply <cont>	42.8 [51.5 <high output>]		51.6 [60.9 <high output>]	
	Compressed air supply <standard>	0.5 (72.5), 600 (158.4) <ANR>	0.5 (72.5), 300 (79.2) <ANR>	0.5 (72.5), 600 (158.4) <ANR>	0.5 (72.5), 300 (79.2) <ANR>
Tank capacity	Coolant tank capacity	234 (61.8)			
Machine size	Machine height <from floor>	2,455 (96.7)			
	Floor space <width×depth>	3,789×2,338 (149.2×92.0)	4,149×2,898 (163.3×114.1) <depth includes oil cooler>	4,049×2,338 (159.4×92.0)	4,409×2,898 (173.6×114.1) <depth includes oil cooler>
	Mass of machine	11,000 (24,200)		12,000 (26,400)	
Noise data	A-weighted, time-average radiated sound pressure level	70—78 (Measurement uncertainty is 4 dB)			

[] Option JIS: Japanese Industrial Standard

- Max. spindle speed: depending on restrictions imposed by the workpiece clamping device, fixture and tool used, it may not be possible to rotate at the maximum spindle speed.
- ANR: ANR refers to a standard atmospheric state; i. e., temperature at 20 °C (68 °F), absolute pressure at 101.3 kPa (14.7 psi) and relative humidity at 65%.
- Power sources, machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.
- Compressed air supply: please be sure to supply clean compressed air <air pressure: 0.7 MPa (101.5 psi), pressure dew point: 10 °C (50 °F) or below>.
- A criterion capacity to select a compressor is 90 L/min (23.8 gpm) per 0.75 kW (1 HP). However, this figure may differ depending on the type of compressors and options attached. For details, please check the compressor specifications.
- When the tool tip air blow is regularly used, air supply of more than 300 L/min (79.2 gpm) is separately required.
- Noise data: The values were measured at the front of the SL-403B/800 with a maximum spindle speed of 2,400 min⁻¹. Please contact your sales representative for details.
- The information in this catalog is valid as of January 2012.

Machine specifications

Item		SL-403B/2000	SL-403C/2000	SL-403BMC/2000	SL-403CMC/2000	
Capacity	Swing over bed	mm (in.)	935 (36.8)			
	Swing over cross slide	mm (in.)	738 (29.1)			
	Between centers	mm (in.)	2,325 (91.5)			
	Max. turning diameter	mm (in.)	620 (24.4)		650 (25.5)	
	Standard turning diameter	mm (in.)	368 (14.4) [456 (17.9) <10-station turret head>]		374 (14.7) [461 (18.1) <10-station turret head>]	
	Max. turning length	mm (in.)	2,158 (84.9)	2,068 (81.4)	2,063 (81.2)	1,973 (77.6)
Travel	X-axis	mm (in.)	345 (13.6) <310 (12.2) + 35 (1.4) (travel in the minus direction from the spindle center)>		345 (13.6) <325 (12.8) + 20 (0.8) (travel in the minus direction from the spindle center)>	
	Z-axis	mm (in.)	2,195 (86.4)		2,100 (82.7)	
Spindle	Max. spindle speed	min ⁻¹	2,400 [1,900]	1,500	2,400 [1,900]	1,500
	Number of spindle speed ranges		2			
	Type of spindle nose		JIS A2-11	JIS A2-15	JIS A2-11	JIS A2-15
	Through-spindle hole diameter	mm (in.)	130 (5.1)	185 (7.3)	130 (5.1)	185 (7.3)
	Min. spindle indexing angle		—			
	Spindle bearing inner diameter	mm (in.)	180 (7.1)	260 (10.2)	180 (7.1)	260 (10.2)
Turret	Number of tool stations		12 [10]		12 [10] <rotary tools: 12 [10]>	
	Shank height for square tool	mm (in.)	32 (1 1/4)			
	Shank diameter for boring bar	mm (in.)	Max. 60 (2 1/2)			
	Turret indexing time	s	0.4			
	Max. rotary tool spindle speed	min ⁻¹	—		3,000	
Feedrate	Rapid traverse rate	mm/min (ipm)	X: 20,000 (787.4) Z: 24,000 (944.9)		X: 20,000 (787.4) Z: 24,000 (944.9) C: 56 min ⁻¹	
	Jog feedrate	mm/min (ipm)	X, Z: 0—5,000 (0—197.0) <20 steps>			
Tailstock	Tailstock travel	mm (in.)	2,000 (78.7)			
	Tailstock spindle diameter	mm (in.)	150 (5.9)			
	Taper hole of tailstock spindle		MT5 <built-in center>			
	Tailstock spindle travel	mm (in.)	150 (5.9)			
Motor	Spindle drive motor <30 min/cont>	kW (HP)	30/22 (40/30) [37/30 (50/40)]			
	Feed motor <X/Z-axis>	kW (HP)	7.0/7.0 (9.3/9.3)		6.0/7.0 (8/9.3)	
	Rotary tool spindle drive motor <30 min/cont>	kW (HP)	—		9/7.5 (12/10)	
	Coolant pump motor	kW (HP)	0.52 (0.69)			
Power sources	Electrical power supply <cont>	194166F01 kVA	43.4 [52.1 <high output>]		52.3 [61.5 <high output>]	
	Compressed air supply <standard>	MPa (psi), L/min (gpm)	0.5 (72.5), 600 (158.4) <ANR>	0.5 (72.5), 300 (79.2) <ANR>	0.5 (72.5), 600 (158.4) <ANR>	0.5 (72.5), 300 (79.2) <ANR>
Tank capacity	Coolant tank capacity	L (gal.)	330 (87.1)			
Machine size	Machine height <from floor>	mm (in.)	2,543 (100.1)			
	Floor space <width×depth> (width includes chip conveyor)	mm (in.)	6,185×2,604 (243.5×102.5)	6,545×3,164 (257.7×124.6) <depth includes oil cooler>	6,185×2,604 (243.5×102.5)	6,545×3,164 (257.7×124.6) <depth includes oil cooler>
	Mass of machine	kg (lb.)	14,000 (30,800)		15,000 (33,000)	
Noise data	A-weighted, time-average radiated sound pressure level	db	70—78 (Measurement uncertainty is 4 db)			

[] Option JIS: Japanese Industrial Standard

- Max. spindle speed: depending on restrictions imposed by the workpiece clamping device, fixture and tool used, it may not be possible to rotate at the maximum spindle speed.
- ANR: ANR refers to a standard atmospheric state; i. e., temperature at 20 °C (68 °F), absolute pressure at 101.3 kPa (14.7 psi) and relative humidity at 65%.
- Power sources, machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.
- Compressed air supply: please be sure to supply clean compressed air <air pressure: 0.7 MPa (101.5 psi), pressure dew point: 10 °C (50 °F) or below>.
- A criterion capacity to select a compressor is 90 L/min (23.8 gpm) per 0.75 kW (1 HP). However, this figure may differ depending on the type of compressors and options attached. For details, please check the compressor specifications.
- When the tool tip air blow is regularly used, air supply of more than 300 L/min (79.2 gpm) is separately required.
- Noise data: The values were measured at the front of the SL-403B/600 with a maximum spindle speed of 2,400 min⁻¹. Please contact your sales representative for details.
- The information in this catalog is valid as of January 2012.

DMG MORI

2-year warranty, twice the peace of mind.

For machines delivered outside of Japan, parts relating to machine breakdown will be guaranteed free for 2 years from the date of installation, and labor costs to repair will be free for 1 year. Please contact our sales representative for details.



<Precautions for Machine Relocation>

EXPORTATION: All contracts are subject to export permit by the Government of Japan. Customer shall comply with the laws and regulations of the exporting country governing the exportation or re-exportation of the Equipment, including but not limited to the Export Administration Regulations. The Equipment is subject to export restrictions imposed by Japan and other exporting countries and the Customer will not export or permit the export of the Equipment anywhere outside the exporting country without proper government authorization. To prevent the illegal diversion of the Equipment to individuals or nations that threaten international security, it may include a "Relocation Machine Security Function" that automatically disables the Equipment if it is moved following installation. If the Equipment is so-disabled, it can only be re-enabled by contacting DMG MORI SEIKI or its distributor representative. DMG MORI SEIKI and its distributor representative may refuse to re-enable the Equipment if it determines that doing so would be an unauthorized export of technology or otherwise violates applicable export restrictions. DMG MORI SEIKI and its distributor representative shall have no obligation to re-enable such Equipment. DMG MORI SEIKI and its distributor representative shall have no liability (including for lost profits or business interruption or under the limited service warranty included herein) as a result of the Equipment being disabled.

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