

**DMG MORI**

ALX 1500  
ALX 2000  
ALX 2500

Base Machine for Automation

## ALX Series



ALX Series

# Base Machine for Automation for Every Shop Floor

DMG MORI developed the ALX Series with a desire to provide a machine that is truly reliable and can be used by various fields of customers for a long time.

Highly versatile ALX Series can achieve automation of workpieces in wide-ranging fields irrespective of business category. Based on our experience, we have developed highly reliable base machines for new automation by meticulously designing every detail.

+ Varieties of standard options and custom-design specifications available

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02

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# ALX

Advanced...Space-saving design

Affordable...Higher productivity

Automation...High versatility for automation



1



2



3



4



5

## Automobiles

- 1 Housing
- 2 Flywheel
- 3 Disk brake

## Hydraulic & Pneumatic equipment

- 4 Joint
- 5 Flange

## Boats & Ships

- 6 Cylinder liner

• Figures in inches were converted from metric measurements.



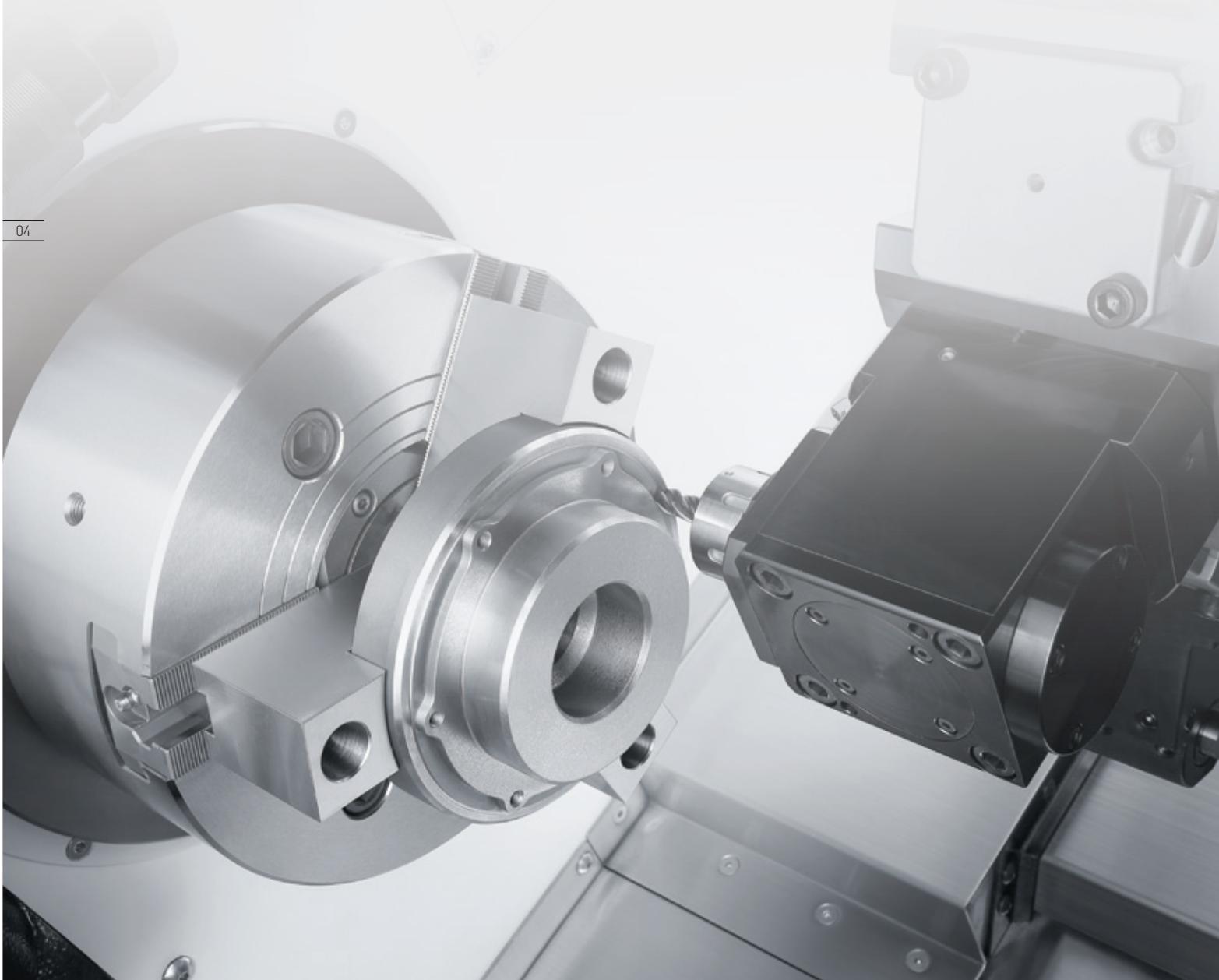
6

03

ALX Series

## Turning Center Achieving High Productivity with Space-saving Design

The ALX Series employs the linear motion guides with less elastic deformation against the Z-axis load, and slideways on the X-axis to achieve superior rigidity and high accuracy. The rigidity ensures the series' outstanding cutting ability, and the space-saving design enables establishment of automation systems including compact robots and loader systems, which all contribute to boosting customers' productivity. Furthermore, with the COMPACTline and the SLIMline, an operation panel with high usability, the series can ensure the best performance.





Scan the QR code to watch the video of ALX Series.  
[https://www.dmgmori.co.jp/en/movie\\_library/movie/id=3829](https://www.dmgmori.co.jp/en/movie_library/movie/id=3829)

### Extensive lineup

- + **18 models** for a wide range of workpieces: Spindle for 6- / 8- / 10-inch chuck, Turning / Milling / Y-axis specification / Right spindle specification, distance between centers 300 / 500 type
- + The ALX 1500 / 2000 | 300 (Turning specification) featuring a **space-saving footprint of 2.7 m<sup>2</sup> (29.1 ft<sup>2</sup>)** can be placed in the existing CL1500 / CL2000 installation area
- + Rapid traverse rate (X-, Z-axis): 30 m/min (1,181.1 ipm) **<25% faster than the CL>** to reduce cycle time

### Cutting-edge technology for high rigidity and high accuracy

- + Latest in-house made DDS (Direct Drive Spindle) **turnMASTER** BMT (Built-in Motor Turret) to ensure superb milling for stable, **highly rigid and highly accurate cutting performance**
- + **Circularity 0.4 µm, C-axis high-precision indexing 5 sec.**
- + Slideways on the X-axis for higher damping performance, and linear motion guides on the Y- and Z-axis for improved positioning accuracy
- + Full closed loop control (Scale feedback) **SmartSCALE** as an option: Enhanced positioning accuracy
- + Motor jacket cooling for the spindle and BMT: **Thermal displacement control and stable accuracy of continuous machining**

05

### Full support for automation

- + Various automation systems: bar feeder, workpiece unloader, gantry-type loader, robot system (MATRIS)
- + **Automation systems and production lines consisting of only ALXs** possible

### Superior operability

- + Technology Cycles: 12 functions available to streamline complex machining processes and boost productivity
- + DMG MORI-made operation systems equipped with MAPPS: **COMPACTline and SLIMline (option)**

### Pursue high usability for daily operation

- + Daily work and maintenance with higher workability: Machine operation, collection of waste oil and sludge, and disposal of chip inside the machine **can be done at the machine front collectively**
- + 1.5 times larger window size than that of the CL for better visibility

### Advanced energy saving

- + Carbon-neutral produced "GREENMACHINE"
- + Less power consumption by the DMG MORI's original **energy-saving function GREENmode**
- + Less total energy by process integration with the milling and Y-axis functions

ALX Series

# Best Solutions for Your Shop Floor

The ALX Series provides solutions for higher machining accuracy, higher production efficiency by automation, better chip disposal, maintainability and setup performance.

With various cutting-edge solutions, the series demonstrates its capabilities to the full extent and achieves a higher level of machining. DMG MORI offers the best solutions that solve your shop issues.

1

**Long workpieces**

Chatter control



Alternating speed

Hydraulic steady rest

2

**Turret**

Turning or milling



For turning



For milling



20-station turret

3

**Workpiece support**

Workpiece support suitable for your workpiece and machining



Collet chuck



Compensating chuck



Right spindle specification



Tailstock specification



Center attached to Right spindle

4

**Turning spindle**

For heavy-duty cutting



Spindle turnMASTER

5

**Maintenance**

Improved production efficiency by preventive maintenance



my DMG MORI

DMG MORI Messenger



Air dryer



Oil skimmer



**6**

## Mass production, automation

Versatility, labor saving, quick setup changes



Gantry-type loader module system



Workpiece unloader



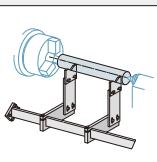
Workstocker



Gantry-type loader



Measuring system

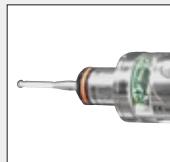


Workpiece rest (fixed type)

**7**

## Machining accuracy

Meeting high accuracy requirements



In-machine measuring system



SmartSCALE

**8**

## Cutting technology

Improving machining efficiency with Technology

Cycles all at once



Efficient Production Package (High-speed canned cycle)

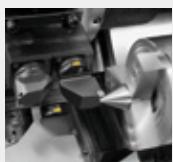
**9**

## Cutting holder

Special holder for various machining and programming support function



Spinning tool



Double holder



Double drill holder



Universal rotary tool holder



Hob cutting holder

**10**

## Better setup performance

Drastically shortened setup time



Automatic in-machine tool presetter



Quick-change holder

**11**

## Chip disposal

Higher cutting performance



Chip conveyor



Super-high-pressure coolant system



Coolant gun



In-machine chip bucket



• The photo shows the machine equipped with options.

ALX Series

## Find Your Best Machine from Extensive Lineup



The ALX Series models are ultimate CNC turning centers.

The series offers the ALX 1500 with a 6-inch chuck size, the ALX 2000 with an 8-inch chuck size and the ALX 2500 with a 10-inch chuck size. The Turning specification is available for the distance between centers 300 type, and the Milling and Y-axis specification as well for the distance between centers 500 type.

The Right spindle specification is also available for the distance between centers 500 type.

The ALX Series offers an extensive lineup of 18 types to meticulously respond to customer needs.

Distance  
between  
centers

300 type

3 models

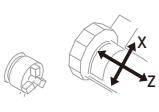
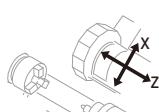
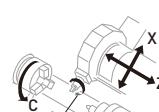
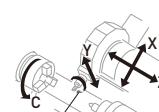
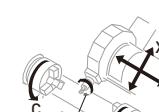
500 type

15 models



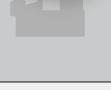
**LS** : Left spindle  
**T** : Turret  
**TS** : Tailstock  
**MC** : Milling (option)  
**Y** : Y-axis (option)  
**RS** : Right spindle (option)

### Specifications according to machining

<b>LS T</b> Turret (turning)	<b>LS T TS</b> Turret (turning) + Tailstock	<b>LS T MC TS</b> Milling + Tailstock	<b>LS T MC Y TS</b> Milling + Y-axis + Tailstock	<b>LS T MC RS</b> Milling + Right spindle	<b>LS T MC Y RS</b> Milling + Y-axis + Right spindle
					

### Machining area



Chuck size	Axis structure	Example of applicable workpiece	<b>LS T</b> (Turning)	<b>LS T TS</b> (Turning)	<b>LS T TS MC</b> (Milling)	<b>LS T TS MC Y</b> (Y-axis)	<b>LS T MC RS</b> (Milling + Right spindle)	<b>LS T MC Y RS</b> (Y-axis + Right spindle)
6 inches	ALX 1500							
8 inches	ALX 2000							
10 inches	ALX 2500							

ALX Series

# High Rigidity Leading to Reliable Performance

The ALX Series achieves streamlined, sophisticated and high-rigidity structure by using FEM analysis from the basic design phase to simulate various operational behavior and environmental changes.

The series has a space-saving body, while ensuring a wide machining envelop.

The structural design maximizes the machine performance.

## turnMASTER

- + In-house manufactured high-rigidity spindle with DMG MORI's technological know-how

Left spindle



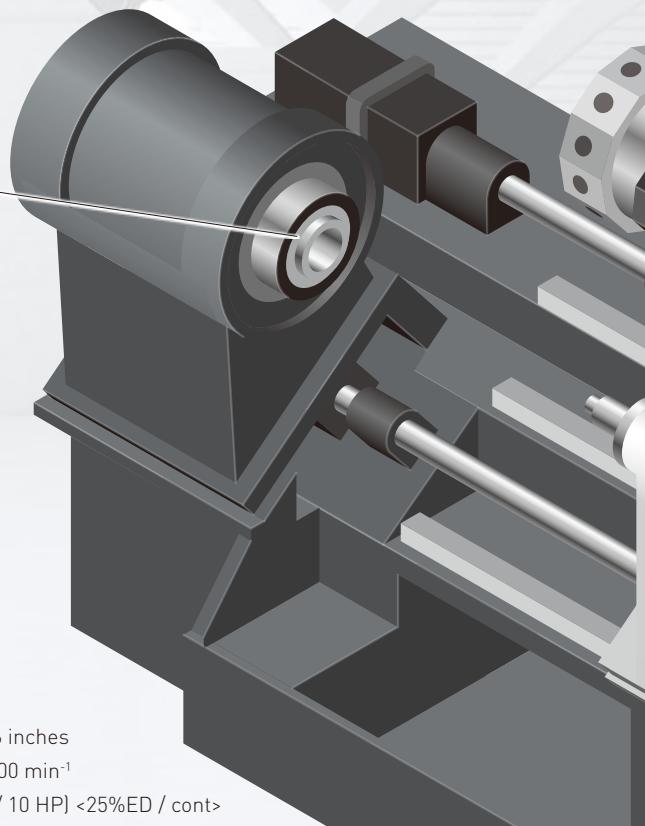
Right spindle (6 inches)



- + Standard chuck size\*: 6 inches
- + Max. spindle speed: 7,000 min<sup>-1</sup>
- + Output: 11 / 7.5 kW (15 / 10 HP) <25%ED / cont>
- + Max. spindle torque: 77.8 N·m (57.4 ft·lbf) <25%ED>

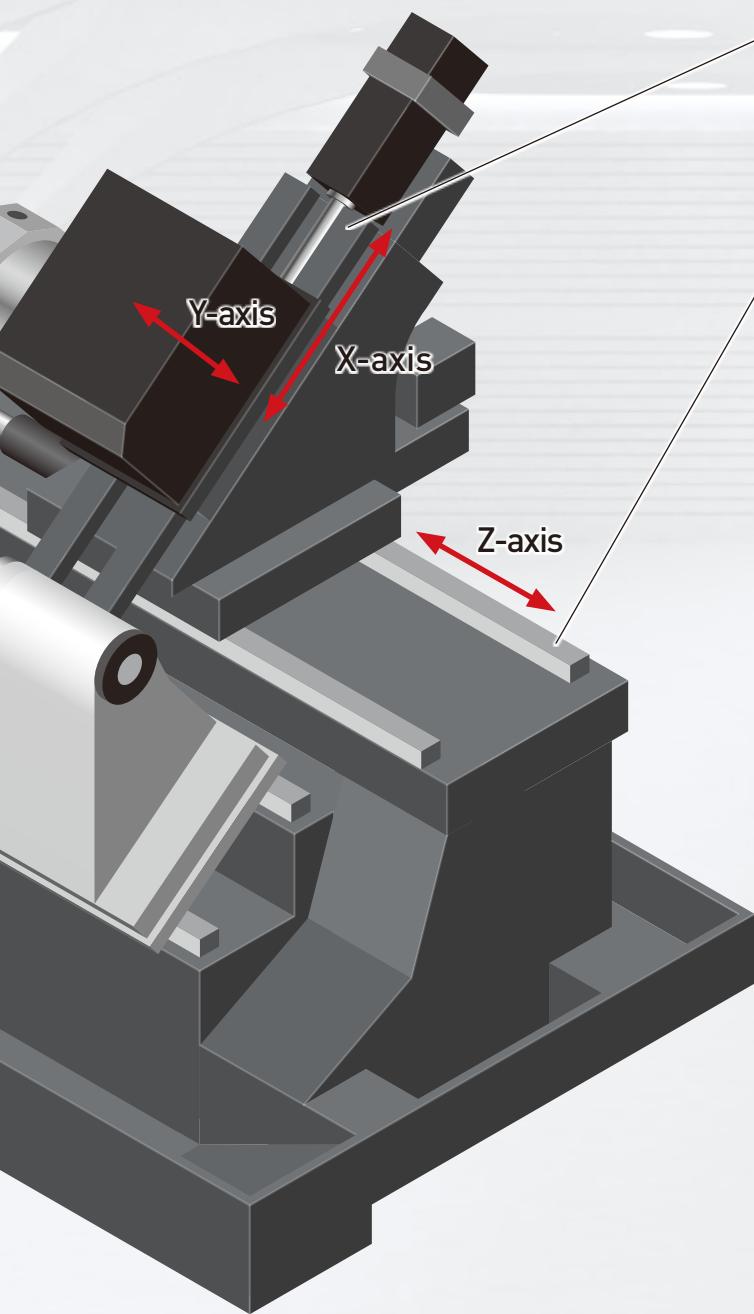
\* Chuck is optional.

3-year  
guarantee  
on the reliable  
turnMASTER



## Hybrid structure of high rigidity and high accuracy

The machine structure of the ALX Series employs slideways on the X-axis to improve vibrating damping performance and dynamic rigidity. The extended guideways ensure further stability than that of the conventional model in machining performance. High-rigidity roller guides are employed on the Y- / Z-axis. The hybrid structure of slideways and roller guides create the high-rigidity and high-accuracy machines.



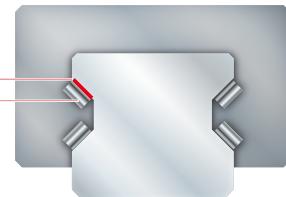
### Slideways (X-axis)

- + Slideways on the X-axis for higher vibration damping performance and dynamic rigidity
- + Widest slideways in its class

### Roller guides (Y-, Z-axis)

- + Roller guides with little elastic deformation against load
- + A large number of rollers are incorporated inside the slide unit, achieving high rigidity

Line contact  
Roller

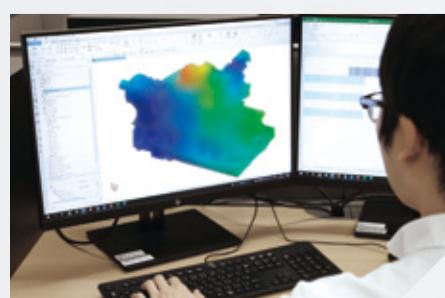


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## FEM analysis determines rigid body design

- + Simulation of structural deformation at the time of load application
- + Fine adjustment to every part, including the thickness of the bed, the shape and layout of the ribs, to achieve a high level of flexural rigidity

FEM: Finite Element Method



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ALX Series

# High-quality, High-performance Spindle turnMASTER

Our in-house manufactured built-in motor spindle, with DMG MORI's long years of technological know-how, demonstrates overwhelming excellence in heavy-duty cutting that requires rigidity. The high-performance spindle with outstanding cutting capability and durability contributes to boosting customers' productivity.



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## Sophisticated spindle labyrinth

- + The labyrinth structure has been enhanced, taking into account frequent use of high-pressure coolant
- + Spindle air purge offered as standard <Mill specification>
- + Prevent coolant entry and improve spindle durability



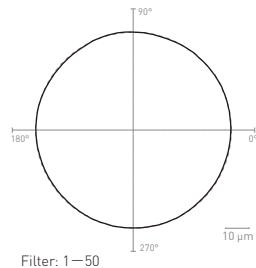
Scan the QR code to watch the high-performance spindle "MASTER Series".  
[https://www.dmgmori.co.jp/en/movie\\_library/movie/id=4456](https://www.dmgmori.co.jp/en/movie_library/movie/id=4456)

## Latest Direct Drive Spindle (DDS) "turnMASTER"



- + High-accuracy contouring  
(C-axis indexing accuracy): 5 sec.

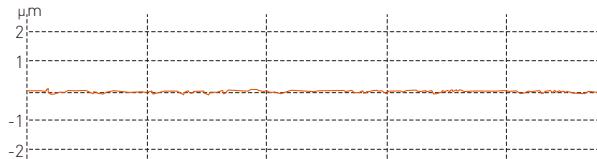
Circularity <turning> **0.4** µm



- + Direct Drive Spindle (DDS) features low vibration as there is no vibration sources such as gear pulleys and belts, thereby achieving improved circularity and surface roughness

Material : Brass ø 58 × 56 mm (ø 2.3 × 2.2 in.)  
Tool : Diamond tool <nose radius: ø 0.4 mm (ø 0.016 in.)>  
Spindle speed : 500 min<sup>-1</sup>  
Feedrate : 0.05 mm/rev (0.0020 ipr)  
Cutting allowance (radius value): 0.05 mm (0.0020 in.)

Surface roughness <turning>  
**0.21** µm Ra (actual result)



• The cutting test results indicated in this catalog are provided as examples. The results indicated in this catalog may not be obtained due to differences in cutting conditions and environmental conditions during measurement.

### Standard chuck size\*

#### Left spindle / Right spindle

- + ALX 1500: 6 inches / 6 inches
- + ALX 2000: 8 inches / 6 inches
- + ALX 2500: 10 inches / 6 inches

\* The chuck is optional.

### Max. spindle speed

#### Left spindle / Right spindle

- + ALX 1500: 6,000 min<sup>-1</sup> / 7,000 min<sup>-1</sup>
- + ALX 2000: 4,500 min<sup>-1</sup> / 7,000 min<sup>-1</sup>
- + ALX 2500: 3,500 min<sup>-1</sup> / 7,000 min<sup>-1</sup>

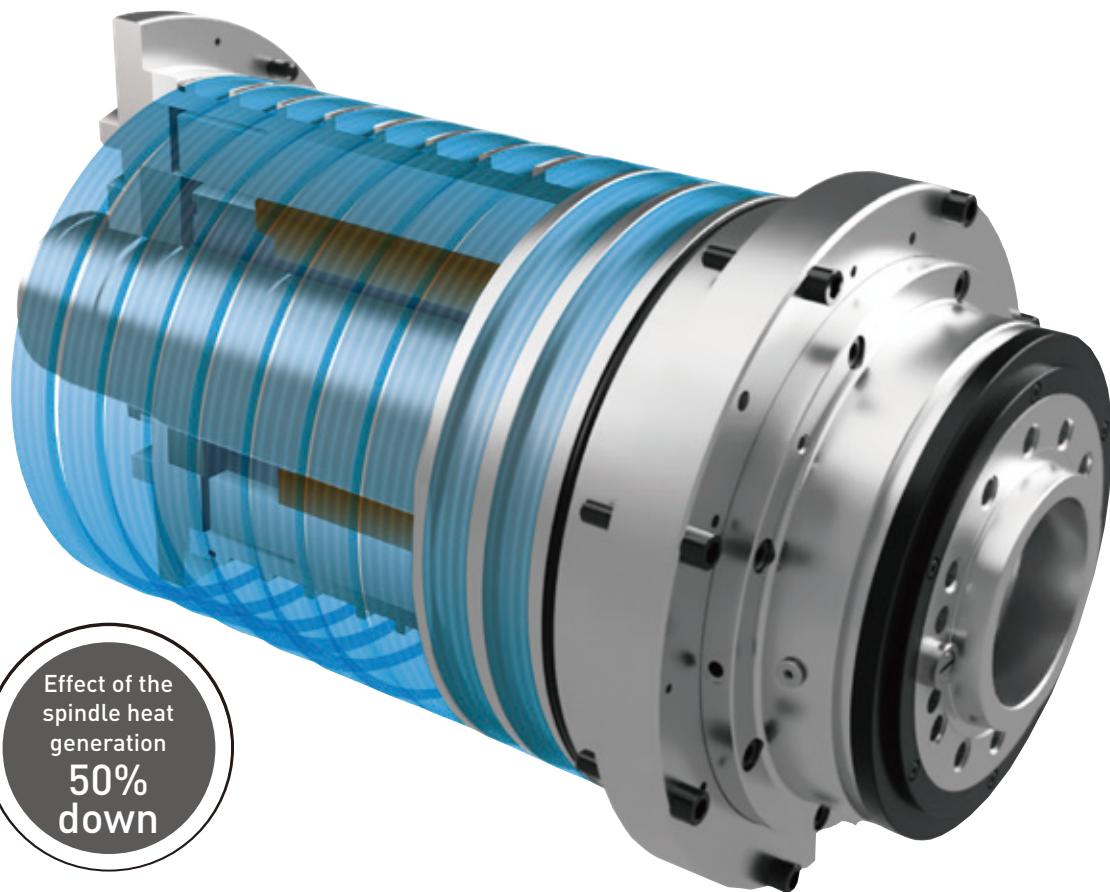
	Left spindle	Right spindle		
	Output kW (HP) <10%ED / 10 min / 30 min, cont>	Torque N·m (ft·lbf) <10%ED / cont>	Output kW (HP) <25%ED / cont>	Torque N·m (ft·lbf) <25%ED / cont>
ALX 1500	15 / 11 / 7.5 (20 / 15 / 10)	179 / 71.6 (132.0 / 52.8)	11 / 7.5 (15 / 10)	77.8 / 53.1 (57.4 / 39.2)
ALX 2000	22 / 15 / 11 (30 / 20 / 15) <10%ED / 30 min / cont>	262.3 / 175.1 (193.5 / 129.1)	11 / 7.5 (15 / 10)	77.8 / 53.1 (57.4 / 39.2)
ALX 2500	30 / 26 / 22 (40 / 34.7 / 30) <10%ED / 10 min, 30 min / cont>	795.8 / 457.6 (587.0 / 337.5)	11 / 7.5 (15 / 10)	77.8 / 53.1 (57.4 / 39.2)

ALX Series

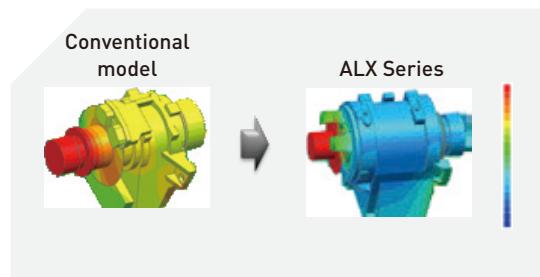
# Thoroughly Controlled Thermal Displacement

There are varieties of factors leading to thermal displacement that has a major influence on machining accuracy, including heat generation during machine operation, changes in room temperature and increase in coolant temperature.

DMG MORI tackles the factors one by one with the original method for thoroughly controlling thermal displacement from every aspect. An oil jacket up to the rear side of the spindle which is the primary heat generation source controls the temperature rise.

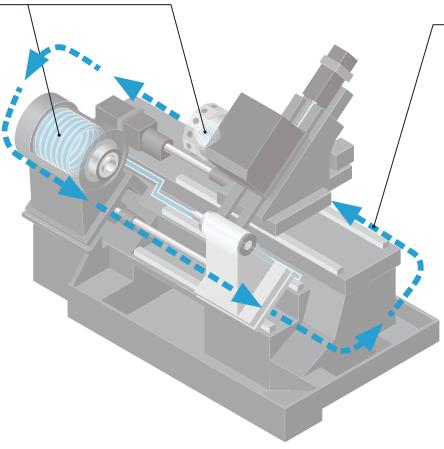


• The above is an image picture.



**Cooling oil circulation**

The spindle (turnMASTER) and the turret (BMT\*) controls thermal displacement by cooling oil circulation.



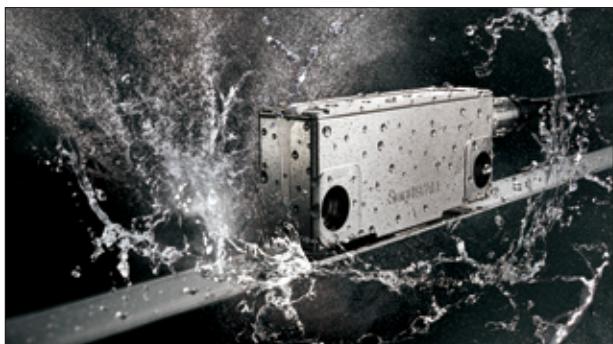
**Coolant circulation for casting parts**

Thermal displacement is caused by various factors including non-uniform expansion and contraction due to difference in thickness of the casting; uneven heat generation in the slideways; operating environment; and changes in ambient temperature due to season and time of day. The coolant circulation maintains a uniform temperature inside the casting parts, and minimizes deformation in the machine.

- + Uniform thermal displacement
- + Resistance to changes in ambient temperature
- + High-accuracy long-term machining

\* Only for Milling specification  
BMT: Built-in Motor Turret

#### Full closed loop control <Scale feedback> (option)



- + Full closed loop control (Scale feedback) SmartSCALE as an option: Enhanced positioning accuracy
- + High-accuracy machining by use of the scale that has the thermal expansion coefficient equivalent to the machine casting



**Coolant chiller <separate type> (option)**

Increased coolant temperature causes thermal displacement in the fixtures and workpiece, affecting the machining accuracy of the workpiece. Use this unit to prevent the cutting 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.

**When using oil-based coolant or a super-high-pressure coolant system, please be sure to consult our sales representative.**

• We cannot guarantee that this unit will completely control the coolant temperature.  
It is designed to help prevent oil temperature increases.

ALX Series

# Surpassing Milling Performance with BMT (Built-in Motor Turret)

The Milling specification comes standard with BMT. Featuring the maximum spindle speed of  $12,000 \text{ min}^{-1}$ , it achieves high-speed machining, while minimizing the vibration width. Moreover, a cooling jacket controls heat generation to ensure machining accuracy.

BMT: Built-in Motor Turret

**Number of tool stations**

- + 12, 8, 10 tools <ALX 1500 Turning specification>
- + 10, 8\*, 12 tools <ALX 2000 / ALX 2500 Turning specification>
- + 12, 20 tools <Millling specification>

**Max. milling spindle speed**

- +  $12,000 \text{ min}^{-1}$  <Millling specification>

**Output (milling spindle)**

- + 7.5 / 5.5 / 3.7 kW (10 / 7.5 / 5 HP)  
<1 min / 25%ED / cont> {Milling specification}

**Milling spindle torque**

- + 15.9 N·m (11.7 ft·lbf) <1 min> {Milling specification}

\* ALX 2000 only.

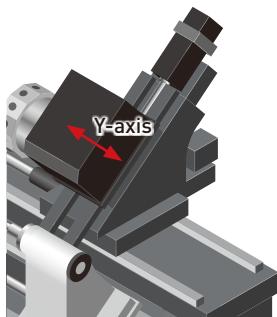


20-station turret (milling)



12-station turret (milling)

## Y-axis specification

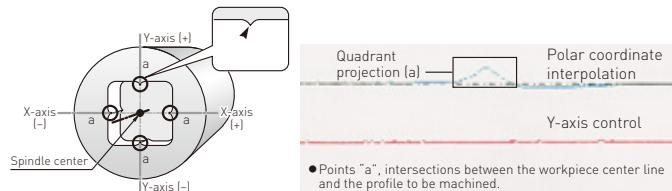


The Y-axis is created by linking the feed of the X-axis and the simulating axes. We have made the axis unit compact and restricted the height of the machine.

We also independently developed a powerful platform for maximizing performance in the Y-axis specification. This has achieved rigidity between the spindle and the tool tip that exceeds that of conventional two-axis turning centers.

- + Y-axis travel:  $\pm 50$  mm ( $\pm 2.0$  in.)

### Comparison between polar coordinate interpolation and Y-axis control (contouring)



With polar coordinate interpolation, the X-axis movement reverses at the intersections [a] between the workpiece center line and the profile, which changes cutting conditions and affects form accuracy.

- + Y-axis control: High form accuracy is achieved as machining surfaces are not affected by cutting condition changes

### For heavy-duty cutting (turning)

10-station (ALX 2000)

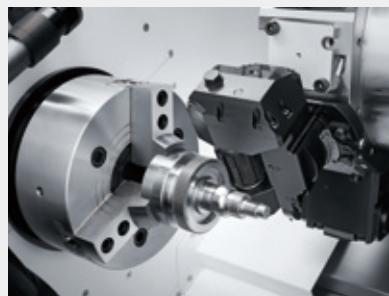


10-station (ALX 2500)

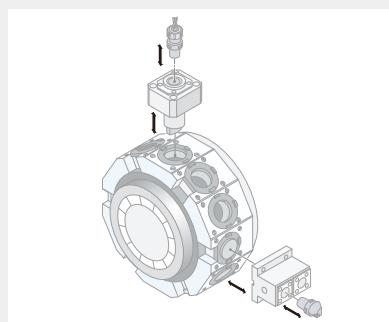


### For various types of milling

#### Gear hobbing (Technology Cycles) <option>



#### Capto-compatible holder (DMQP)



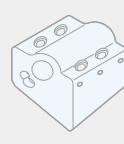
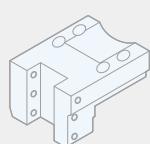
The Coramant Capto modular tooling system, with much faster tool-changing time than conventional machines.

### The holders for the conventional machines can be used

The holders used on the conventional machines can be used because our turret is compatible with them. For details, please consult our sales representative.

#### Holders for common use (Turning specification)

8-station, 10-station (ALX 1500 / ALX 2000)	25□, CL, SL, Dura
10-station, 12-station (ALX 2500)	
12-station (ALX 1500 / ALX 2000)	20□, CL, SL, Dura



Holders for common use with SL / CL (turning only)

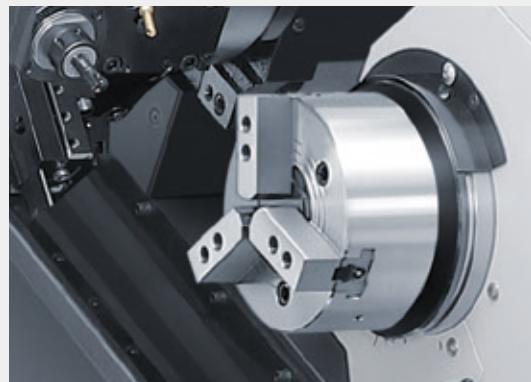


ALX Series

## Process Integration by Continuous Machining of Both Surfaces

Continuous machining of both surfaces is possible with the Right spindle. The combination of milling and the Y-axis function enables integrated machining, from turning to secondary / back face machining, and multi-axis machining, allowing for process integration.

### Right spindle specification



- + "Milling + Right spindle" and "Milling + Y-axis + Right spindle" specifications available for advanced multi-axis machining
- + Standard chuck size<sup>\*1</sup>: 6 inches
- + Max. spindle speed: 7,000 min<sup>-1</sup>
- + Output: 11 / 7.5 kW (15 / 10 HP)  
<25%ED / cont>
- + Max. spindle torque: 77.8 N·m (57.4 ft·lbf)  
<25%ED>

\*1 Chuck is optional.

### Cutting Test

#### 6 inches turnMASTER

##### O.D. turning Material <JIS>: S45C<sup>\*2</sup>

Material removal rate	mL/min (in <sup>3</sup> /min)	350 (21.4)
Spindle speed	min <sup>-1</sup>	1,365
Depth of cut	mm (in.)	6 (0.2)
Cutting speed	m/min (fpm)	120 (393.7)
Feedrate	mm/rev (ipr)	0.4 (0.014)

S45C: Carbon steel

\*2 1045, 1046 (ANSI), C45, C45E, C45R (BS, DIN), 45 (GB)

● The cutting test results indicated in this catalog are provided as examples. The results indicated in this catalog may not be obtained due to differences in cutting conditions and environmental conditions during measurement.

JIS: Japanese Industrial Standard

### Tailstock specification



#### Live center



#### Built-in center



●: Standard ○: Option —: Not applicable

#### ALX 1500 / ALX 2000

#### ALX 2500

##### Taper hole of tailstock spindle

500 type

500 type

##### Live center

MT4



—

MT5



●

##### Built-in center

MT3



○

MT4

—



ALX Series

# Various Chip Disposal Solutions Available According to Machining Conditions

Chips can be one of the main causes leading to machining failure and machine stop.

DMG MORI conducted an in-depth study on them by carrying out various experiments and analyses, and achieved outstanding chip disposal performance. We offer optimal chip disposal solutions according to a machining condition of each customer.



Rear discharge type

Chip disposal measures everywhere



Right discharge type

• The photo shows the machine equipped with options.



Chip flushing coolant

Coolant for the tailstock base is available as standard for better chip disposal.

## Chip conveyor (option)

Handles various types of chips and ejects them in a highly efficient way.

### Workpiece material

### Chip form

### Chip size

### Hinge type

### Scraper type

### Magnet scraper type

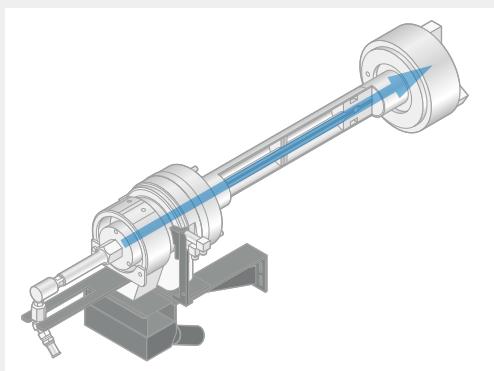
Steel	Long	Short	Powdery
20 mm [0.8 in.]	○	—	—
20 mm [0.8 in.]	—	○	△ <sup>*2</sup>
20 mm [0.8 in.]	—	○	△ <sup>*2</sup>

\*1 Consultation is required.

\*2 Depending on chip size, chips may pass through the filter and the conveyor and accumulate in the coolant tank. Due to possible effect on machining accuracy, a second filtration device may need to be considered.

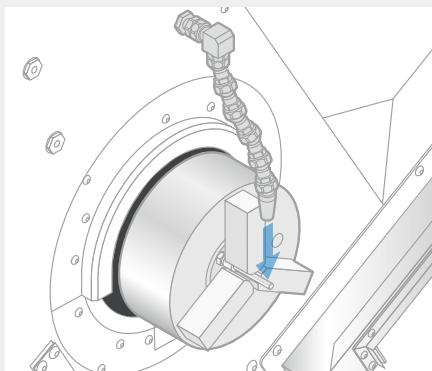
● <Chip size guidelines> Powdery: minute particles / Short: chips 50 mm [2.0 in.] or less in length, bundles of chips ø 40 mm (ø 1.6 in.) or less  
Long: bigger than the above

### Through-spindle coolant system (option)



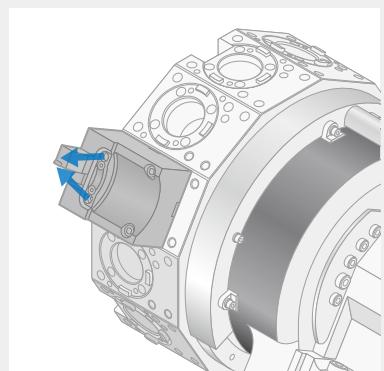
Coolant supplied through the center of the chuck removes chips generated during I.D. machining.

### Chuck top coolant (option)



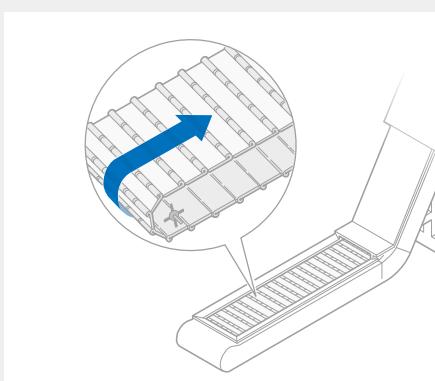
Coolant supplied from above the chuck removes chips and minimizes heat generation in the workpiece.

### Air blow for tool tip (option)



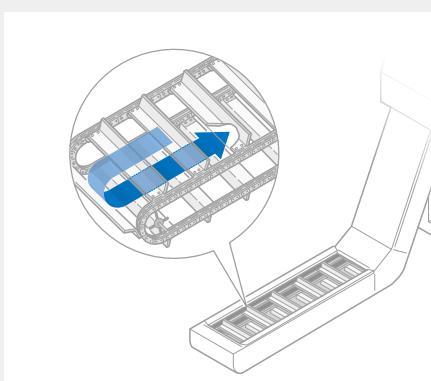
Air is blown toward the tool tip to blow away chips adhering to the tool.

### Chip conveyor <hinge type> (option)



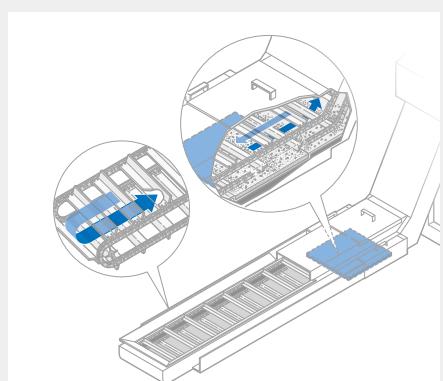
The hinge plate carries and discharges chips to the outside of the machine. Particularly effective for long chips.

### Chip conveyor <scraper type> (option)



Chips accumulated on the bottom of the chip conveyor are scraped up by a scraper and discharged to the outside. Suitable for short or powdery chips.

### Chip conveyor <magnet scraper type> (option)



Chips are forcibly precipitated by the magnet plate at the bottom of the tank and are scraped up by a scraper and discharged to the outside. Suitable for fine magnetic chips such as casting chips.

#### Cast iron



20 mm  
[0.8 in.]

Short

—

○

○



20 mm  
[0.8 in.]

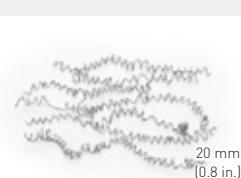
Powdery\*1

—

—

—

#### Aluminum / non-ferrous metal



20 mm  
[0.8 in.]

Long

○

—



20 mm  
[0.8 in.]

Short\*1

—

—

—



20 mm  
[0.8 in.]

Powdery\*1

—

—

—

● The options table shows 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.

● Please select a chip conveyor that suits the shape of your chips.

When using special or difficult-to-cut material [chip hardness HRC45 or higher], please consult our sales representative.

● Chip conveyors are available in various types for handling chips of different shape and material. For details, please consult our sales representative.

ALX Series

# User Friendly Design – Easy to Operate and Maintenance

The ALX Series is designed with features for ease of maintenance to increase the machine operating rate. The ALX Series achieves shorter MTTR (Mean Time To Repair) by thorough analyses of customers' demands such as a wider door opening for better work efficiency and maintainability. This ensures the machine is always in the best condition, thereby bringing greater productivity to the customer.

## 1 Chuck pressure gage



- + A chuck pressure gage requiring adjustment according to workpiece forms and cutting processes is placed at eye level to enhance workability and visibility

## 2 Waste oil container and lubricant oil tank



- + The filler opening of the slideway lubricant oil tank is placed on the front face of the machine, enabling easy oil feeding
- + Waste oil container placed next to the lubricant oil tank provides easy inspection and disposal of waste oil

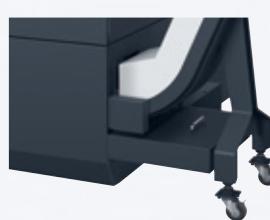
## 3 Chip disposal (option)

- + Chips in the machine can be easily cleaned by pulling out the in-machine chip bucket\*



In-machine chip bucket  
(for the distance between centers 300 type)

- + Collect sludge in the coolant tank



In-machine chip receiver (for the distance  
between centers 500 type with a right discharge  
chip conveyor)

\* Available for without chip conveyor only.



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## 4 Improved operability

- + The grid was removed to enhance visibility, and the wide opening improved workability in setup work such as workpiece attachment / detachment



## 5 Compact floor space

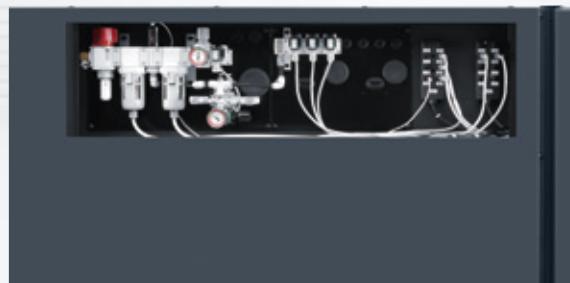
- + The ALX can replace the existing models CL1500 and CL2000 as it has the same footprint



• The photo shows the machine equipped with options.

## 6 Pneumatic equipment (option)

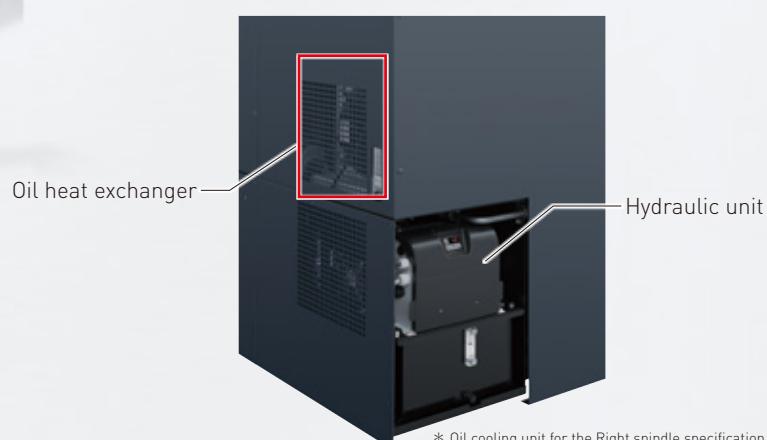
- + All equipment is placed in the rear side of the machine in consideration of maintainability, reducing operator's workload



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## 7 Hydraulic unit / Oil heat exchanger\*

- + The location (right rear side of the machine) enables easy access



\* Oil cooling unit for the Right spindle specification.  
Installed separately if oil cooling unit is selected  
with turret specification.

ALX Series

## Solutions Best Matched to Customers' Needs

DMG MORI provides a variety of automation systems covering from material loading to finished parts unloading. With a gantry-type loader system for high-speed mass production, a bar feeder system for integrated machining of bar stock, the robot system MATRIS and more, DMG MORI helps you achieve automation.



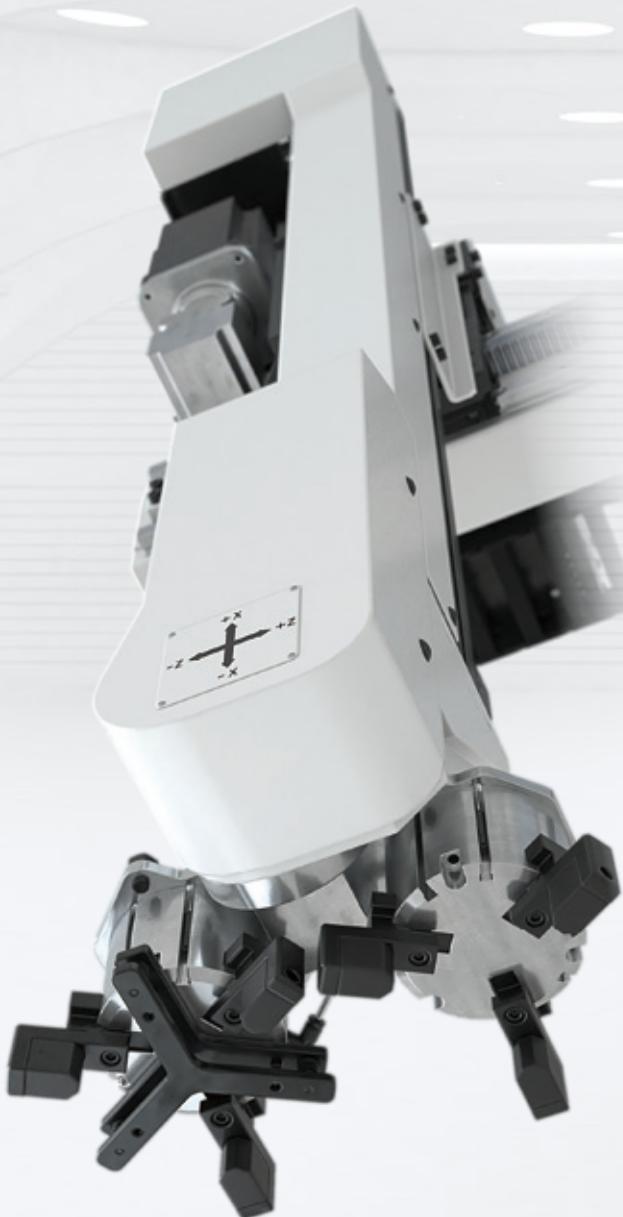
Gantry-type loader module system  
incorporating a measuring system



Gantry-type loader system with two  
connected machines and a turnover unit  
<Type C I >

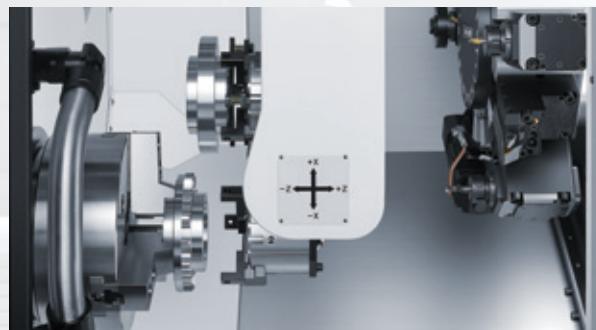
## Gantry-type loader GX Series

Faster loader traveling for shorter cycle time.  
Various types of loader hands are available to meet your workpiece requirements.

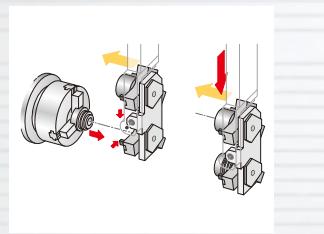


Scan the QR code to watch the video of the gantry loader system.  
[https://www.dmgmori.co.jp/en/movie\\_library/movie/id=4251](https://www.dmgmori.co.jp/en/movie_library/movie/id=4251)

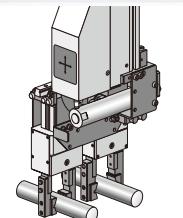
### Loader hand <Consultation is required>



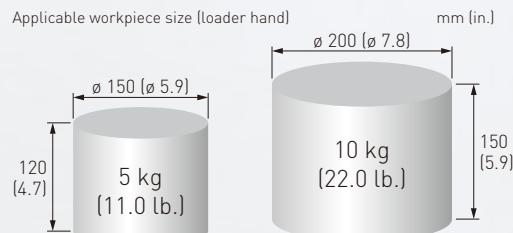
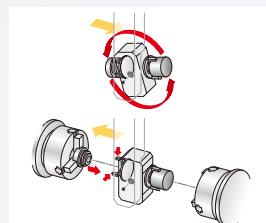
Parallel hands (for chuck workpieces)



Parallel hands (for shaft workpieces)



Back end hands  
(Right spindle specification)



Loader type (machine travel type)

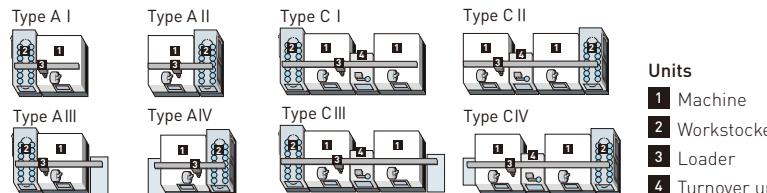
		<b>GX-05</b>	<b>GX-10T</b>
Gantry-type loader	Max. travel speed	X-axis <loader hand up / down> m/min (fpm) Z-axis <loader unit left / right> m/min (fpm)	180 [590.6] 200 [656.2]
Loader hand	Model	Parallel hands, back end hands	90 [295.3] 120 [393.7]
	Max. transfer mass	5 (11.0) × 2	10 (22.0) × 2
	Applicable workpiece diameter	40–150 [1.6–5.9]	40–200 [1.6–7.8]
	Applicable workpiece length	20–120 [0.8–4.7]	20–150 [0.8–5.9]

• Depending on the shape of the workpiece, it may not be possible to machine with standard specifications. For details, please consult our sales representative.

• Please consult our sales representative in the case that a workpiece diameter is less than 40 mm [1.6 in.], or a workpiece length is less than 20 mm [0.8 in.].

## Gantry-type loader system variations <Consultation is required>

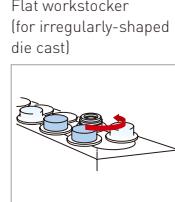
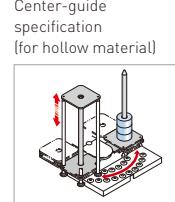
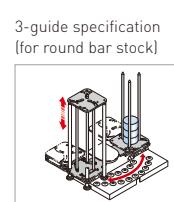
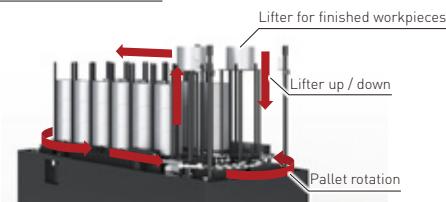
- + Gantry-type loader system variations that were offered for CL and NLX
- + Simple system with high flexibility



• Separate consultation is required for hollow cylinder specifications.  
(Type A I , Type A III , Type C I , Type C III )

### Workstocker

#### Rotary workstocker



Standard

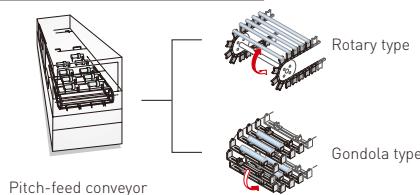
#### Rotary workstocker specification



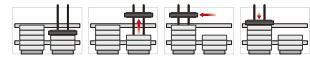
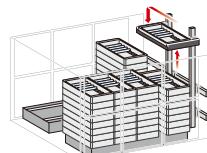
	ø 150 mm [ø 5.9 in.] workstocker	ø 200 mm [ø 7.9 in.] workstocker
Applicable workpiece diameter	mm [in.]	40–150 (1.6–5.9)
Number of pallet tables		14, 20, 26
Max. workpiece mass	kg [lb.]	35 (77) / pallet
Max. workpiece stacked height	mm [in.]	470 (18.5)

• Depending on the shape of the workpiece, it may not be possible to machine with standard specifications. For details, please consult our sales representative.  
• Please consult our sales representative in the case that a workpiece diameter is less than 40 mm [1.6 in.], or a workpiece length is less than 20 mm [0.8 in.].

#### Workstocker for shaft workpieces



#### Tray changer (for mass production)



• For trays, consultation is required.

#### Workpiece unloader <built-in type> (option)

The evolved parts catcher enables easy adjustment by customers. Both spindles handle workpieces up to double the previous length.



- + Applicable workpiece diameter: 80 mm [3.1 in.]
- + Applicable workpiece length: 200 mm [7.8 in.]
- + Max. transfer mass: 3.0 kg (6.6 lb.)

• Not available when the steady rest is selected, because of interference. For standard machines, it is necessary to remove the workpiece unloader when the steady rest specifications are selected.

#### Workpiece rest <fixed type> (option)

#### Bar feeder (option)

The combination with the workpiece unloader enables automation of machining of bar materials.

- + Bar work capacity\*: ø 52 mm [ø 2.0 in.] <ALX 1500>  
ø 65 mm [ø 2.5 in.] <ALX 2000>  
ø 80 mm [ø 3.1 in.] <ALX 2500>

\* Depending on the hydraulic chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

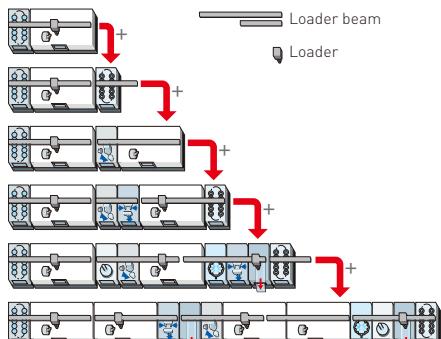


## Various modules are available

- + Standardized modules for flexible system changes after installation
- + Gantry-type loader system innovation
- + Modularized peripherals for flexible system extension and peripheral changes
- + Various selections of machines enable establishment of automation systems and production lines consisting only of the ALX models

### Gantry-type loader module system

- + The best automation solution for your specific needs



### Modules

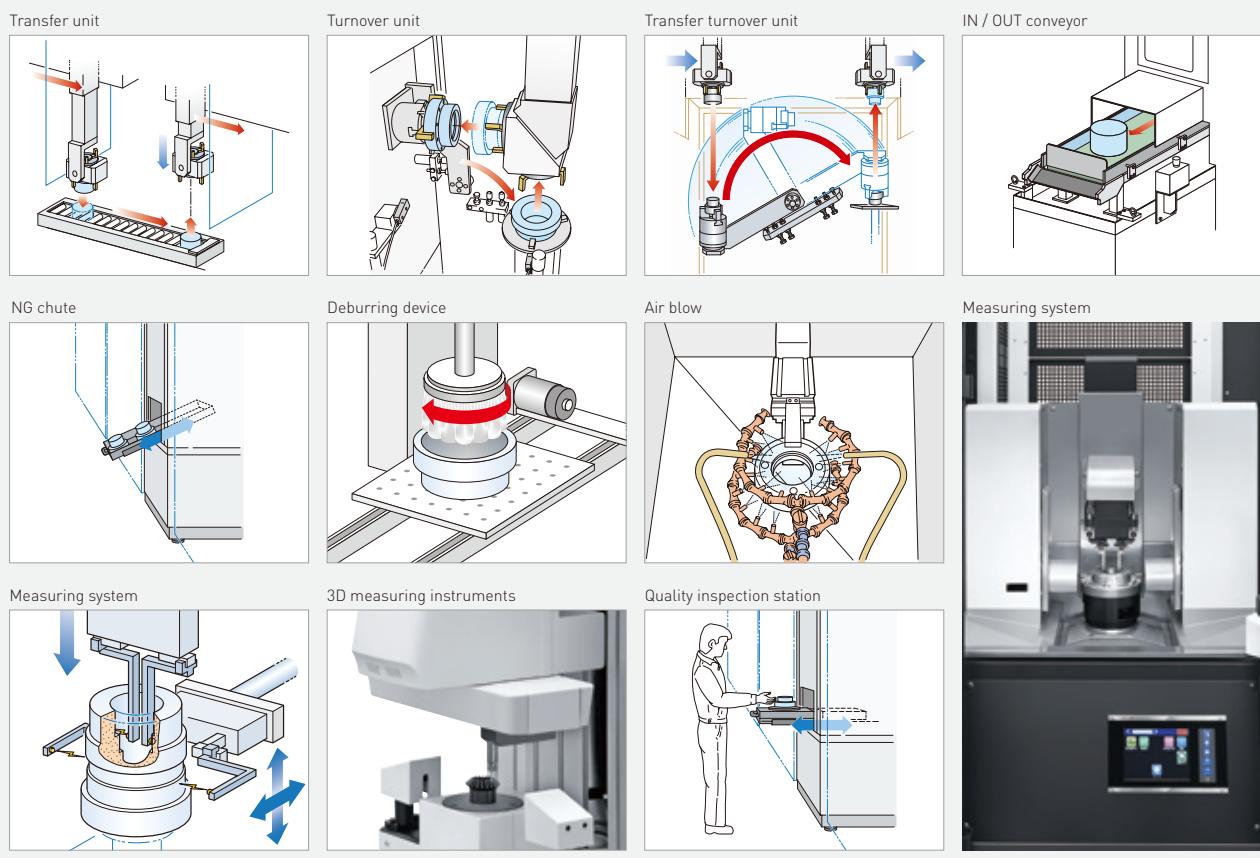
- + Can be shared with MATRIS



• Please contact us for dimensions.

### Modularized peripherals with various functions

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ALX Series

# No Programming Required! New Robot System MATRIS

DMG MORI has developed an all-new robot system MATRIS that requires no special knowledge for its operation based on the wealth of experience and expertise DMG MORI has cultivated over the years. With modularized peripherals, a robot and MATRIS controller, a dedicated system to connect peripherals and machines, MATRIS eliminates complex program editing and achieves easy system setups on a simple operation screen.

## Advantages of MATRIS

- + Typical systems available as pre-defined packages
- + Standardized peripherals ensure easy customization to meet your specific needs
- + Flexibly accommodate system changes even after installation
- + Simple and easy programming with MATRIS controller



### Structure of robot system

#### MATRIS controller



- + A system controller that offers integrated control of the whole automation system, including a robot, each module and machine
- + Monitoring, schedule management and operation control of the whole automation system possible



Robot



Modules



Machine



ALX Series

## Standard Package

MATRIS offers the two most popular packages.

If the prepared packages are not suitable for your shop floor due to space restrictions, or if you wish to customize the package, it is possible to change system layout or add new peripherals to meet your needs.

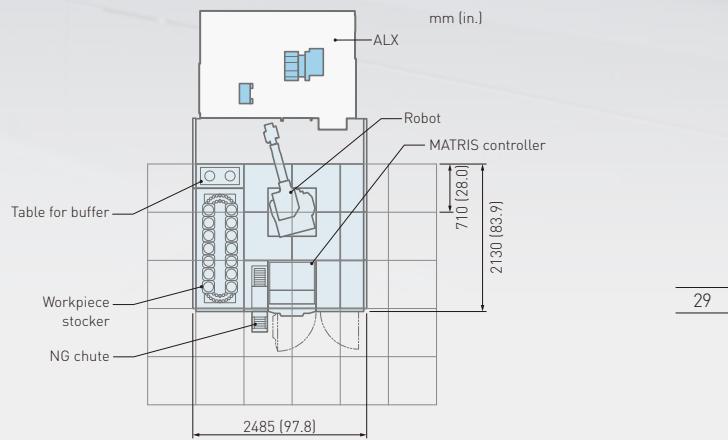
### Handling package

- + A 14-station rotary stocker compatible with flange workpieces is equipped as standard
- + Various stockers can also be used, including 20-station and 26-station stockers, tray changer, IN / OUT conveyor

#### Hand specification <single hand>

Max. workpiece transfer weight	10 kg (22 lb.)	20 kg (44 lb.)
Workpiece stocker specification	14-station rotary workpiece stocker	10-station rotary workpiece stocker
Applicable workpiece diameter	40–150 mm (1.6–5.9 in.)	40–200 mm (1.6–7.8 in.)
Max. weight per station	35 kg (77 lb.) / pallet	75 kg (165 lb.) / pallet

#### Example of layout



Example: Handling package

### Measuring package

- + High-accuracy measurement and acceptance / rejection judgment of workpieces with an external measuring system
- + Measuring results to be fed back to a machine
- + Set multiple measuring points at different levels on a cylindrical workpiece
- + It enables various measurements such as outer and inner diameter measurement and three-dimensional measurement

- Custom design is available according to workpiece shapes. For details, please consult our sales representative.
- For details, please refer to the MATRIS catalog.

ALX Series



## One Stop Service for Various Needs DMG MORI Qualified Products

The DMG MORI Qualified Products (DMQP) program <option> is designed to certify peripherals that meet DMG MORI standards in quality, performance and maintainability.

DMG MORI collaborates with our partners in the world and provides customers with peripherals required for their machining.

We take care of the arrangement from selection to installation to support best-quality machining.

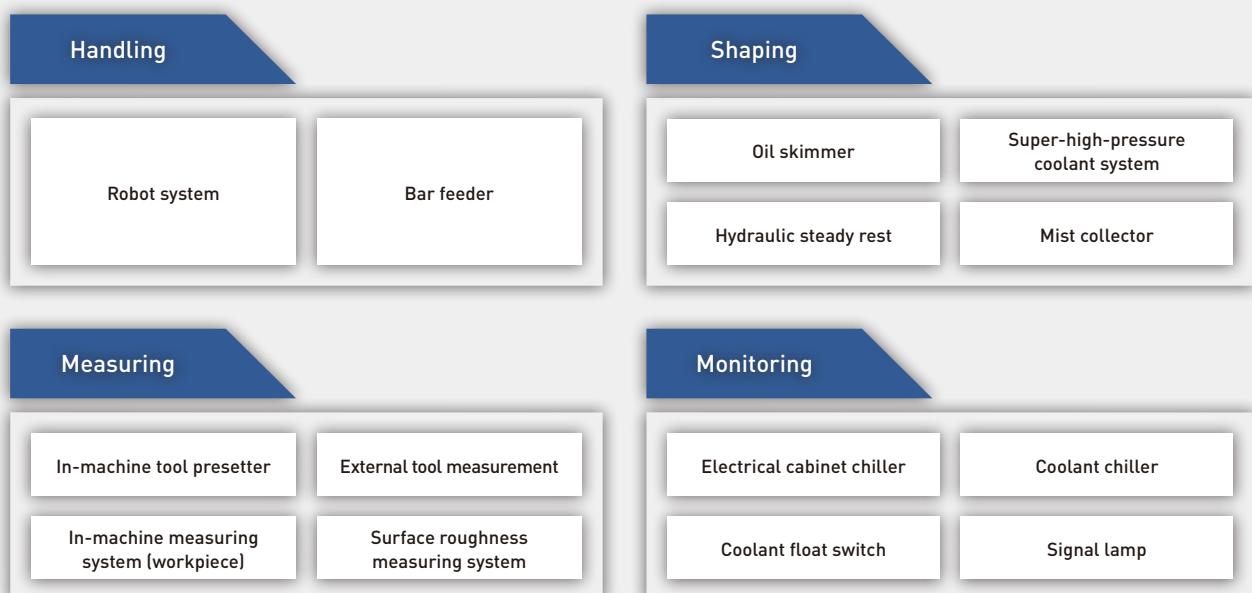
DMG MORI helps customers improve productivity by offering the total solutions including quality peripherals as well as machine tools.

- + Offer peripheral equipment optimal for each customer at one stop
- + Provide support including connection and setup of machines and peripheral equipment
- + Achieve efficient connections with optimal interfaces



Scan the QR code to check DMQP.  
<https://www.dmgmori.co.jp/sp/dmqp/en/index.html>

### Four DMQP categories



● The options above are examples. For details, please consult our sales representative.

DMQP: DMG MORI Qualified Products

Bar feeder



zeroFOG



Super-high-pressure coolant system



Robot system



Automatic in-machine tool presetter



Coolant chiller



Air dryer



Air compressor



Coolant gun



Tool cabinet



Oil skimmer



Coolant float switch



ALX Series

# COMPACT*line* Suitable for Mass Production Machining

The COMPACT*line*, a simple and compact operation system, is equipped with various helpful functions, allowing the operators to customize display contents according to machining situations.

- + 3-window display for checking necessary machine information all at once
- + Customizable machine information on the 3-window display according to customers' needs
- + Improved setups by displaying necessary machine information according to operation
- + Enhanced workability by displaying machine information and machine operation buttons on one touch panel
- + Compact design for space-saving
- + Equipped with MAPPS Pro

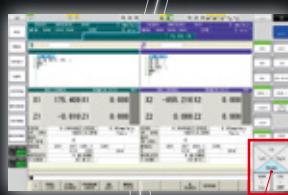
• SMARTkey is optional.



## Overlapping display on MAPPS Pro

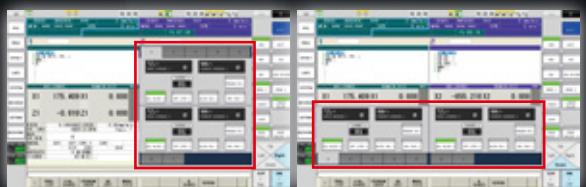
The machine operation panel and screen keyboard can be overlappingly displayed on the MAPPS Pro. The operators can easily switch the display position (upper / lower, left / right sides) according to the task.

MAPPS Pro



Button for switching display

Machine operation panel



Screen keyboard



Ten-key



ALX Series

## DMG MORI SLIMline\* for High Efficiency and Reliability

- + A large 15-inch screen enables 4-screen display and checking of various information at a glance
- + 3D machining simulation for easy contour verification
- + Conversational automatic programming function with process menu
- + Import and export of programs over MORI-SERVER using external PCs
- + File display and note function for accessing operating instructions, drawings and texts
- + Vertical soft keys can be set as menu or direct access buttons for quickly displaying the data selected by the customer
- + Equipped with MAPPS IV

\* Option



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### Well-designed interface enabling simple operation of every function

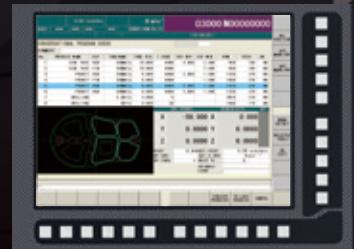
Operator's usability was enhanced with a large display, a computer keyboard, and vertical software keys that can quickly display the screen you need.



#### Vertical software keys

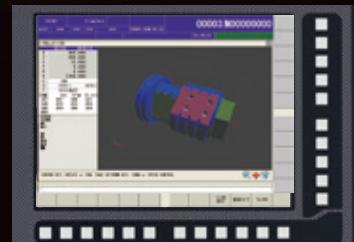
Shortcut screens and option buttons can be set for quick and easy display.

#### Option button keys



#### Shortcut software keys

Frequently used screens can be registered to the vertical soft keys.

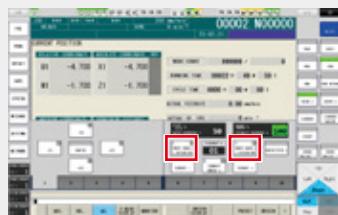


## ALX Series

# High Efficiency Function of MAPPS Pro (for Operation System COMPACTline)

**Turret 1 station indexing function****Enhanced setup capability**

**[Issue]** "In order to index the adjacent station, we need to press "+" or "-" button to choose the turret station number and operate the indexing button."

**Improvement point**

A button was added to index one station of the turret.

Moreover, position indexing can be performed with one button

**All-reset function****Enhanced setup capability**

**[Issue]** "Although I pressed the cycle start button after resetting the machine, the program was executed from a middle of the program."

**Improvement point**

A button was added to reset and return to the beginning of the program regardless of mode selection.

Moreover, for the loader specification, the button can reset the loader program and the machining program at the same time and return the program to the beginning

**Function to directly choose and index turret position****Enhanced setup capability**

**[Issue]** "When we want to index the station No. 6 while the position of turret station No. 1 is indexed, we need to repeatedly press the "+" button to choose No. 6 and index the position with the indexing button."

**Improvement point**

A button was added to directly choose and index the chosen station.

Moreover, the number of operations is reduced

**Function to return to the home position****Support for system machine**

**[Issue]** "Before starting the system, the machine needs to be in a state ready for start-up (home position). Operations such as returning each axis to the home position and returning equipment in the machine back are troublesome."

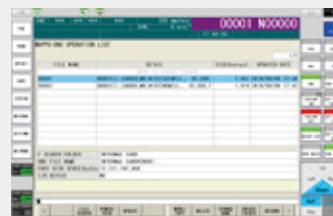
**Improvement point**

The number of operation is reduced by adding a button for returning the axis to the home position regardless of mode selection.

Moreover, the loader button was added so that loaders can be customized like machines

**Mass program storage area****Enhanced setup capability**

**[Issue]** "Due to limitations in the program storage area, input and output of machining program needs to be repeated. It is troublesome to manage a processing program outside the machine."

**Improvement point**

It enables data storage up to 6 GB in the user area, reducing setup time.

Moreover, possible to perform DNC operation of machining program from the user area

**Tool change positioning function****Enhanced setup capability**

**[Issue]** "We need to move the turret to near the front door at the time of chip (insert) or tool replacement."

**Improvement point**

A button was added to move the turret to the designated tool replacement position where the tool can be replaced easily.

Moreover, the number of operations is reduced

# MAPPS Pro / MAPPS IV

A new function further enhances operational efficiency

- The screens below are for COMPACTline.

## Chuck status

**[Issue]** "For the loader specification, we cannot restart the system after rechecking and measuring a finished workpiece. It is caused by inability to determine whether the workpiece after rechucking was cut or not."



## Support for system machine

### 💡 Improvement point

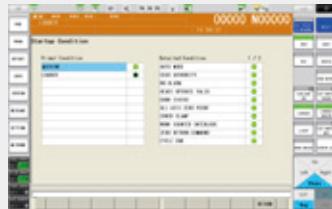
The cycle can be restarted in a middle of the cycle by setting whether the workpiece was cut or not in the screen of chuck state.

Moreover, the status of chuck and hands can be checked at the same time

## Startup condition display\*

## Visualization

**[Issue]** "When we completed setup and pressed the cycle start button while looking at the program screen, the screen changes to an alarm screen when all start-up conditions are not ready."



## Startup condition display\*

**💡 Improvement point**  
The status lamp icon shows whether all start-up conditions are ready before cycle start.

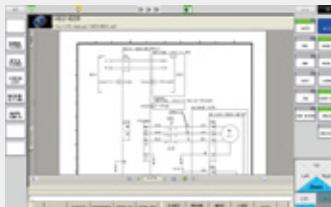
Moreover, you can check the details of start-up conditions as a list

\* Only COMPACTline has the icon for start-up condition display.

The cutting process is powerfully supported by the installation of an interactive automated programming function and maintenance function.

- The screens below are for COMPACTline.

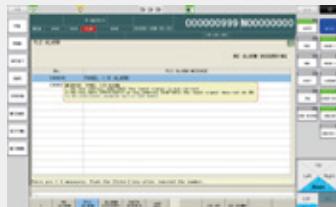
## Improved ease of setup



### File display and Memo function

- + Setup data such as operating instructions, drawing data, and text data can be browsed on MAPPS

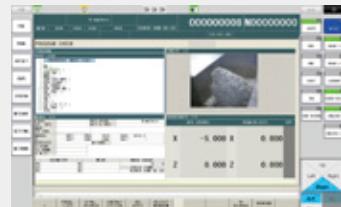
## Improved ease of maintenance



### Alarm help function

- + MAPPS gives an instruction of a countermeasure against an alarm issued

## Improved work efficiency



### Fixed-point in-machine camera\*

- + Monitored information can be browsed on a program screen via a camera installed on the machine

\* Option (consultation is required)

## Conversational automatic programming



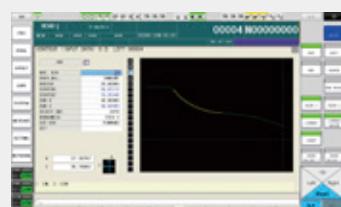
### Machining menu

- + Just enter a finish form and cutting conditions will be automatically determined



### List display function

- + In addition to the standard screen, a list display function enabling conversational data entry on one screen is prepared. It can be used by switching parameters



### Contour input

- + Just enter dimensions in the drawing and coordinates of the intersection point and contact point will be automatically calculated

ALX Series

# DMG MORI Technology Cycles

Technology Cycles are complete solutions that achieve complex machining easily in a short time. They enable every operator to easily perform high-quality machining, setups and measurements with general-purpose machine tools and standard tools / fixtures, which used to require specialized machines, programs and tools.

Shaping



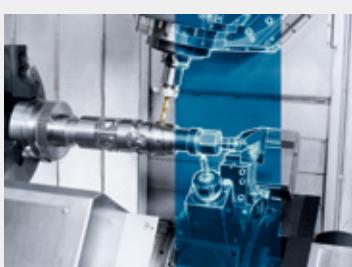
Measuring



Monitoring



Handling



- The availability of the functions differ depending on the machine. For details, please consult our sales representative.
- The above is an image picture.



Scan the QR code for more information about  
Technology Cycles.  
<https://www.dmgmori.co.jp/en/technology/#technology-cycle>

## Respond to Various Technology Cycles

### Shaping

#### Gear hobbing<sup>\*1</sup>

Optimal programming achieves hobbing with a general-purpose machine

Efficient    High-precision



Scan the QR code for more information about Gear hobbing.  
<https://www.dmgmori.co.jp/en/products/machine/id=2410>

Issue (before introduction)



\*2

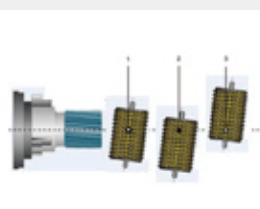


- + A gear machine is needed. After blank machining with a turning machine, gear machining needs to be performed with a gear machine after setup changes
- + Want to extend the tool life of expensive hob cutter

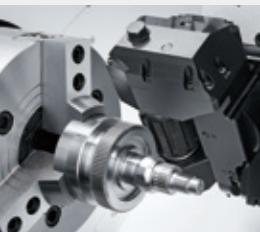
Results (after introduction)



- + Hobbing program can be easily created by conversational input



- + Hob cutter's machining position can be changed, maximizing the tool life

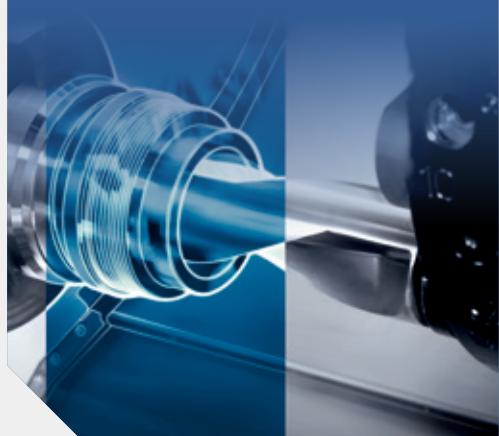


- + Consolidation of machining operations into the general-purpose machine reduces setup time and enhances accuracy such as concentricity due to no setup change

## Monitoring

### Easy tool monitoring

#### Monitoring load of spindle and traveling axes



#### Issue (before introduction)

- + Abundant experience is needed to set cutting conditions
- + Want to prevent tool breakage and machine failure
- + Difficult to monitor load to the spindle and tools at all times

#### Results (after introduction)

- + Conditions can be set in advance, enabling digital cutting management not dependent on experience or expertise
- + Can reduce tool breakage and maintenance cost by maximizing the capacities of the tools and machine
- + Load to the traveling axis and spindle during machining is monitored at all times, and the machine stops when abnormal values are detected



## Handling

### Multi-tool<sup>\*1</sup>

#### Maximizing number of tools & minimizing non-cutting time



#### Issue (before introduction)

- + Models with the Y axis or Right spindle specification require tools for various cutting operations
- + More than one tool is mounted to one station in some cases, making their management complex
- + Including spare tools, it is necessary to prepare more tools than the number of turret stations

#### Results (after introduction)

- + Tool compensation setting and life management can be easily performed for multiple tools of each station
- + Operator can set optimum tool information for each tool and maximize the number of tools
- + Prevent tool breakage and enhance production efficiency by switching to spare tools according to the operating time of the set tool



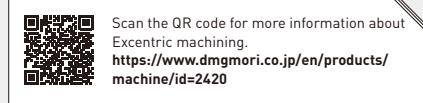
## Shaping

### Excentric machining<sup>\*2</sup>

**Easy programming of excentric machining**

Efficient High-precision



#### Issue (before introduction)

- + Hope to perform excentric machining processes on one machine
- + Expensive jigs for excentric machining are necessary

#### Results (after introduction)

- + Reduce setup time by consolidating machining operations performed with a special machine into a general-purpose machine
- + Complicated program for excentric machining can be created using the conversational programming style
- + Compatible with both turning and milling to achieve efficient machining
- + Require no eccentric machining jigs



## Shaping

### Multi-threading 2.0<sup>\*2</sup>

**Cutting special thread**

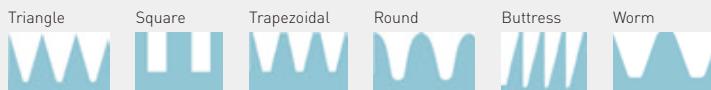


Efficient

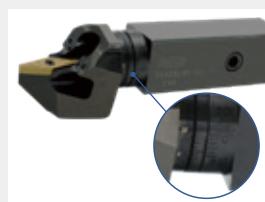


#### Results (after introduction)

- + Easily create various thread shapes by conversational programming
- + Create a machining program of a special shape thread on the machine without CAD / CAM
- + Can machine worm<sup>\*3</sup> teeth with involute curves (C-axis is required)



#### Multi-threading tool jointly developed with tool manufacturer



- + Flexible use for various workpiece shapes, no need for additional tools or machining processes
- + Also suitable for chamfering and profile correcting after machining
- + Achieves thread lead angles from -20° to +20° with one tool

## Handling

### Alternating speed\*1



Scan the QR code for more information about  
Alternating speed.  
<https://www.dmgmori.co.jp/en/products/machine/id=2419>

#### Stable machining in which chatter hardly occurs



Efficient High-precision



#### Issue (before introduction)

- + Chatter occurs when using tools under its recommended conditions
- + Vibration in deep hole drilling using a long drill should be suppressed

#### Results (after introduction)

- + Cutting resistance is changed by periodically changing the rotation speed of the spindle. This helps suppress chatter and enhance cutting conditions, which lead to shorter machining time
- + Surface quality is improved



## Shaping

### Efficient Production Package (High-speed canned cycle)\*1

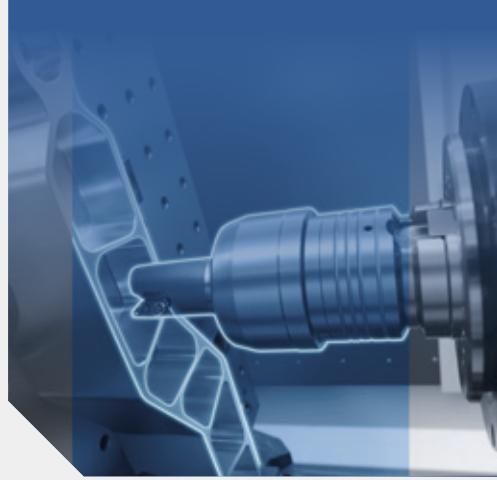
#### Easy inputting of various machining patterns



Efficient

Safe

High-precision



#### Issue (before introduction)

- + Taking much time to create programs for complicated shapes and many holes
- + Mistakes resulting from large quantity of calculation

#### Results (after introduction)

- + A program will be automatically created just by entering a complex shape in a conversational style
- + Safe cutting is ensured by confirming cutting details using the simulation function
- + Optimal tool path and cutting conditions enhance cutting quality



\*1 Option

## Shaping

### Polygon Cutting



Scan the QR code for more information about  
Polygon Cutting.  
<https://www.dmgmori.co.jp/en/products/machine/id=6226>



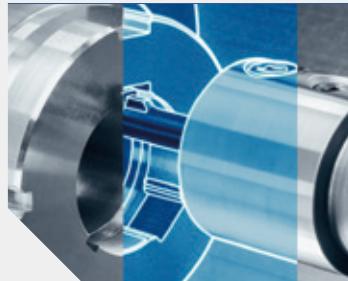
Efficient

#### Highly efficient cutting of polygons

- + Easy programming supported by guidance screen
- + Faster cutting time than end milling
- + Lower potential for interference than end milling
- + Chamfering possible with just one tool

## Shaping

### Keyway broaching



Scan the QR code for more information about  
Keyway broaching.  
<https://www.dmgmori.co.jp/en/products/machine/id=6227>



Efficient

#### Complete keyway broaching process integrated into one machine

- + Easy programming supported by guidance screen
- + Inner diameter keyway broaching also possible
- + Lower potential for interference than end milling
- + Includes programming for chamfering
- + Y-axis shift function enables various keyway sizes with a one size insert

## Handling

### Retraction cycle



Efficient Safe

#### Automation allows for easy return to the zero return position without errors

- + Operational efficiency is enhanced, as one button push will enable return to the zero return position in the preset order
- + Can customize the order of axes to be moved according to the condition
- + Enhance efficiency of setup operation
- + Reduce the risk of accident

# For Sustainable Production

The ALX Series is designed to save energy and reduce CO<sub>2</sub> emissions through process integration, automation and digitization, allowing for energy-efficient and sustainable production.

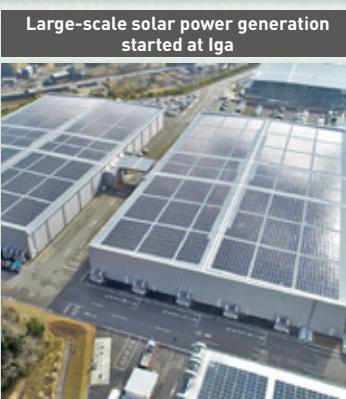
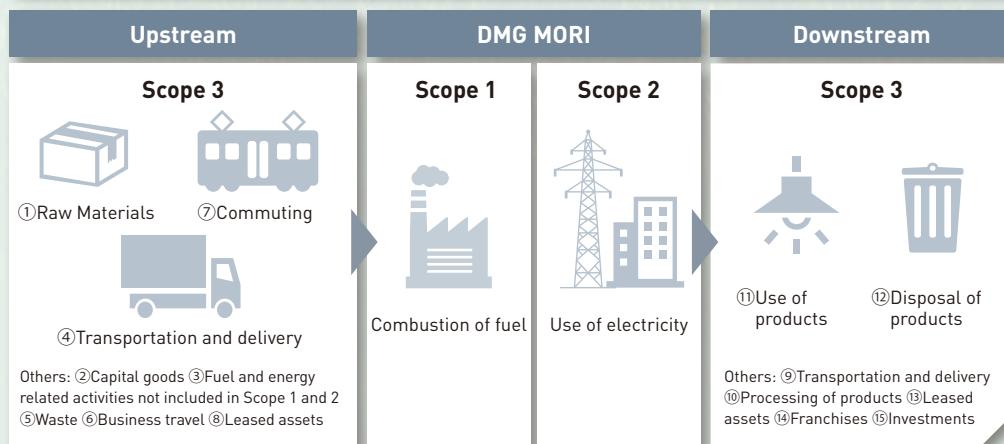
DMG MORI machine tools are manufactured fully carbon-neutral throughout the complete process from parts procurement to shipment<sup>\*1</sup>. DMG MORI is committed to reduce CO<sub>2</sub> emissions across the entire supply chain and has been certified by SBT<sup>\*2</sup> in 2021.



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## DMG MORI ACHIEVED CARBON NEUTRALITY WORLDWIDE<sup>\*1</sup> (SCOPE 1, 2 SCOPE 3 UPSTREAM CATEGORY)



Largest solar power generation system for self-consumption in Japan<sup>\*3</sup>

\*1 Achieved carbon neutrality for all processes in Scope 1, 2 & 3 (Upstream) by actively reducing CO<sub>2</sub> emissions and offsetting through investments in internationally recognized climate protection projects.  
\*2 Abbreviation for Science Based Targets. Greenhouse gas emissions reduction targets set by companies for the next 5-15 years in accordance with the levels required by the Paris Agreement (limit global temperature increase to below 2 °C or 1.5 °C compared to pre-industrial levels).



Scan the QR code for DMG MORI's approach towards sustainability.  
<https://www.dmgmori.co.jp/corporate/sustainability/en/>

## Energy saving achieved by GREENMODE functions and higher machine performance

Besides the GREENMODE functions, higher machine performance contributes to shorter machining time and less power consumption.

### Higher machine performance

- + Rapid traverse rate (X and Z axes): 24 m/min (944.9 ipm) → 30 m/min (1,181.1 ipm) <25% UP>
- + Improved cutting capability due to higher spindle motor output



### GREENmode

#### GREEN device

- + High-brightness LED lights
- + Hydraulic pump with an inverter

#### GREEN idle reduction

- + Cut-off power of motors, pumps, etc., at the time of machine stop

#### GREEN control

- + Reduce machining power by energy-saving pecking cycles
- + Quicken standard M codes
- + Inverter-controlled coolant supply\*1
- + Turret rotation optimal control

### Energy-saving effects (compared with conventional machine)

Machining of flanges (86 pcs.)

	Cutting time (sec.)	Standby power (W)	Power consumption (kWh)	Lubricant oil consumption (cc)
Conventional machine	141	1,100	27.8	367
ALX 2000	108 Reduced by 23.4%	650 Reduced by 40.9%	24.1 Reduced by 13.3%	160 Reduced by 56.4%



Material <JIS>: S45C\*2

S45C: Carbon steel

JIS: Japanese Industrial Standard

### Contribution to sustainable production

### Reduction in CO<sub>2</sub> emissions by process integration and automation

Process integration and automation can ensure highly efficient production and shorter lead time.



\*1 Option

\*2 1045, 1046 (ANSI), C45, C45E, C45R (BS, DIN), 45 (GB)

ACCREDITED BY SBT\*2



### Carbon footprint reduction targets by 2030

#### Scope 1 and Scope 2

**-46.2%**

(Based on base year 2019, total emission volume base)

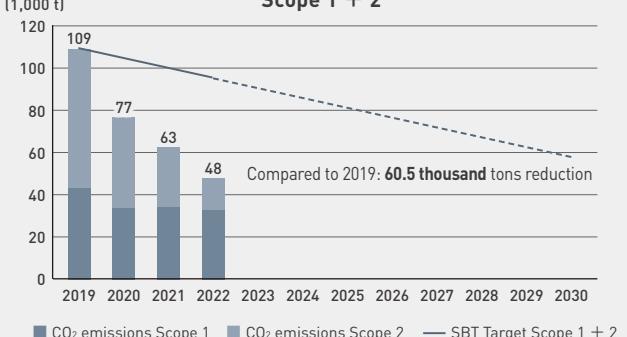
#### Scope 3

**-13.5%**

(Based on base year 2019, total emission volume base)

### Carbon footprint trend (SBT target value ratio)

#### Scope 1 + 2



\*3 Based on our research from publicly available information on on-site solar power generation for self-consumption.

## ALX Series

# DMG MORI's Connected Factories for Innovative Production: Connected Digital Technology

DMG MORI contributes to bringing IoT to your factories with DMG MORI Messenger, an application enabling visualization of machine operational status, and MORI-SERVER, a data input / output application.

## Example of use of DMG MORI Messenger

Contribute to the improvement of production processes by visualizing the operational status of machines linked to a network. Operational status can be checked anytime, anywhere via smartphones and tablet devices.\*

\* To check operating status via the Internet, it is required to use a VPN or the like to ensure a secure connection to the LAN.

### Live view function

- + Real-time remote monitoring of machine operational status (running status, program name, alarm status, axis coordinate, axial load)



### Notification function

- + Send e-mail notification of machine stop during automatic operation or long-term cutting at night to persons in charge



### Higher operation rate with the alarm

- + Contribute to the enhancement of productivity by displaying the causes of machine stop in order of descending frequency and resolving them in order



### Operation rate report for higher rate

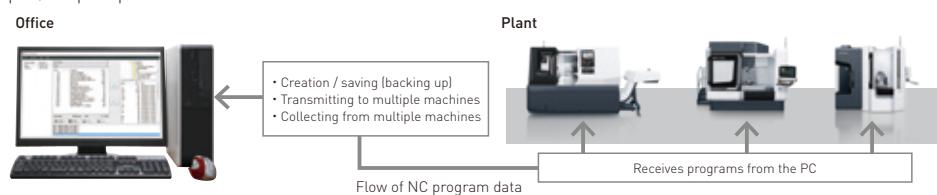
- + Contribute to boosting productivity by visualizing waste
- + Calculate the cost of each workpiece by grasping the machining time
- + Level the operation rates of machines to reduce lopsided overtime work of operators



## Application for Data Transmission MORI-SERVER

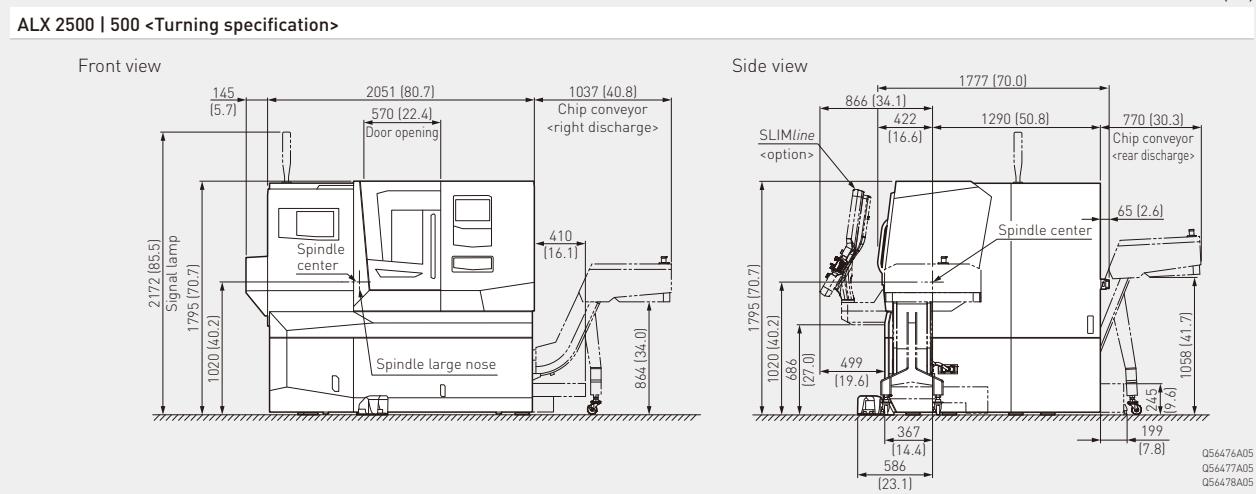
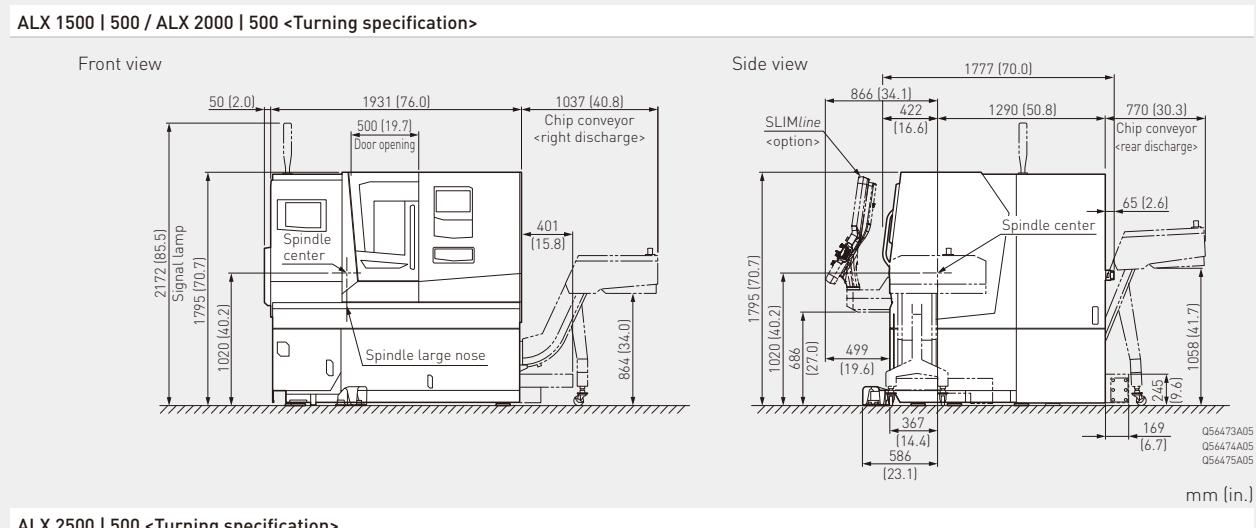
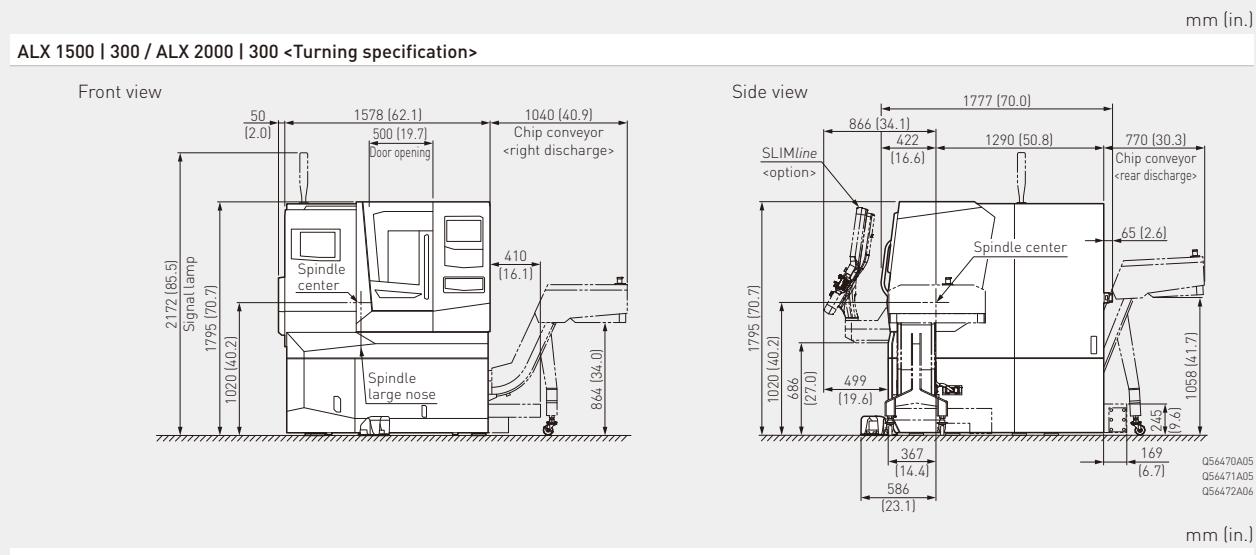
The MORI-SERVER enables the transfer of programming data between your office PC and a machine, reducing the lead time of pre-machining processes.

- + Quickly transfer the data created in a computer to machines
- + Realize easy storage of back-ups and high-speed input / output operation
- + Can collect programs in machines in a computer
- + Can input / output a large amount of data in a few seconds via LAN
- + Can perform input / output operation to multiple machines using a computer via LAN



ALX Series

# Machine Size

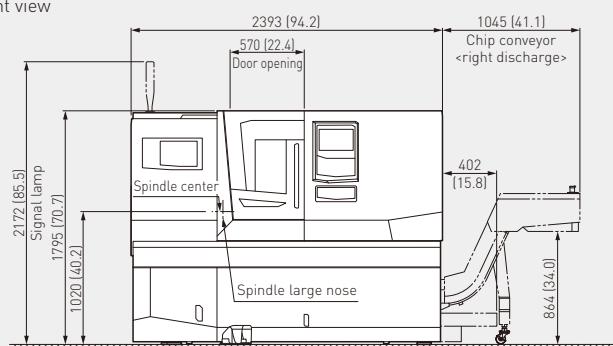


ALX Series

# Machine Size

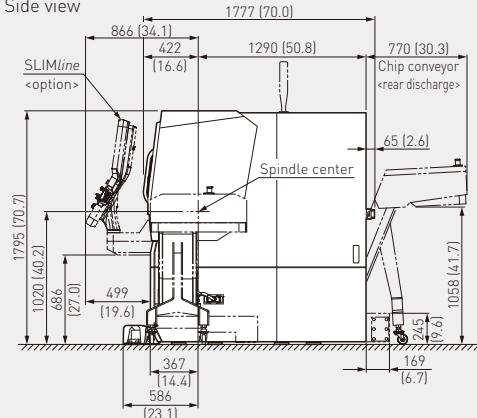
**ALX 1500 | 500 / ALX 2000 | 500 / ALX 2500 | 500 <Mill specification>**

Front view



mm (in.)

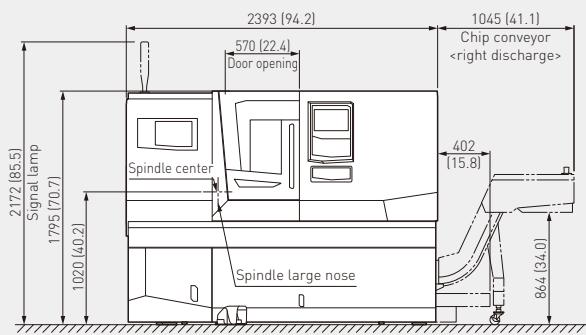
Side view



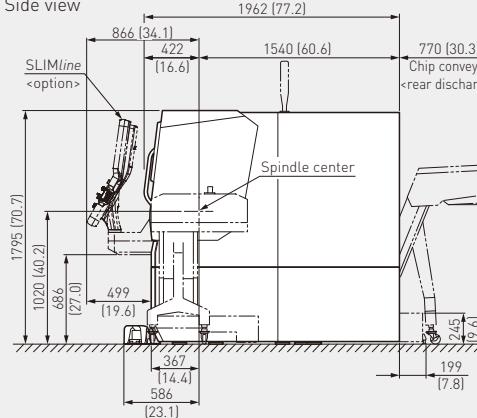
mm (in.)

Q56479A05  
Q56480A05  
Q56481A05**ALX 1500 | 500 / ALX 2000 | 500 / ALX 2500 | 500 <Y-axis specification>**

Front view



Side view



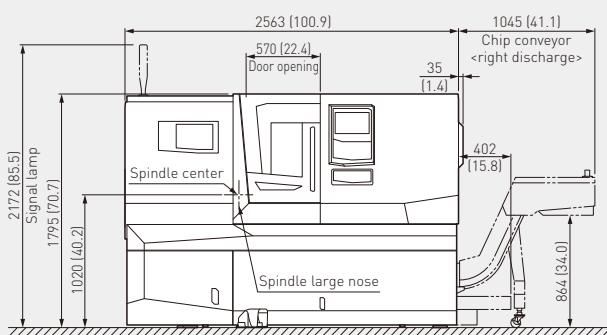
mm (in.)

Q56482A05  
Q56483A06  
Q56484A05

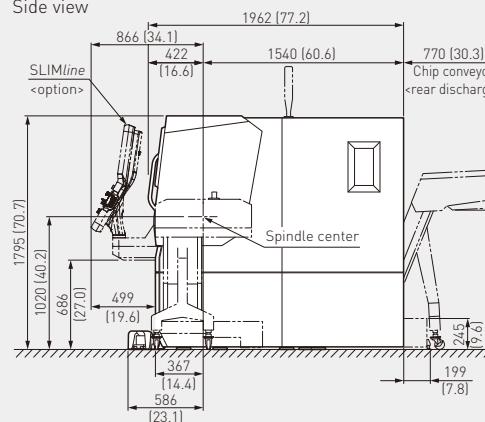
mm (in.)

**ALX 1500 | 500 / ALX 2000 | 500 / ALX 2500 | 500 <Mill + Right spindle specification, Y-axis + Right spindle specification>**

Front view



Side view

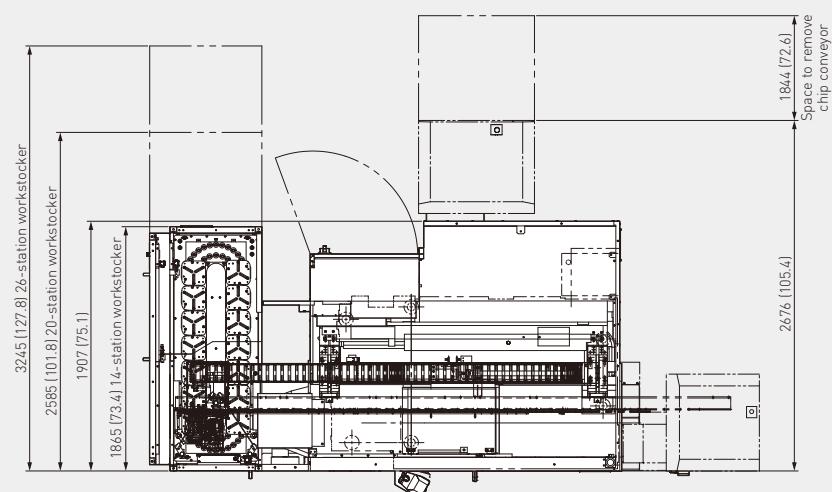
Q56485A05  
Q56486A05  
Q56487A05

mm (in.)

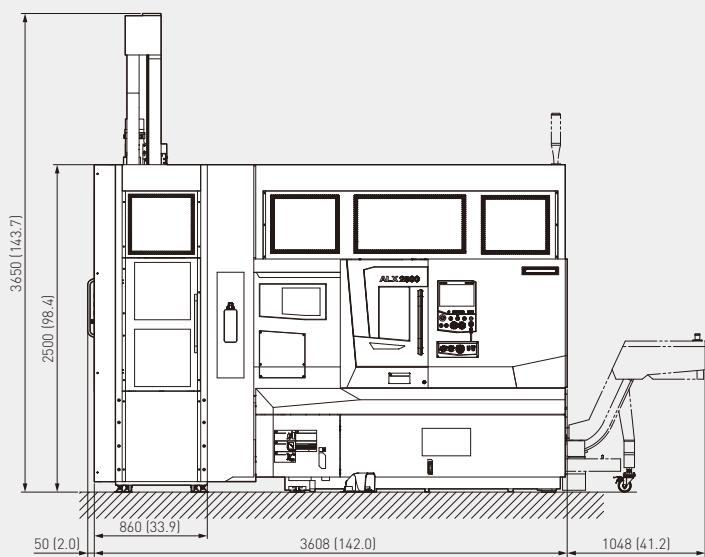
mm (in.)

Loader specification Workstocker left side (distance between centers 500 type / Milling specification, Y-axis specification)

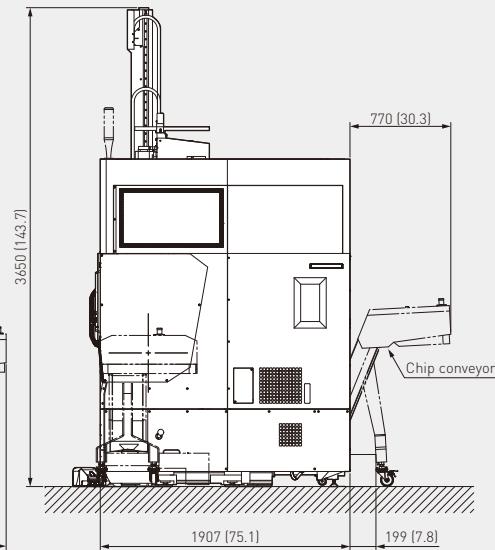
Plan view



Front view



Side view



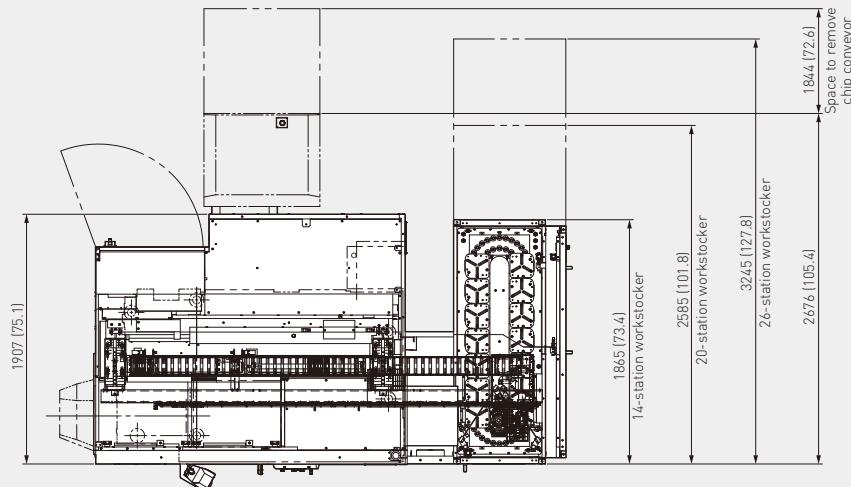
ALX Series

# Machine Size

mm (in.)

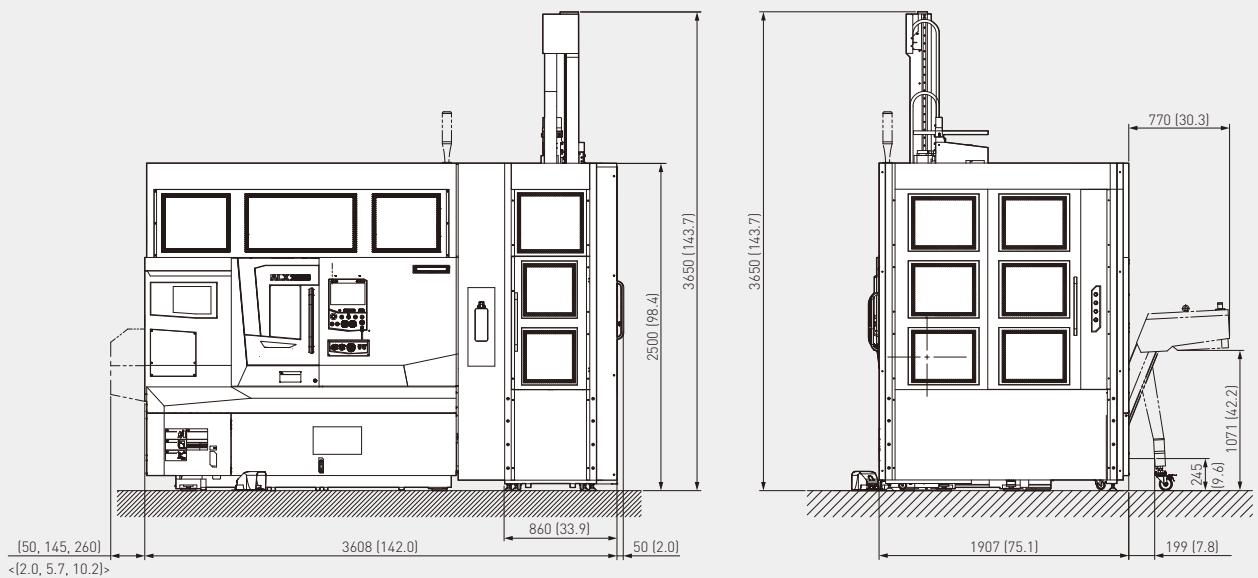
**Loader specification Workstocker right side (distance between centers 500 type / Milling specification, Y-axis specification)**

Plan view



Front view

Side view



**LS**: Left spindle  
**T**: Turret  
**TS**: Tailstock  
**MC**: Milling (option)  
**Y**: Y-axis (option)  
**RS**: Right spindle (option)

## ALX Series

# Machine Specifications

	ALX 1500   300		ALX 1500   500			
Basic specification	<b>LS</b> <b>T</b>	<b>LS</b> <b>T</b> <b>TS</b>	<b>LS</b> <b>T</b>	<b>MC</b> <b>(Y)</b>	<b>MC</b> <b>RS</b>	<b>MC</b> <b>Y</b> <b>RS</b>
<b>Capacity</b>						
Max. turning diameter*1*2	mm (in.)	440 (17.3) <12-station turret> 460 (18.1) <8- / 10-station turret>			386 (15.1)	
Max. turning length	mm (in.)	336 (13.2)		536 (21.1)		
Bar work capacity	mm (in.)			ø 52 (ø 2.0)		
<b>Travel</b>						
X-axis travel	mm (in.)	260 (10.2)		250 (9.8)		
Y-axis travel	mm (in.)		—	100 (3.9)	—	100 (3.9)
Z-axis travel	mm (in.)	375 (14.8)		575 (22.6)		
<b>Spindle</b>						
Max. spindle speed	min <sup>-1</sup>		6,000		Left spindle: 6,000 Right spindle: 7,000	
Type of spindle nose			JIS A <sub>2</sub> -5			
<b>Turret</b>						
Number of tool stations		12 <12-station turret> 8 <8-station turret> 10 <10-station turret>		12 <12-station turret> 20 <20-station turret>		
Shank height for square tool	mm (in.)	20 (3/4) <12-station turret> 25 (1) <8- / 10-station turret>		20 (3/4)		
Max. milling spindle speed	min <sup>-1</sup>	—		12,000		
<b>Feedrate</b>						
Rapid traverse rate	mm/min (ipm)	X, Z: 30,000 (1,181.1)	X, Z: 30,000 (1,181.1) C: 400 min <sup>-1</sup>	X, Z: 30,000 (1,181.1) Y: 10,000 (393.7) C: 400 min <sup>-1</sup>	X, Z, B: 30,000 (1,181.1) C: 400 min <sup>-1</sup>	X, Z, B: 30,000 (1,181.1) Y: 10,000 (393.7) C: 400 min <sup>-1</sup>
<b>Tailstock</b>						
Tailstock travel	mm (in.)	—	378 (14.9)	498 (19.6)		—
Taper hole of tailstock spindle		—	MT4 <live center>, MT5 <live center>, MT3 <built-in center>			—
<b>Motor</b>						
Spindle drive motor <10%ED / 10 min / 30 min, cont>	kW (HP)		15 / 11 / 7.5 (20 / 15 / 10)		Left spindle: 15 / 11 / 7.5 (20 / 15 / 10) Right spindle: 11 / 7.5 (15 / 10) <25%ED / cont>	
Milling spindle drive motor <1 min / 25%ED / cont>	kW (HP)	—		7.5 / 5.5 / 3.7 (10 / 7.5 / 5)		
<b>Machine size</b>						
Machine height <from floor>	mm (in.)		1,795 (70.7)			
Floor space <width × depth>	mm (in.)	1,628 × 1,777 (64.1 × 70.0)	1,981 × 1,777 (78.0 × 70.0)	2,393 × 1,777 (94.2 × 70.0)	2,393 × 1,962 (94.2 × 77.2)	2,598 × 1,962 (102.3 × 77.2)
Mass of machine	kg (lb.)	3,200 (7,040)	3,500 (7,700)	3,700 (8,140)	4,050 (8,910)	3,950 (8,690) 4,300 (9,460)
<b>Control unit</b>						
Mitsubishi Electric			M730UM			

JIS: Japanese Industrial Standard

\*1 For 20 square tool, the O.D. cutting tool overhang is 30 mm (1.2 in.).

\*2 For 25 square tool, the O.D. cutting tool overhang is 35 mm (1.4 in.).

● Depending on the hydraulic chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

● 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.

● Machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.

● For details, please check the Detailed Specifications.

● The information in this catalog is valid as of April 2023.

## ALX Series

# Machine Specifications

	ALX 2000   300	ALX 2000   500		
Basic specification	LS T	LS T TS	MC Y	LS T
Optional specifications	—	—	MC RS	MC Y RS
<b>Capacity</b>				
Max. turning diameter*1*2	mm (in.)	460 (18.1) <10-station turret> 460 (18.1) <8-station turret> 440 (17.3) <12-station turret>	366 (14.4)	
Max. turning length	mm (in.)	317 (12.4)	574 (22.5)	517 (20.3)
Bar work capacity	mm (in.)		ø 65 (ø 2.5)	
<b>Travel</b>				
X-axis travel	mm (in.)	260 (10.2)	250 (9.8)	
Y-axis travel	mm (in.)	—	100 (3.9)	—
Z-axis travel	mm (in.)	375 (14.8)	575 (22.6)	100 (3.9)
<b>Spindle</b>				
Max. spindle speed	min <sup>-1</sup>	4,500	Left spindle: 4,500 Right spindle: 7,000	
Type of spindle nose		JIS A <sub>2</sub> -6	Left spindle: JIS A <sub>2</sub> -6 Right spindle: JIS A <sub>2</sub> -5	
<b>Turret</b>				
Number of tool stations		10 <10-station turret>, 8 <8-station turret> 12 <12-station turret>	12 <12-station turret> 20 <20-station turret>	
Shank height for square tool	mm (in.)	25 (1) <10-station turret> 25 (1) <8-station turret> 20 (3/4) <12-station turret>	25 (1) <12-station turret> 20 (3/4) <20-station turret>	
Max. milling spindle speed	min <sup>-1</sup>	—	12,000	
<b>Feedrate</b>				
Rapid traverse rate	mm/min (ipm)	X, Z: 30,000 (1,181.1)	X, Z: 30,000 (1,181.1) Y: 10,000 (393.7) C: 400 min <sup>-1</sup>	X, Z, B: 30,000 (1,181.1) Y: 10,000 (393.7) C: 400 min <sup>-1</sup>
			X, Z, B: 30,000 (1,181.1) Y: 10,000 (393.7) C: 400 min <sup>-1</sup>	X, Z, B: 30,000 (1,181.1) Y: 10,000 (393.7) C: 400 min <sup>-1</sup>
<b>Tailstock</b>				
Tailstock travel	mm (in.)	—	378 (14.9)	498 (19.6)
Taper hole of tailstock spindle		—	MT4 <live center>, MT5 <live center>, MT3 <built-in center>	—
<b>Motor</b>				
Spindle drive motor <10%ED / 30 min / cont>	kW (HP)	22 / 15 / 11 (30 / 20 / 15)	Left spindle: 22 / 15 / 11 (30 / 20 / 15) Right spindle: 11 / 7.5 (15 / 10) <25%ED / cont>	
Milling spindle drive motor <1 min / 25%ED / cont>	kW (HP)	—	7.5 / 5.5 / 3.7 (10 / 7.5 / 5)	
<b>Machine size</b>				
Machine height <from floor>	mm (in.)	1,795 (70.7)		
Floor space <width X depth>	mm (in.)	1,628 × 1,777 (64.1 × 70.0)	1,981 × 1,777 (78.0 × 70.0)	2,393 × 1,777 (94.2 × 70.0)
Mass of machine	kg (lb.)	3,300 (7,260)	3,600 (7,920)	4,150 (9,130)
<b>Control unit</b>				
Mitsubishi Electric		M730UM		

JIS: Japanese Industrial Standard

\*1 For 20 square tool, the O.D. cutting tool overhang is 30 mm (1.2 in.). \*2 For 25 square tool, the O.D. cutting tool overhang is 35 mm (1.4 in.).

● Depending on the hydraulic chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

● 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.

● Machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.

● For details, please check the Detailed Specifications.

● The information in this catalog is valid as of April 2023.

**LS**: Left spindle  
**T**: Turret  
**TS**: Tailstock  
**MC**: Milling (option)  
**Y**: Y-axis (option)  
**RS**: Right spindle (option)

### ALX 2500 | 500

		<b>LS</b> <b>T</b> <b>TS</b>		<b>LS</b> <b>T</b>	
Basic specification		—	<b>MC</b>	<b>MC</b> <b>Y</b>	<b>MC</b> <b>RS</b>
<b>Capacity</b>					
Max. turning diameter*1	mm (in.)	460 (18.1)*2		366 (14.4)	
Max. turning length	mm (in.)	460 (18.1)		500 (19.6)	
Bar work capacity	mm (in.)			ø 80 (ø 3.1)	
<b>Travel</b>					
X-axis travel	mm (in.)	260 (10.2)		250 (9.8)	
Y-axis travel	mm (in.)	—		100 (3.9)	—
Z-axis travel	mm (in.)	535 (21.1)		575 (22.6)	
<b>Spindle</b>					
Max. spindle speed	min <sup>-1</sup>		3,500		Left spindle: 3,500 Right spindle: 7,000
Type of spindle nose			JIS A <sub>2</sub> -8		Left spindle: JIS A <sub>2</sub> -8 Right spindle: JIS A <sub>2</sub> -5
<b>Turret</b>					
Number of tool stations		10 <10-station turret> 12 <12-station turret> *3		12 <12-station turret> 20 <20-station turret>	
Shank height for square tool	mm (in.)	25 (1)		25 (1) <12-station turret> 20 (¾) <20-station turret>	
Max. milling spindle speed	min <sup>-1</sup>	—		12,000	
<b>Feedrate</b>					
Rapid traverse rate	mm/min (ipm)	X, Z: 30,000 (1,181.1)	X, Z: 30,000 (1,181.1) C: 400 min <sup>-1</sup>	X, Z: 30,000 (1,181.1) Y: 10,000 (393.7) C: 400 min <sup>-1</sup>	X, Z, B: 30,000 (1,181.1) Y: 10,000 (393.7) C: 400 min <sup>-1</sup>
<b>Tailstock</b>					
Tailstock travel	mm (in.)	378 (14.9)	498 (19.6)	—	
Taper hole of tailstock spindle			MT5 <live center> MT3 <built-in center> MT4 <built-in center>	—	
<b>Motor</b>					
Spindle drive motor <10%ED / 10 min, 30 min / cont>	kW (HP)		30 / 26 / 22 (40 / 34.7 / 30)		Left spindle: 30 / 26 / 22 (40 / 34.7 / 30) Right spindle: 11 / 7.5 (15 / 10) <25%ED / cont>
Milling spindle drive motor <1 min / 25%ED / cont>	kW (HP)	—		7.5 / 5.5 / 3.7 (10 / 7.5 / 5)	
<b>Machine size</b>					
Machine height <from floor>	mm (in.)			1,795 (70.7)	
Floor space <width X depth>	mm (in.)	2,196 × 1,777 (86.5 × 70.0)	2,393 × 1,777 (94.2 × 70.0)	2,393 × 1,962 (94.2 × 77.2)	2,598 × 1,962 (102.3 × 77.2)
Mass of machine	kg (lb.)	3,950 (8,690)	4,000 (8,800)	4,350 (9,570)	4,250 (9,350) 4,600 (10,120)
<b>Control unit</b>					
Mitsubishi Electric				M730UM	

JIS: Japanese Industrial Standard

\*1 For 25 square tool, the O.D. cutting tool overhang is 35 mm (1.4 in.).

\*2 445 mm (17.5 in.) over the cross slide.

\*3 It interferes with the standard chuck (10 inches) when the holder is for CL / SL / Dura and the adjacent station has an I.D. cutting tool.

● Depending on the hydraulic chuck / cylinder used and its restrictions, it may not be possible to reach full bar work capacity.

● 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.

● Machine size: the actual values may differ from those specified in the catalogue, depending on the optional features and peripheral equipment.

● For details, please check the Detailed Specifications.

● The information in this catalog is valid as of April 2023.

## ALX Series

# Standard & Optional Features

●: Standard features ○: Options  
—: Not applicable

	ALX 1500	ALX 2000	ALX 2500
LS T / LS TS	LS T (S) (M) / LS T (M) (RS) / LS T TS (W) (Y) / LS T MC (Y) RS	LS T / LS T (M) (RS) / LS T TS (M) (Y) / LS T MC (Y) RS	LS T TS (M) / LS T (M) (RS) / LS T TS (M) (Y) / LS T MC (Y) RS
Spindle			
6,000 min <sup>-1</sup> : 15 / 11 / 7.5 kW (20 / 15 / 10 HP) <10%ED / 10 min / 30 min, cont>	●	—	—
4,500 min <sup>-1</sup> : 22 / 15 / 11 kW (30 / 20 / 15 HP) <10%ED / 30 min / cont>	—	●	—
3,500 min <sup>-1</sup> : 30 / 26 / 22 kW (40 / 34.7 / 30 HP) <10%ED / 10 min, 30 min / cont>	—	—	●
Turret			
8-station bolt-tightened turret	○	—	—
10-station bolt-tightened turret	○	—	●
12-station bolt-tightened turret	●	●	○
20-station bolt-tightened turret	—	○	—
Milling spindle	12,000 min <sup>-1</sup> : 7.5 / 5.5 / 3.7 kW (10 / 7.5 / 5 HP) <1 min / 25%ED / cont>	—	●

	ALX 1500 / ALX 2000	ALX 1500 / ALX 2000 / ALX 2500			
	300 type	500 type			
Basic specification	LS T	LS T TS			
Optional specifications	—	— (MC) (MC) (Y) (MC) (RS) (MC) (Y) (RS)			
Right spindle					
7,000 min <sup>-1</sup> : 11 / 7.5 kW (15 / 10 HP) <25%ED / cont>	—	— (●) (●) (●) (●)			
Tailstock					
Programmable tailstock	Hydraulic cylinder type	—	●	●	●
Live center *1	MT4	—	● *2	● *2	● *2
	MT5	—	○ *3	○ *3	○ *3
Built-in center *4	MT3	—	○	○	○
	MT4	—	○ *5	○ *5	○ *5
Coolant					
Coolant system	350 / 550 W <50 / 60 Hz>	●	●	●	●
	800 / 1,100 W <50 / 60 Hz> *6	○	○	○	○
Bed cover chip flush coolant device	Equipped as standard when the rear-discharge chip conveyor is selected	○	○	○	○

**LS**: Left spindle  
**T**: Turret  
**TS**: Tailstock  
**MC**: Milling (option)  
**Y**: Y-axis (option)  
**RS**: Right spindle (option)

●: Standard features ○: Options  
 -: Not applicable

	ALX 1500 / ALX 2000		ALX 1500 / ALX 2000 / ALX 2500						
	300 type		500 type						
	<b>LS</b>	<b>T</b>	<b>LS</b>	<b>T</b>	<b>TS</b>	<b>MC</b>	<b>MC</b> <b>Y</b>	<b>MC</b> <b>RS</b>	<b>MC</b> <b>Y</b> <b>RS</b>
<b>Basic specification</b>									
<b>Optional specifications</b>									
<b>Coolant</b>									
High-pressure coolant system	800 / 1,100 W <50 / 60 Hz>	○	○	○	○	○	○	○	○
	1 / 1.5 MPa (145 / 217.5 psi), 1.1 / 2.2 kW (1.5 / 3 HP) <50 / 60 Hz>	○	○	○	○	○	○	○	○
Super-high-pressure coolant system (separate type)* <sup>8</sup>	3.5 MPa (507.5 psi)	○* <sup>7</sup>	○* <sup>7</sup>	○* <sup>7</sup>	○* <sup>7</sup>	○* <sup>7</sup>	○* <sup>7</sup>	○* <sup>7</sup>	○* <sup>7</sup>
	7.0 MPa (1,015 psi)	○* <sup>7</sup>	○* <sup>7</sup>	○* <sup>7</sup>	○* <sup>7</sup>	○* <sup>7</sup>	○* <sup>7</sup>	○* <sup>7</sup>	○* <sup>7</sup>
	Interface <7.0 MPa (1,015 psi), KNOLL / Interlit>	○	○	○	○	○	○	○	○
	Interface <7.0 MPa (1,015 psi)>	○	○	○	○	○	○	○	○
<b>Chip disposal</b>									
Manual chip scraping specification		●	●	●	●	●	●	●	●
Front pullout chip bucket specification		○	○	○	○	○	○	○	○
Chip conveyor interface	Right discharge	○	○	○	○	○	○	○	○
	Right discharge, hinge type	○	○	○	○	○	○	○	○
	Rear discharge, hinge type	○	○	○	○	○	○	○	○
	Right discharge, scraper type	○	○	○	○	○	○	○	○
	Rear discharge, scraper type	○	○	○	○	○	○	○	○
	Right discharge, magnet scraper type	○	○	○	○	○	○	○	○
	Rear discharge, magnet scraper type	○	○	○	○	○	○	○	○
<b>Measurement</b>									
Manual type in-machine tool presetter	Pivoting type (Left spindle)	○	○	●	●	●	●	●	●
	Removable type (Left spindle)	○	○	○	○	○	○	○	○
	Removable type (Right spindle)	-	-	-	-	-	●	●	●
Automatic in-machine tool presetter	Pivoting type (Left spindle)	○	○	○	○	○	○	○	○
In-machine measuring system	Touch sensor (optical signal transmission type) <RENISHAW>	○	○	○	○	○	○	○	○
Full closed loop control (Scale feedback)	X-axis / Z-axis	○	○	○	○	○	○	○	○
	Y-axis	-	-	-	○	-	○	-	○

\*1 The center is optional.

\*2 ALX 1500 / ALX 2000 only.

\*3 Equipped as standard for ALX 2500.

\*4 The center is standard.

\*5 ALX 2500 only.

\*6 Necessary if a rear discharge chip conveyor is selected. Necessary if chuck top coolant or a bed cover chip flushing coolant device is selected.

\*7 DMQP (DMG MORI Qualified Products)

\*8 When super-high-pressure coolant system is used, a coolant chiller is recommended. For details, please consult our sales representative.

● DMQP: Please see Page 30 for details.

● For details, please check the Detailed Specifications.

● The information in this catalog is valid as of March 2025.

● Specifications, accessories, safety device and function are available upon request.

● Some options are not available in particular regions. For details, please consult our sales representative.

**⚠ Flammable coolant such as oil-based coolant has a high risk of ignition, and will cause fire or machine breakage if ignited.  
If you have to use a flammable coolant for any reason, please be sure to consult our sales representative.**

LS	: Left spindle
T	: Turret
TS	: Tailstock
MC	: Milling (option)
Y	: Y-axis (option)
RS	: Right spindle (option)

## ALX Series

# Standard & Optional Features

●: Standard features ○: Options

	ALX 1500 / ALX 2000	ALX 1500 / ALX 2000 / ALX 2500				
	300 type	500 type				
	LS T	LS T TS	(MC)	(MC) Y	(MC) RS	(MC) Y RS
<b>Basic specification</b>						
Workpiece unloader (built-in type)	○	○	○	○	●	●
Robot	○	○	○	○	○	○
Bar feeder	○	○	○	○	○	○
GX-05	○	○	○	○	○	○
GX-10T	○	○	○	○	○	○
Ø 150 mm (Ø 5.9 in.) workstocker (number of pallet tables) 14, 20, 26 stations	○	○	○	○	○	○
Gantry-type loader						
Ø 200 mm (Ø 7.9 in.) workstocker (number of pallet tables) 10, 20 stations	○	○	○	○	○	○
Workstocker arrangement (right side / left side)	○	○	○	○	○	○
<b>Other</b>						
Chuck foot switch	Single	●	●	●	●	●
	Double	○	○	○	○	○
Built-in worklight (LED)		●	●	●	●	●
Signal lamp	4 colors (LED type: red, yellow, green, blue)	○	○	○	○	○
Signal lamp buzzer		○	○	○	○	○
Lubricant tank capacity	2 L (0.5 gal.)	●	●	●	●	●
Time accumulator display (machine uptime, program runtime)		●	●	●	●	●

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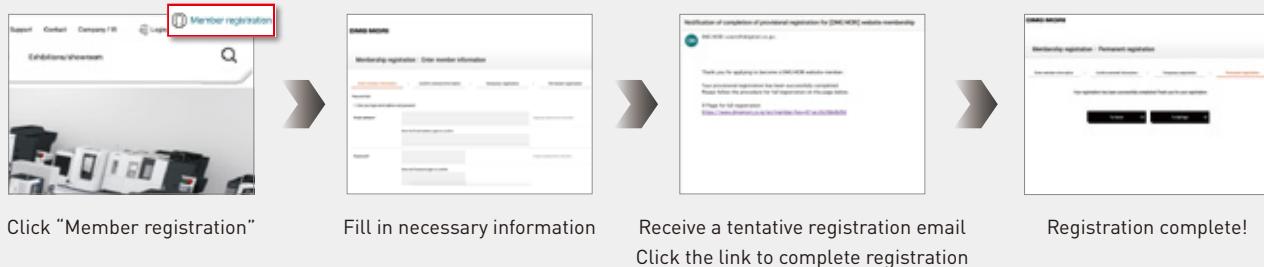
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