

DMG MORI

High-Precision, High-Efficiency Multi-Axis Turning Center

NZX 1500 | 800
NZX 2000 | 800

NZX 1500 / NZX 2000



NZX 1500 / NZX 2000

Precise Machining of High-performance Mass Production Parts

For fields requiring mass-production of high-performance parts such as automotive parts and hydraulic / pneumatic equipment, one of the top priority issues is how to reduce cycle times in mass production of complex parts.

The NZX 1500 and NZX 2000, turning center-based multi-axis turning centers, can be equipped with up to three turrets, each of which comes standard with the milling function. The NZX machines achieve high-efficiency machining of complex parts by utilizing the Y-axis function that can be mounted on all three turrets.





03

Automobiles

- 1** Camshaft
- 2** Brake drum

Construction machinery

- 3** Spool

Industrial machinery

- 4** Sleeve

Agricultural machinery

- 5** Flange

•Figures in inches were converted from metric measurements.

Applications and Parts

Highlights

Machine and Technology

Others

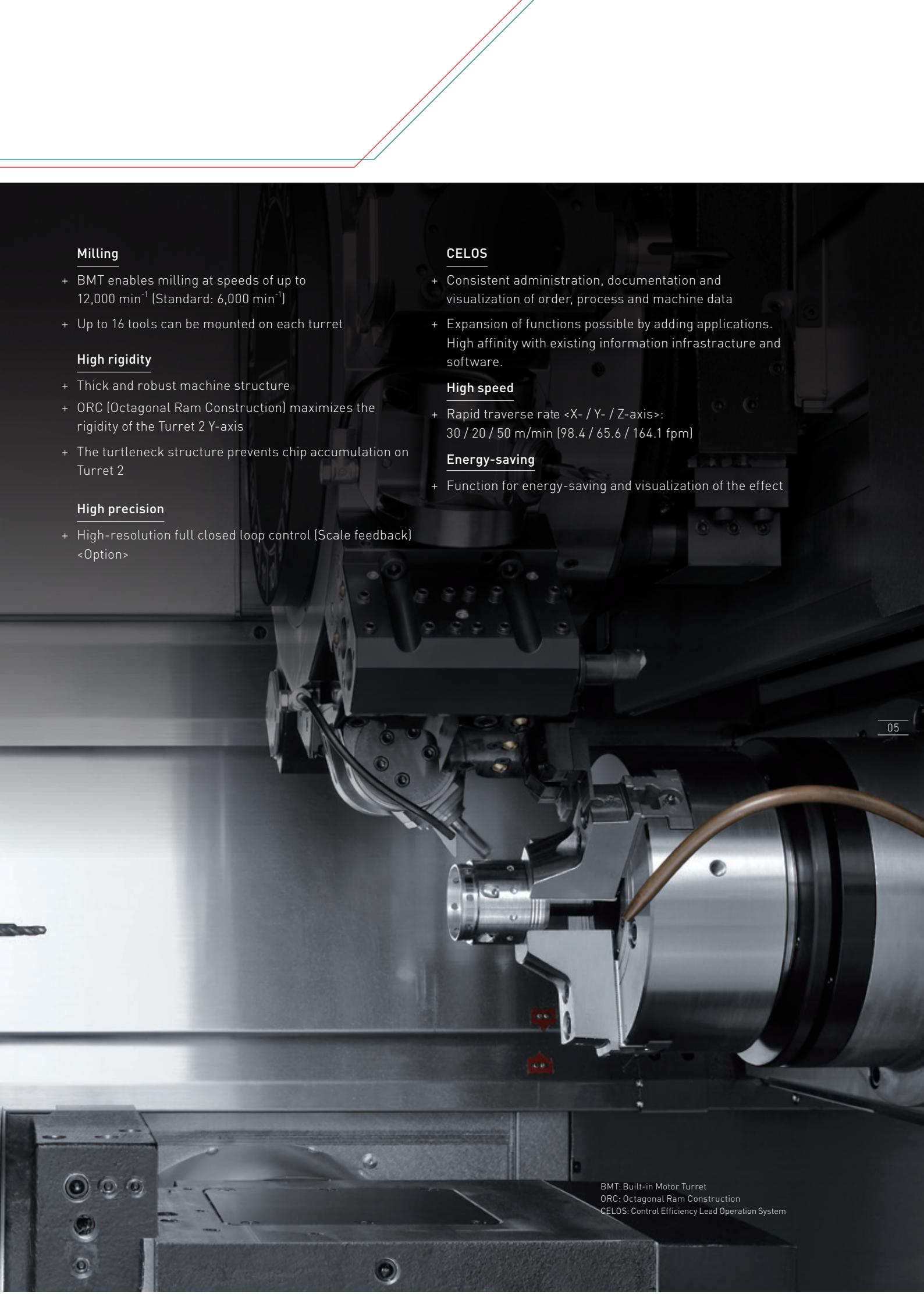
Machine specifications

NZX 1500 / NZX 2000

The Ultimate in Bar Machining Productivity

The NZX 1500 and NZX 2000 are designed with the innovative concept of handling an entire machining of complex parts on one machine.

The machines incorporate a variety of features to deliver unmatched efficiency and productivity in bar machining. The BMT (Built-in Motor Turret) used for all the turrets provides powerful milling, and the turtleneck structure employed on the Y-axis of Turret 2 ensures excellent chip disposal. Additionally, with the touch screen user interface CELOS, the NZX 1500 and NZX 2000 flexibly handle any conceivable situation in every production process.



Milling

- + BMT enables milling at speeds of up to $12,000 \text{ min}^{-1}$ (Standard: $6,000 \text{ min}^{-1}$)
- + Up to 16 tools can be mounted on each turret

High rigidity

- + Thick and robust machine structure
- + ORC (Octagonal Ram Construction) maximizes the rigidity of the Turret 2 Y-axis
- + The turtleneck structure prevents chip accumulation on Turret 2

High precision

- + High-resolution full closed loop control (Scale feedback)
<Option>

CELOS

- + Consistent administration, documentation and visualization of order, process and machine data
- + Expansion of functions possible by adding applications.
High affinity with existing information infrastructure and software.

High speed

- + Rapid traverse rate <X- / Y- / Z-axis>
 $30 / 20 / 50 \text{ m/min}$ ($98.4 / 65.6 / 164.1 \text{ fpm}$)

Energy-saving

- + Function for energy-saving and visualization of the effect

NZX 1500 / NZX 2000

Best Solutions for Your Shop Floor

The NZX 1500 and NZX 2000 provide solutions for higher machining accuracy, higher production efficiency by automation, better chip disposal, maintainability and setup performance.

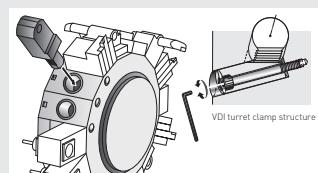
With various cutting-edge solutions, both machines demonstrate their capabilities to the full extent and achieve a higher level of machining.

DMG MORI offers the best solutions that solve your shop issues.

1

Turret

Various types of machining
Shorter setup time



16-station quick-change turret
(VDI 30/VDI 40)



Workpiece support

Workpiece support suitable for your workpiece and machining



Chuck

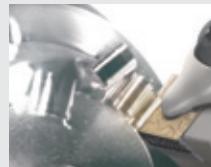


Center on Spindle 2

3

Spindle output

For heavy-duty cutting



High output <Spindle 1 / Spindle 2>
25 / 22 kW [33.3 / 30 HP]
<30 min / cont>

4

Tool holder

Higher efficiency by holders optimal for each machining



Hob cutting holder

5

Long workpieces

Chatter control



Alternating speed

6

Better setup performance

Drastically shortened setup time



Automatic in-machine tool presetter

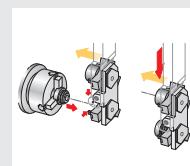
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Mass production, automation

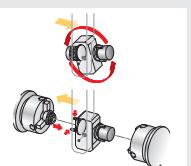
Versatility, labor saving, quick setup changes



Bar feeder



Loader system



Workpiece unloader

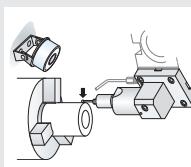
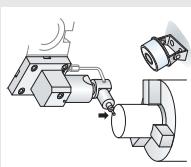


Robot system

8

Machining accuracy

Meeting high accuracy requirements

In-machine measuring system
(Measurement of workpiece diameter)In-machine measuring system
(Measurement of workpiece length)Full closed loop control
(Scale feedback)

Coolant chiller

9**11****9**

Cutting technology

Improving machining efficiency with Technology Cycles all at once



Gear hobbing



Excentric machining

10

Chip disposal

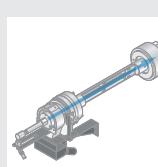
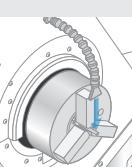
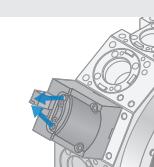
Higher cutting performance



Chip conveyor

Super-high pressure
coolant system

Coolant gun

Through-spindle coolant
systemCoolant in upper part of
chuck

Air blow (Tool tip)

11

Maintenance

Improved production efficiency by preventive maintenance



DMG MORI Messenger



Air dryer



Oil skimmer



Mist collector

07

NZX 1500 / NZX 2000

A Wide Range of Variations to Meet Market Needs

The NZX 1500 and NZX 2000 come standard with Spindle 2, and provide the 3-turret specification and the Y-axis specification as options.

Offering flexible specification options, the machines allow customers to select the ideal specifications according to their workpiece or production requirements, making themselves versatile for any production floor.



Variations

| | Basic specification | T1 | T2 | M1 | M2 | S1 | S2 |
|--------------------------------------|--------------------------------|---------|-----|--------------|-----|--------------|----|
| 2-turret specifications | Optional specifications | — | | Y1 | | Y1 | Y2 |
| | Turret 1 | X1 / Z1 | | X1 / Z1 / Y1 | | X1 / Z1 / Y1 | |
| | Turret 2 | X2 / Z2 | | X2 / Z2 | | X2 / Z2 / Y2 | |
| 3-turret specifications | Optional specifications | T3 | MC3 | T3 | MC3 | Y1 | Y2 |
| | Turret 1 | X1 / Z1 | | X1 / Z1 / Y1 | | X1 / Z1 / Y1 | |
| | Turret 2 | X2 / Z2 | | X2 / Z2 / Y2 | | X2 / Z2 / Y2 | |
| | Turret 3 | X3 / Z3 | | X3 / Z3 | | X3 / Z3 / Y3 | |
| Center shutter specifications | Optional specifications | DL | | | | Y1 | Y2 |
| | Turret 1 | X1 / Z1 | | | | X1 / Z1 / Y1 | |
| | Turret 2 | X2 / Z2 | | | | X2 / Z2 / Y2 | |

| | |
|--|--|
| <input checked="" type="checkbox"/> Standard | <input type="checkbox"/> Option |
| T1 : Turret 1 | T3 : Turret 3 |
| T2 : Turret 2 | MC3 : Milling (Turret 3) |
| MC1 : Milling (Turret 1) | Y1 : Y-axis (Turret 1) |
| MC2 : Milling (Turret 2) | Y2 : Y-axis (Turret 2) |
| S1 : Spindle 1 | Y3 : Y-axis (Turret 3) |
| S2 : Spindle 2 | DL : Center shutter specification |

The basic model is equipped with **T1**, **T2**, **MC1**, **MC2**, **S1** and **S2**

| | NZX 1500 800 | NZX 2000 800 |
|-----------------------------|---|---|
| Travel (X-axis) | mm (in.) | X1, X2, X3: 210 [8.2] |
| Travel (Y-axis) | mm (in.) | Y1, Y3: 110 [4.3] <+65, -45 [+2.5, -1.7]> Y2: 110 [4.3] <+45, -65 [+1.7, -2.5]> / 110 [4.3] <+65, -45 [+2.5, -1.7]>*1 |
| Travel (Z-axis) | 2-turret specifications 3-turret specifications Center shutter specifications | mm (in.) mm (in.) mm (in.) |
| | Z1, Z2: 810 [31.8] | Z1, Z3: 300 [11.8] <+ 100 (+ 3.9)*2> Z2: 810 [31.8] |
| B-axis travel (Spindle 2) | mm (in.) | Z1, Z2: 280 [11.0] |
| Max. spindle speed | min ⁻¹ | 900 [35.4] 870 [34.2] |
| Floor space (Width × Depth) | mm (in.) | 6,000 5,000 4,396 × 2,835 [173.1 × 111.6] 4,897 × 2,835 [192.8 × 111.6]*3 5,129 × 2,835 [201.9 × 111.6]*4 |

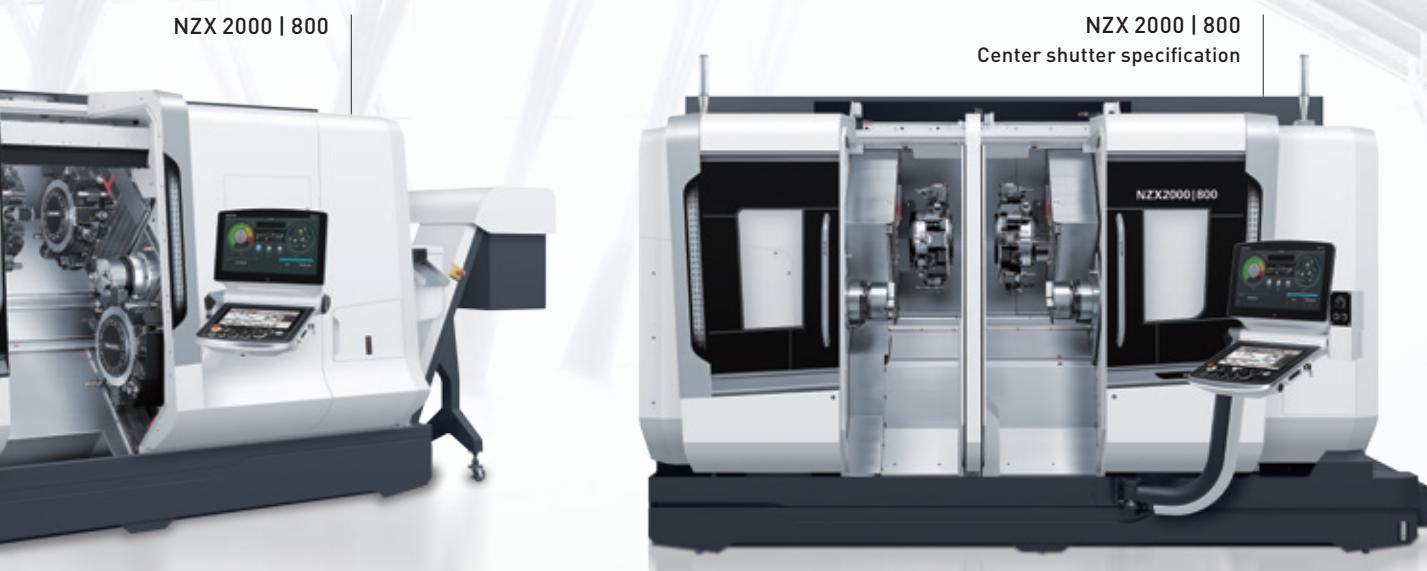
*1 Center shutter specification

*2 When one turret is moving in the plus direction, another turret moves in the minus direction.

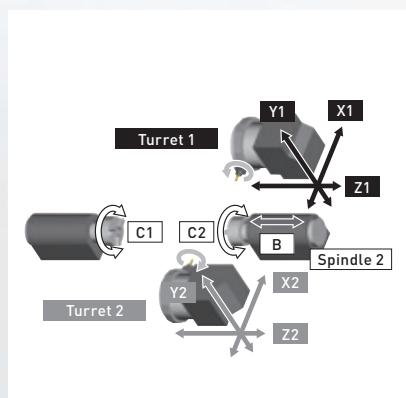
*3 Including chip conveyor (Right disposal)

*4 Including chip conveyor (Right disposal) <EN type>

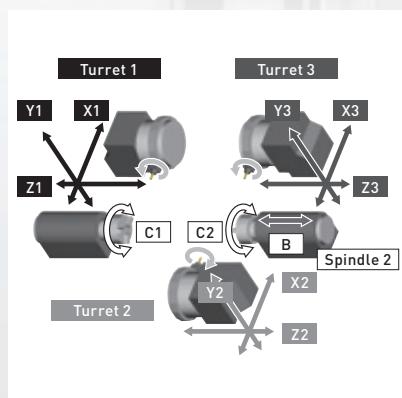
EN: European Norm (European Standards)



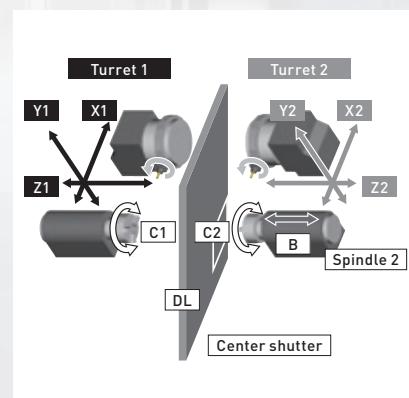
2-turret specifications



3-turret specifications



Center shutter specifications



NZX 1500 / NZX 2000

Basic Design — The Pursuit of High Rigidity

DMG MORI pursues high rigidity from the basic design stage.

For the Y-axis feed structure of Turret 2, the ORC (Octagonal Ram Construction) is used to offer superior damping performance and greater rigidity. The octagonal structure enables the slideways, which are located diagonally opposite each other, to generate heat evenly and offset thermal displacement. The thick and robust structure guarantees high-precision, chatter-free machining as well as thermally stable high-speed feed.

Robust bed

- + Thick and robust structure ensures high-precision machining.

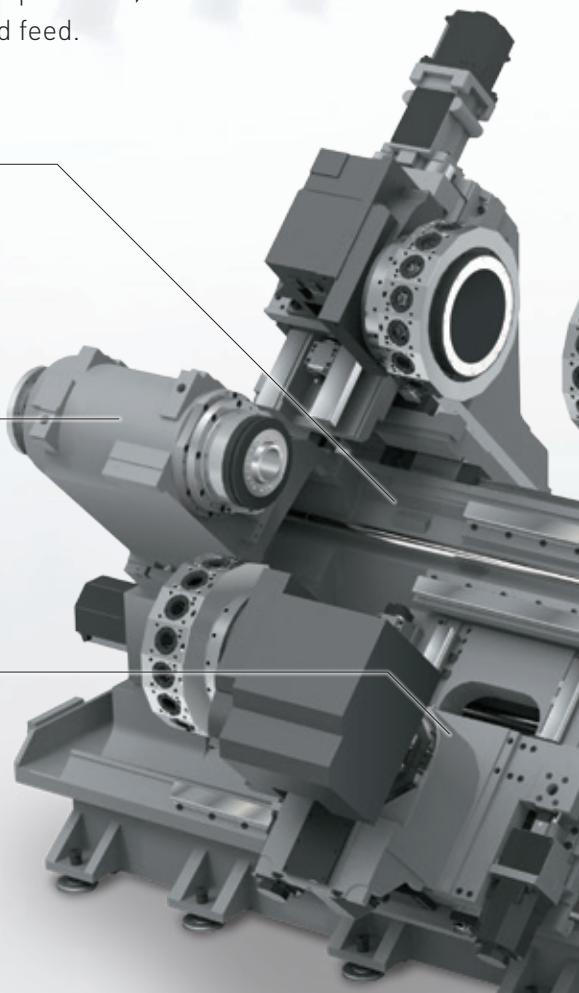
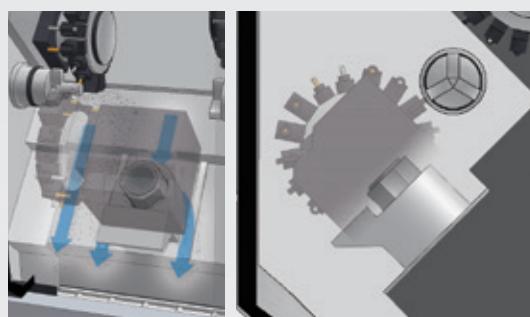
In-house manufactured high-rigidity spindles

- + Highly reliable spindles with controlled thermal displacement

Turtleneck structure

- + Thanks to the octagonal ram (ORC) used for the Turret 2 Y-axis, the axis guide space is minimized, eliminating chip accumulation and improving chip disposal.

ORC: Octagonal Ram Construction



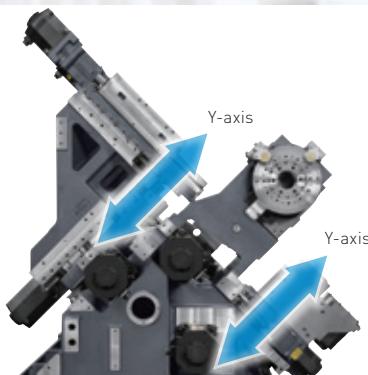
Turret

- + BMT with high energy transmission efficiency to control heat generation and vibration

BMT: Built-in Motor Turret

Orthogonal Y-axis

- + In the NZX 1500 and NZX 2000, all the Y-axes are orthogonal. This allows high-efficiency machining because of its excellent straightness and high-speed feed.

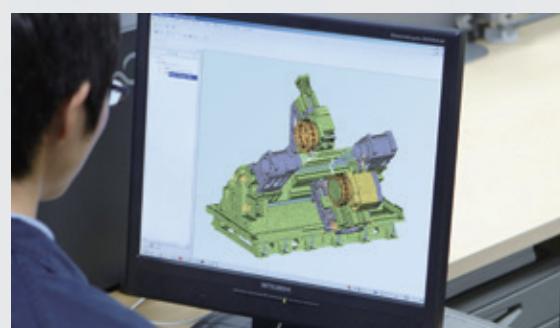


<3-turret, 3-Y-axis specifications>

FEM analysis

- + 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



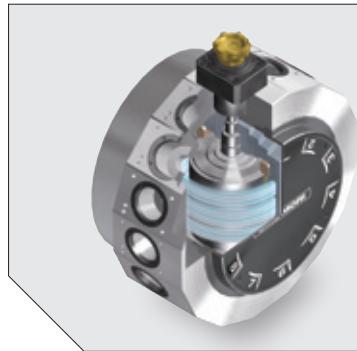
NZX 1500 / NZX 2000

Complete Thermal Displacement Control

Thermal displacement has a great impact on machining accuracy.

The major factors causing thermal displacement include heat generation during machining operation, ambient temperature changes and coolant temperature rises. DMG MORI thoroughly examines each of these factors from every angle, and takes original and comprehensive measures to control thermal displacement. For the spindle, the largest heat source, an oil jacket is coiled all over the spindle to suppress temperature rise in the spindle.





Built-in motor turret with oil jacket

The spiral oil jacket is also arranged around the rotary tool spindle motor on the turret to control thermal displacement caused by a temperature rise, achieving high machining accuracy.



Spindle cooling



A structure that maintains a uniform temperature around the spindle, the largest source of heat, has been adopted. In addition, the oil jacket coiled around the spindle fully to the rear suppresses spindle temperature rise.

Oil chiller

Temperature-controlled cooling oil is forcibly circulated into the spindle.



Super-high pressure coolant system

Super-high pressure coolant system (Separate type) <Option>

This is effective for chip disposal, cooling the machining point and extending tool life.

| | | |
|--------------------|-------------|--|
| Discharge pressure | MPa [psi] | 7.0 [1,015] |
| Discharge volume | L/min [gpm] | 50 Hz 48.6 [12.8] 60 Hz 48.6 [12.8] |



Coolant chiller (Separate type) <Option>

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

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.

Full closed loop control <Scale feedback> (Option)



- + Superior precision with the Magnescale full closed loop control (Scale feedback)
- + Magnetic measuring system with a high resolution of 0.01 µm
- + Resistance to oil and condensation due to a magnetic detection principle

- + Impact resistance of 450 m/s² (17,716.5 in./s²)
- + Vibration resistance of 250 m/s² (9,842.5 in./s²)
- + Thermal expansion coefficient as cast iron

Applications and Parts

Highlights

Machine and Technology

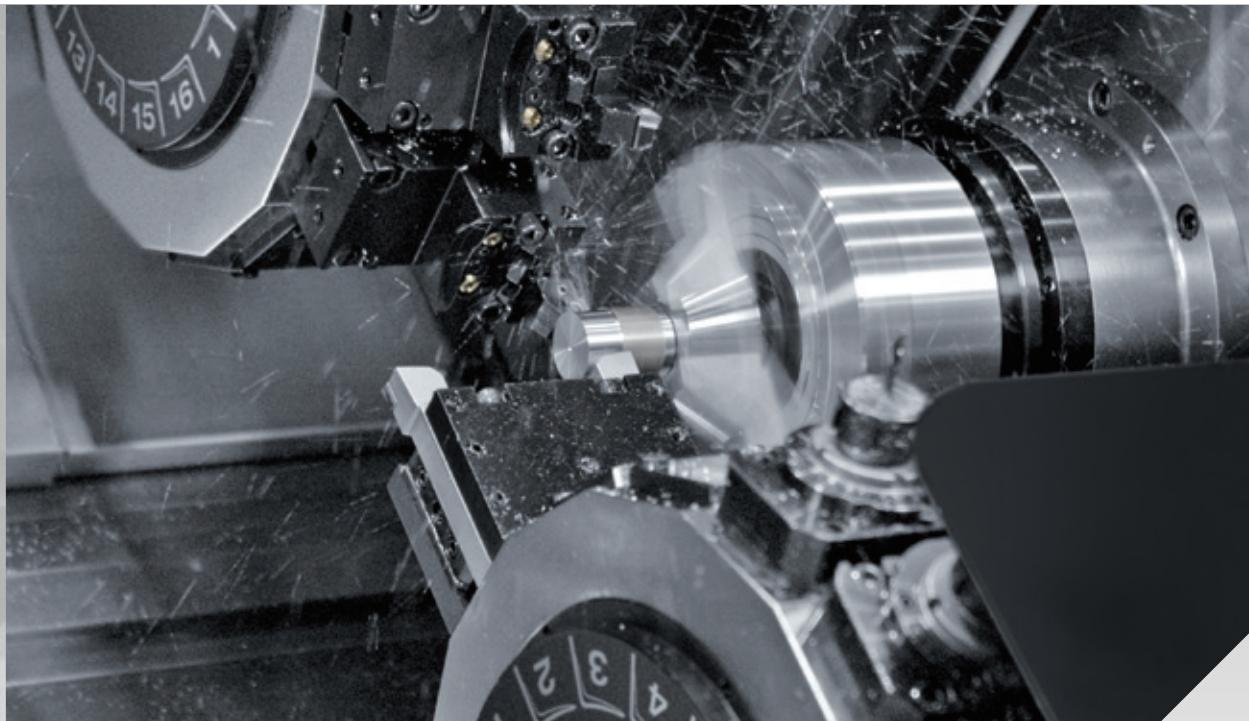
Others

Machine specifications

NZX 1500 / NZX 2000

High-performance Spindle to Respond to Customer Demand

Both Spindle 1 and Spindle 2 feature through-spindle holes of $\phi 61$ mm ($\phi 2.4$ in.) on the NZX 1500 and $\phi 73$ mm ($\phi 2.8$ in.) on the NZX 2000, and $\phi 91$ mm ($\phi 3.5$ in.) is optionally available for Spindle 1 of the NZX 2000. Moreover, the high-torque specification is offered as an option for both models and spindles to maximize the machines' performance in bar machining*. Automatic complete machining of complex workpieces is also possible when the machines are used in combination with a loader, bar feeder or workpiece ejector.



Spindle

| | | NZX 1500 800 | | NZX 2000 800 | | |
|---------------------------|------------------------------|--|---------------------|-------------------------------------|---------------------|--|
| Chuck size | inch | 6 [Spindle 1] | 6 [Spindle 2] | 8 [Spindle 1] | 8 [Spindle 2] | |
| Bar work capacity* | mm (in.) | $\phi 52 (\phi 2.0)$ | | $\phi 65 (\phi 2.5)$ | | |
| Max. spindle speed | min ⁻¹ | 6,000 | | 5,000 | | |
| Spindle drive motor | kW (HP) | 22 / 18.5 [30 / 24.7] <30 min / cont> 25 / 22 [33.3 / 30] <30 min / cont> | | 25 / 22 [33.3 / 30] <30 min / cont> | | |
| Spindle acceleration time | sec. (min ⁻¹) | 3.58 {0 → 6,000} | 3.65 {0 → 6,000} | 3.26 {0 → 5,000} | 3.18 {0 → 5,000} | |
| Spindle deceleration time | sec. (min ⁻¹) | 3.10 {6,000 → 0} | 3.10 {6,000 → 0} | 2.67 {5,000 → 0} | 2.65 {5,000 → 0} | |

● Measurements are with a chuck fitted.

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

Bar work capacity $\phi 80$ mm ($\phi 3.1$ in) Specifications <Option> <Spindle 1 only>

| | | NZX 2000 |
|---------------------|-------------------|-------------------------------------|
| Chuck size | inch | 10 [Spindle 1] |
| Bar work capacity* | mm (in.) | $\phi 80 (\phi 3.1)$ |
| Max. spindle speed | min ⁻¹ | 4,000 |
| Spindle drive motor | kW (HP) | 26 / 22 [34.7 / 30] <30 min / cont> |

● For 3-turret specifications: It is necessary to consider restrictions to make the tool tip go over the spindle center during I.D. boring with Turret 1 [Upper left] on the Spindle 1 side.

There are no restrictions on the turret stroke when machining is done with Turret 2 [Lower turret].

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

NZX 1500 / NZX 2000

Highly Productive Machining with Up To 3 Turrets and Y-axis

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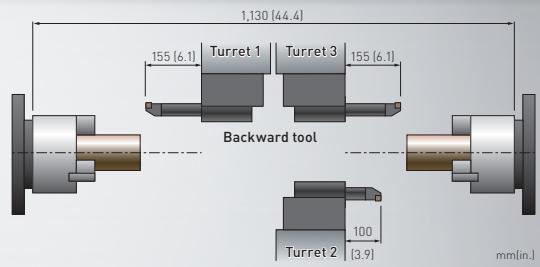
The NZX 1500 and NZX 2000 can be equipped with up to three turrets, and each turret can hold up to 16 tools, resulting in a maximum of 48 tools on three turrets.

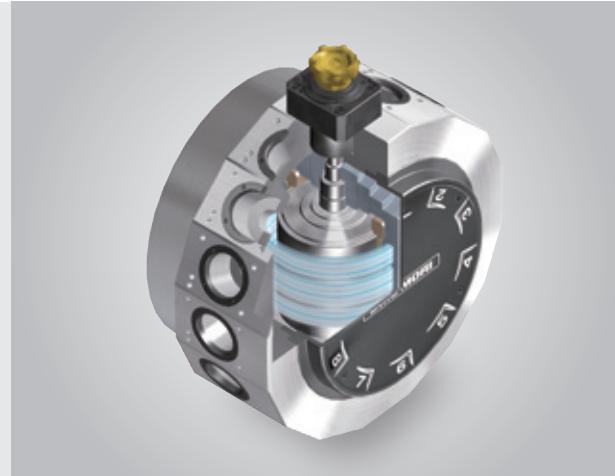
All of the turrets come equipped with a built-in motor with a maximum output of 7.5 kW (10 HP), which is 1.7 times greater than previous models, and offer a rotary tool spindle speed of up to $12,000 \text{ min}^{-1}$ (Option), which is fourfold faster than previous models.

By utilizing three turrets and the Y-axis function, the machines can reduce machining time by up to 70% compared with a general, single-turret turning center.

Working area

- + Distance between spindle large noses: 1,130 mm (44.4 in.)
- + Backward tool max. tool length: 155 mm (6.1 in.) <Turret 1, Turret 3>

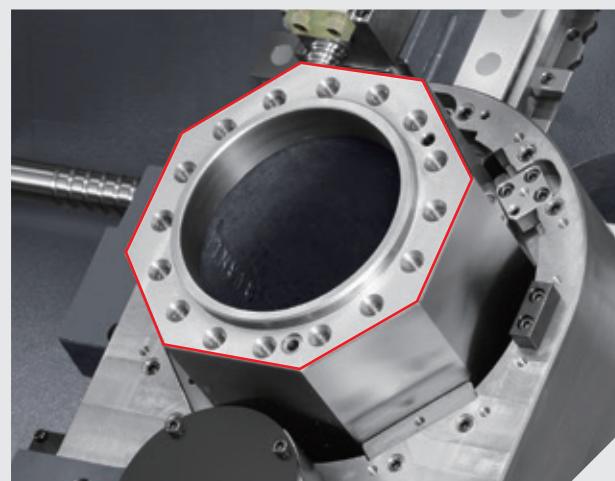




Built-in Motor Turret

The built-in structure, in which the motor is placed inside the turret, minimizes heat generation and vibration, improves transmission efficiency and significantly increases cutting power, speed and accuracy.

- + Improved milling power
- + Improved milling accuracy
- + Controls the turret's heat and vibration
- + Reduced energy loss
- + Turret temperature increases:
Compared with conventional machine 1/10 or less
- + Vibration amplitude:
Compared with conventional machine 1/3 or less

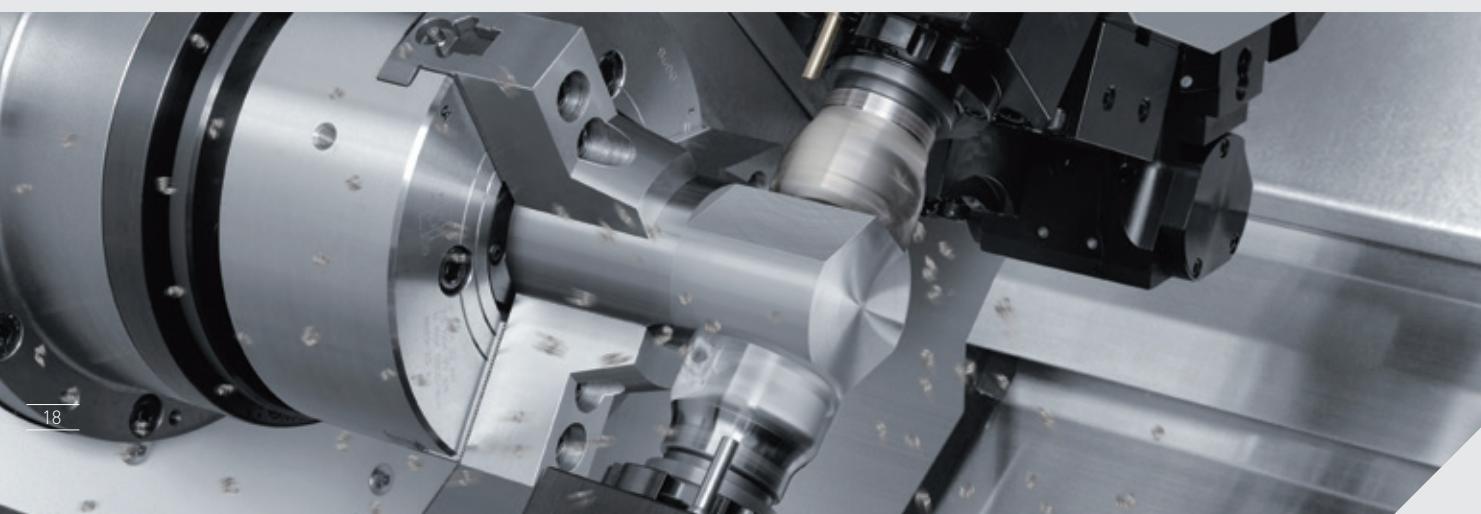
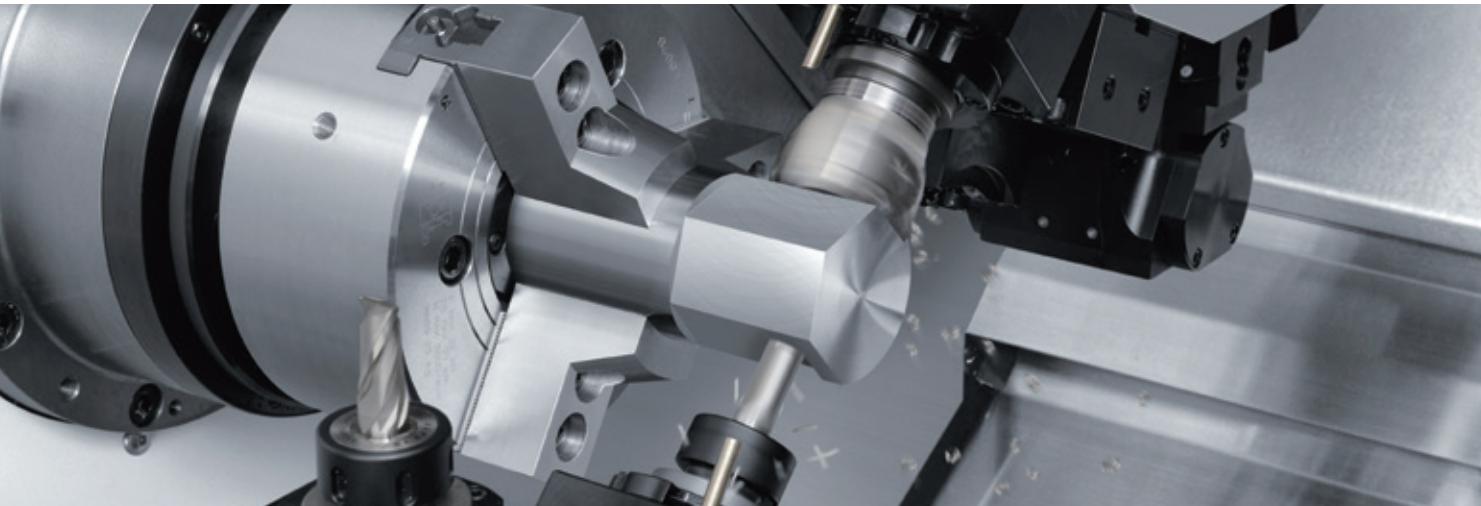


Octagonal Ram Construction

The 4 guideways are located diagonally from each other, so they distort symmetrically in response to the heat generated by high-speed travel. This means that the center stays in the same position, offering high-rigidity, high-precision feed.

- + Superior damping characteristics
- + Controls thermal displacement
- + Achieves high-rigidity, high-precision feed



[Applications and Parts](#)[Highlights](#)[Machine and Technology](#)[Others](#)[Machine specifications](#)

3 Turrets

The NZX 1500 and NZX 2000, which can be equipped with up to 3 turrets, can do a wide variety of machining on one machine. Since no setup change is required, the series has various advantages such as reducing work-in-process inventory and transfer costs, and eliminating accuracy deterioration between processes.

+ Max. number of tools (Turret 3 × 16 tools) 48 tools

| | | NZX 1500 / NZX 2000 |
|---------------------------------------|---------------------------|---|
| Max. rotary tool spindle speed | min ⁻¹ | 6,000, 12,000 |
| Turret indexing time (1-station) | sec. | 0.18 |
| Rotary tool spindle output | kW (HP) | 7.5 / 5.5 (10 / 7.5) <30 min / cont> |
| Rotary tool spindle acceleration time | sec. [min ⁻¹] | 0.09 (0 → 6,000) |
| Rotary tool spindle deceleration time | sec. [min ⁻¹] | 0.09 (6,000 → 0) |

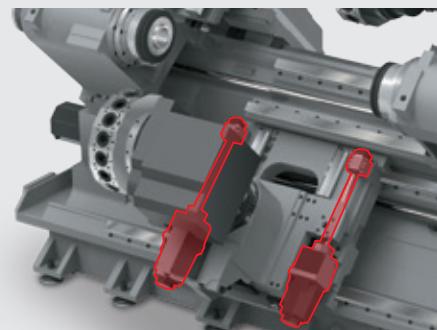
Turret 2 X-axis

Twin drive:

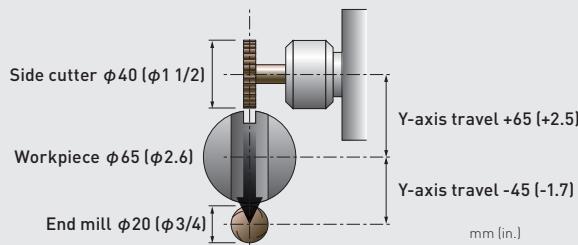
Twin drive is used for Turret 2's X-axis drive to achieve high speed and low vibration. Also, since the twin drive offers stable operation even with a wide saddle, the Y-axis which uses ORC can be located at the center.

Ball screw core cooling:

Through holes have been made in the core section of the ball screws, and a ball screw core cooling system using cooling oil to suppress thermal change has been adopted. While suppressing heat generation in the ball screws, this also circulates cooling oil around the entire support bearing, reducing generation of heat during high-speed rotation. In addition, cooling oil is circulated in the motor base, preventing heat from the motor being transmitted to the cast iron of the main body.



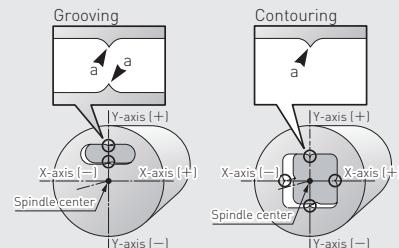
Y-axis control



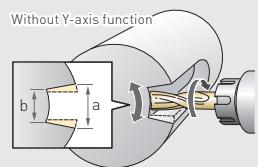
- + A $\phi 20$ mm ($\phi 3/4$ in.) end mill can cut right through the workpiece, without turning it over
- + Key way slotting is possible with a $\phi 40$ mm ($\phi 1 \frac{1}{2}$ in.) side cutter

Comparison between polar coordinate interpolation and Y-axis control

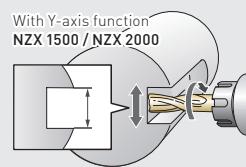
On traditional turning centers with the milling function, grooving and contouring are performed in the polar coordinate interpolation mode. With polar coordinate interpolation, the X-axis movement reverses at the intersections (a) between the workpiece center line and the profile, which changes cutting conditions and affects form accuracy. With Y-axis control, on the other hand, form accuracy is not affected by cutting condition changes, thus ensuring high form accuracy.



Key way milling using a turning center with the Y-axis function

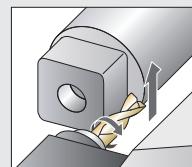


Adjusting the key way width at the outside (a) and the inside (b) is difficult.

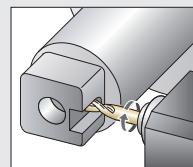


The key way width can be adjusted with the Y-axis function.

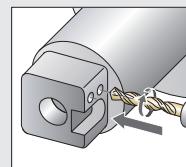
Bar machining with Y-axis control



1.Side milling



2.Off-center keyway milling



3.Off-center drilling

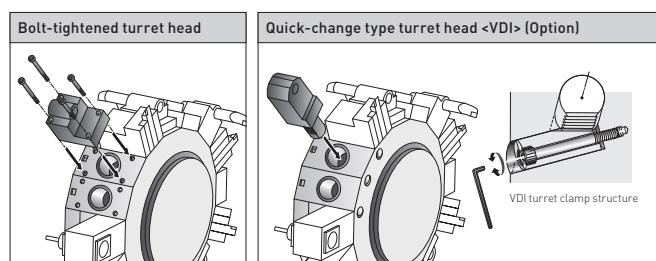


● The photo shows the bolt-tightened turret head

Tool changing

A bolt clamp type turret that provides higher rigidity is adopted for turrets 1, 2 and 3. Quick change type turrets compatible with VDI tools are available as an option.

(For tool holders, please use DMG MORI specified products.)



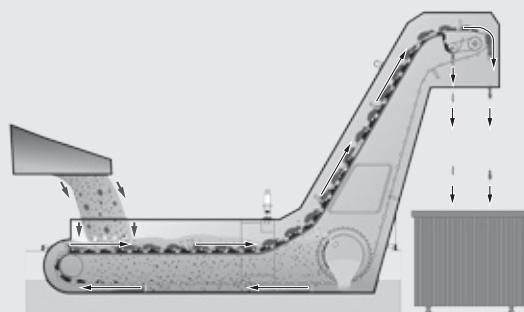
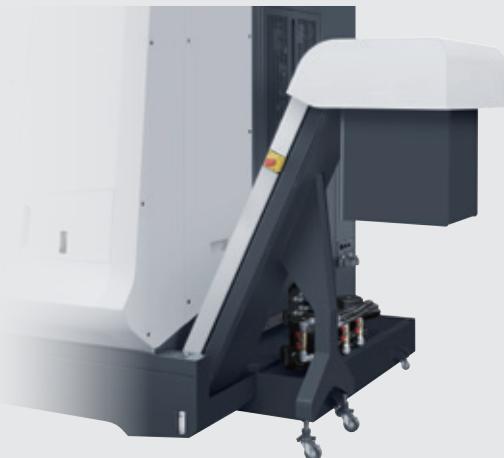
NZX 1500 / NZX 2000

Cutting-edge Chip Disposal Solution

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.



Hinge type + Drum filter type chip conveyor

Handling of different types of chips and coolant filtration (Option)

With the hinge type conveyor for long chips and the cleats [Scrapers] on the hinge belt for short and fine chips, the conveyor can handle any type of chip regardless of size and material.

The filter with the low-maintenance automatic washing function ensures high accuracy coolant filtration.

Chip conveyor (Option)

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

| Workpiece material | Steel | 20 mm (0.8 in.) | |
|-------------------------------|-------|-----------------|---------|
| Chip form | Long | Short | Powdery |
| Hinge type + Drum filter type | ○ | ○ | △* |
| Hinge type | ○ | — | — |
| Scraper type | — | ○ | △* |
| Magnet scraper type | — | ○ | △* |

* 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.

- Please consult our sales representative if the chip length exceeds 200 mm (7.9 in.).

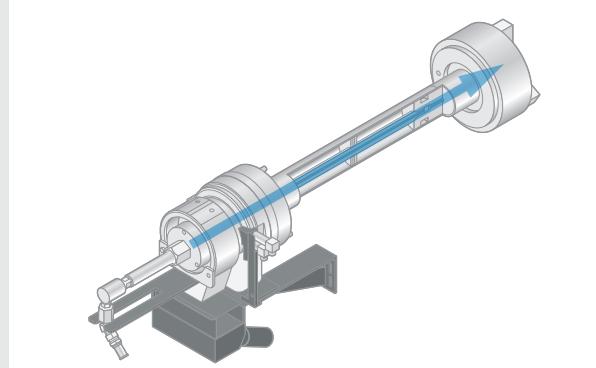
● [Chip size criteria] Powdery: minute particles / Short: 50 mm (2.0 in.) or less in length, $\phi 40$ mm ($\phi 1.6$ in.) or less in diameter (A lump of chips) / Long: over 50 mm (2.0 in.)

The coolant tank pulls out to the front



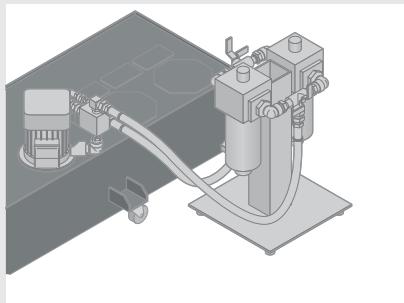
With the new design, the coolant tank can be pulled out in front without having to pull out the chip conveyor. It can be pulled out easily and does not take up extra space in the back.

Through-spindle coolant system (Option)



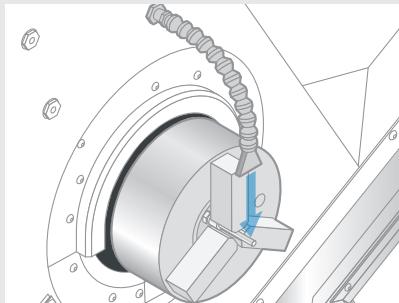
Coolant supplied through the center of the chuck removes chips generated during I.D. machining.

Coolant line filter (Option)



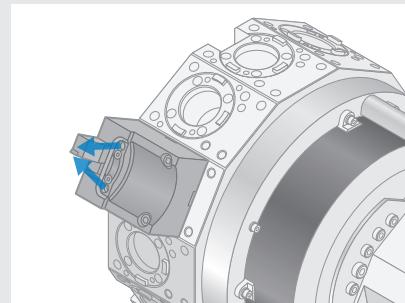
It removes foreign matter in the coolant coming from the coolant pump. The filter clogging detection function is available.

Coolant in upper part of chuck (Option)



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

Air blow (Tool tip) (Option)



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

○: Suitable △: Consideration required —: Not suitable

| Cast iron | | 20 mm (0.8 in.) | Aluminum, non-ferrous metal | | 20 mm (0.8 in.) |
|-----------|---------|-----------------|-----------------------------|-------|-----------------|
| Short | Powdery | | Long | Short | Powdery |
| | | | | | |
| ○ | △* | | ○ | ○ | △* |
| — | — | | ○ | — | — |
| ○ | — | | — | — | — |
| ○ | — | | — | — | — |

- 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 to suit 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.

NZX 1500 / NZX 2000

Pursuit of Usability

In order to achieve greater operating efficiency, DMG MORI incorporated various technologies and features throughout the machines focusing on operability and maintainability. We have reduced MTTR (Mean Time To Repair) through an in-depth analysis of customer needs, which include a wide door opening for improved work efficiency and ease of maintenance. Necessary improvements to make daily and periodic inspections easier were also made so that the machines can always run in the best condition.

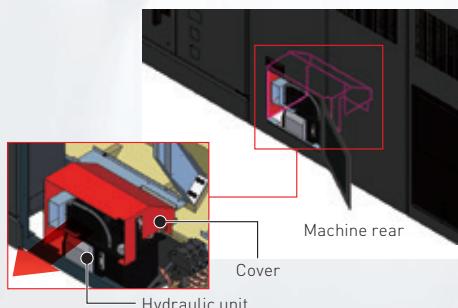
Manual Display

Manuals can be displayed on the CELOS screen, on which the operator can perform a keyword search or jump to a linked page in the same way as on a PC. This function is particularly useful when the operator needs to view manuals during maintenance or other work.

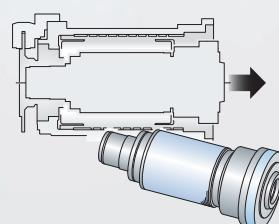


Heat-shielding layout

Covering the hydraulic unit prevents heat from being transmitted to the machine



Replacement of spindle unit



By changing the spindle unit to a cartridge, we have dramatically reduced replacement time.

Swivel-type operation panel

The swivel, touch screen operation panel offers improved operability and outstanding accessibility to the spindle and workpiece.



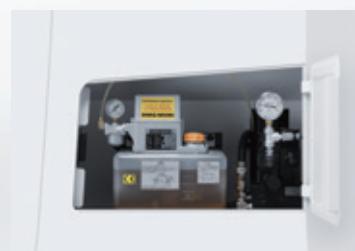
Air devices

Pneumatic equipment requiring periodic maintenance is placed at the right side of the machine for better maintainability.



Lubricating oil tank (For slideways) / Chuck pressure gage

The supply port of the lubricating oil tank for slideways is located on the front side of the machine to allow for easier refilling. Chucking pressure can also be adjusted on the front side.



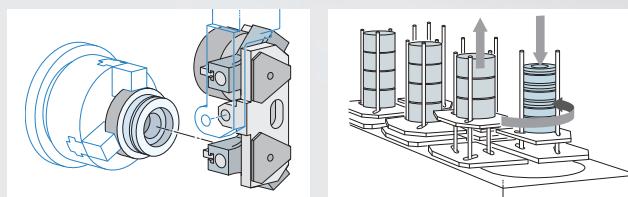
NZX 1500 / NZX 2000

Solutions Best Matched to Customers' Needs

The NZX 1500 and NZX 2000 offer various types of automation systems including a gantry loader, workpiece unloader and bar feeder. The models complete an entire process from the supply of raw materials to the ejection of finished workpieces on one machine, which contributes to shortening non-cutting time and bringing profits for customers.



LG-10 (Gantry loader) (Option)



We have prepared the LG-10 that has a separate type workpiece stocker.

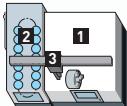
| Loader type | | | LG-10 |
|---------------|-------------------------------|--|----------------------------|
| Gantry loader | Max. travel speed | X-axis <Hand up / down> Z-axis <Loader unit left / right> | m/min [fpm] m/min [fpm] |
| Loader hand | Model | | Parallel hands |
| | Max. transfer mass | | 10 kg (22 lb.) X 2 |
| | Applicable workpiece diameter | mm (in.) | φ40 - φ200 (φ1.6 - φ7.9) |
| | Applicable workpiece length | mm (in.) | 20 - 150 (0.8 - 5.9) |
| Work stocker | Number of pallet tables | Pallet | 10, 20 |
| | Max. workpiece mass | kg (lb.) / Pallet | 75 (165) |
| | Max. workpiece stacked height | mm (in.) | 470 (18.5) |
| | Applicable workpiece diameter | mm (in.) | φ40 - φ200 (φ1.6 - φ7.9) |

- 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 φ40 mm (φ1.6 in.), or a workpiece length is less than 20 mm (0.8 in.).

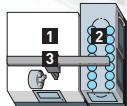
Gantry-type loader system variations

Specifications

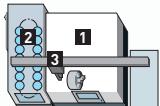
Type A I



Type A II



Type A III



Units

1 Machine

2 Work stocker

3 Loader

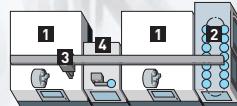
4 Turnover unit

Other specifications <Consultation is required>

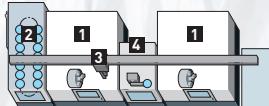
Type C I



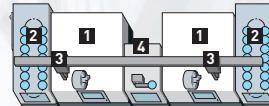
Type C II



Type C III



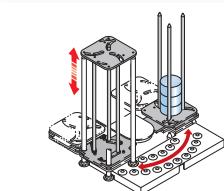
Type E III



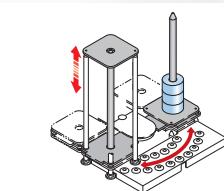
- Separate consultation is required for hollow cylinder specifications.
(Type A I, Type A III, Type C I, Type C III, Type E III)

Work stocker <Consultation is required>

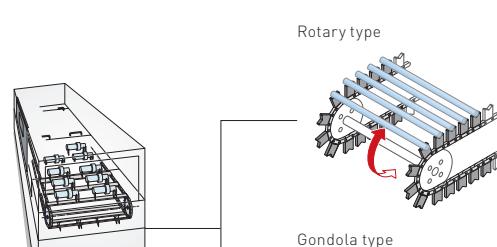
3-guide specification



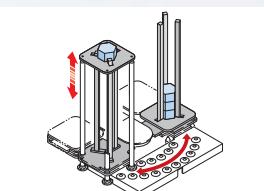
Center-guide specification



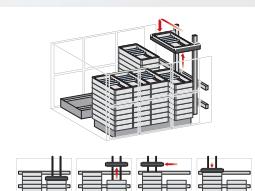
Shaft pitch feed conveyor



Hexagonal bar guide specification

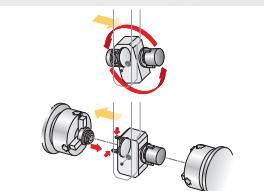


Tray changer

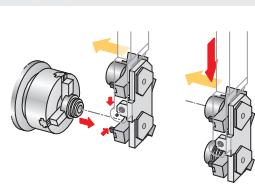


Loader hand <Consultation is required>

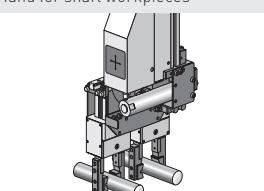
Back end hands



Parallel hands

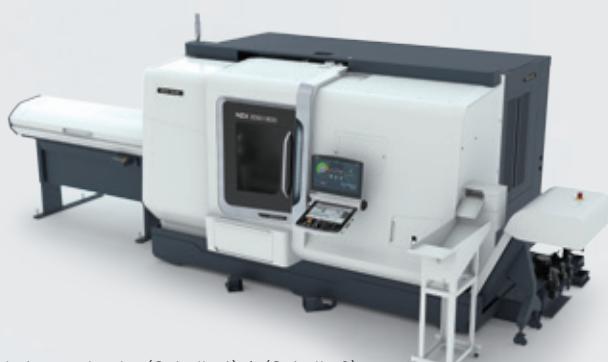


Hand for shaft workpieces



Bar feeder system <Consultation is required>

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



<Workpiece unloader (Spindle 1) + (Spindle 2)>

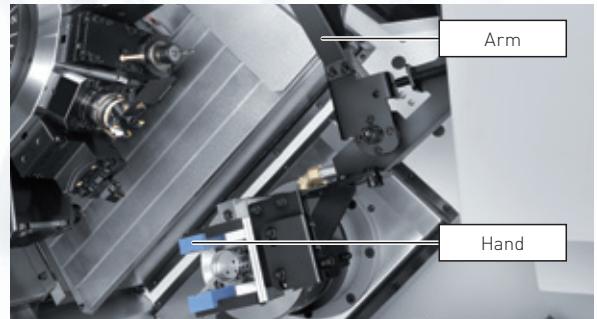
Workpiece unloader (Option)

Three types of workpiece unloaders are available.

In-machine traveling type workpiece unloader



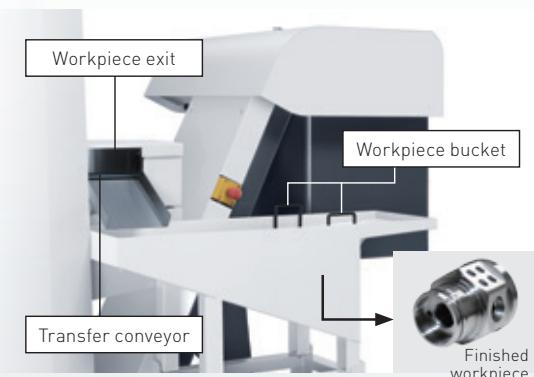
Spindle 1 side



Spindle 2 side

- + Device to promptly and securely unload a workpiece
- + The unloader can access both Spindle 1 and Spindle 2

| Specifications | Hand type | Bucket type |
|-------------------------------------|---|-------------|
| Maximum workpiece diameter mm (in.) | $\phi 10$ ($\phi 0.3$) - $\phi 80$ ($\phi 3.1$) | |
| Maximum workpiece length mm (in.) | | 150 (5.9) |
| Max. transfer mass kg (lb.) | | 5.0 (11) |
| Max. travel speed [Z-axis] m/min | | 150 |



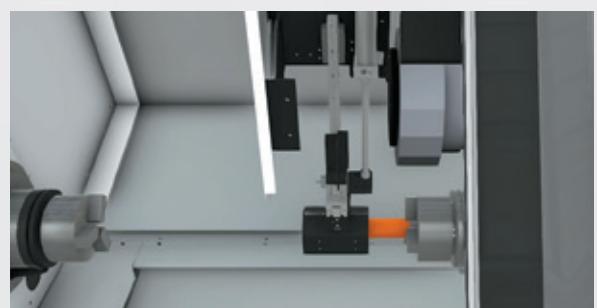
Workpiece unloader (Spindle 1)

A workpiece is received by the receiver from Spindle 1 and ejected to the workpiece bucket on the front side of the machine.



Workpiece unloader (Spindle 2)

A workpiece is received by the receiver from Spindle 2 and ejected to the workpiece transfer conveyor on the right side of the machine.



Specifications

| Workpiece diameter | mm (in.) |
|--------------------------|----------|
| Workpiece diameter | mm (in.) |
| Maximum workpiece length | mm (in.) |
| Max. transfer mass | kg (lb.) |

Workpiece unloader (Spindle 1)

| |
|---------------------------------|
| $\phi 80$ ($\phi 3.1$) <Max.> |
| 190 (7.4) |
| 5.0 (11) |

Workpiece unloader (Spindle 2)

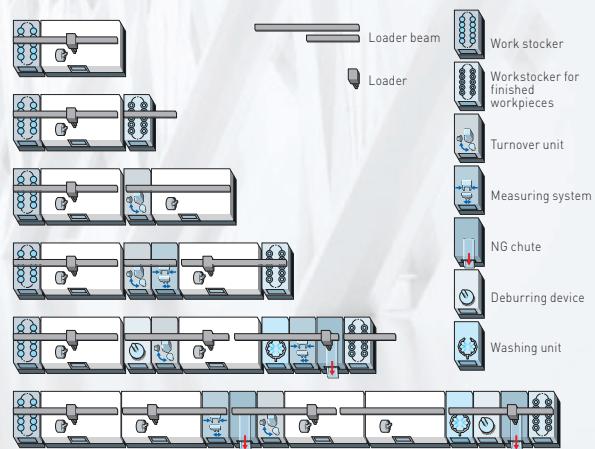
| |
|---|
| $\phi 10$ ($\phi 0.4$) - $\phi 80$ ($\phi 3.1$) |
| 150 (5.9) |
| 3.0 (6.6) |

Modularized Peripheral Devices

All units [Peripherals] that make up the gantry-type loader system, including a transfer unit, workpiece stocker and on-machine measuring system, have been modularized to standardize their sizes. This allows system installation in the shortest time as well as flexible layout change according to changes in production requirements, which used to be difficult to achieve.

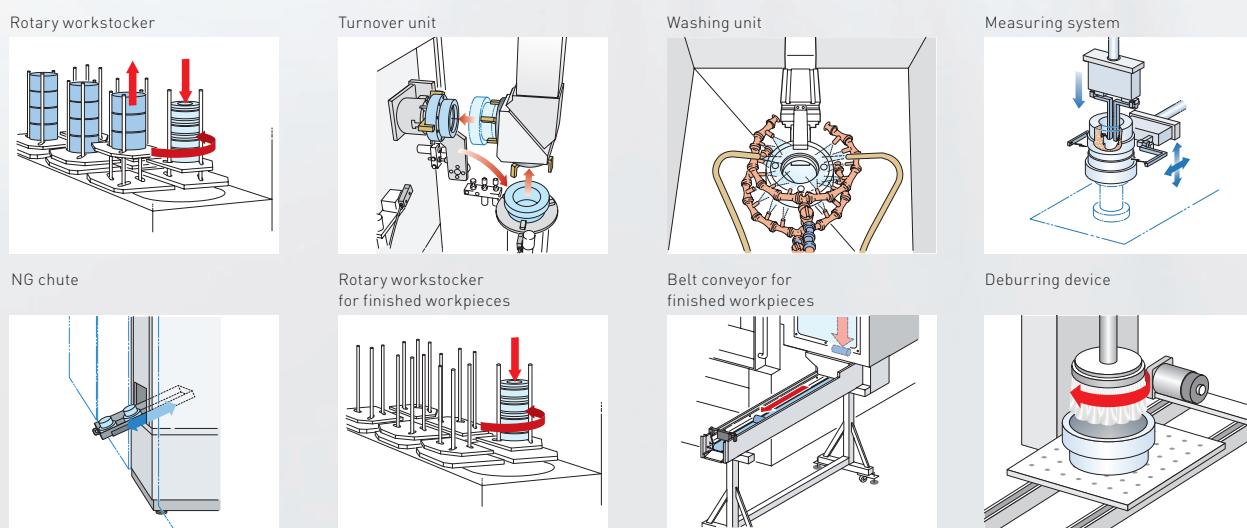
Flexible module system

- + Loader beams with different lengths enable flexible system expansion or change.
- + Modular units can be combined flexibly and replaced easily

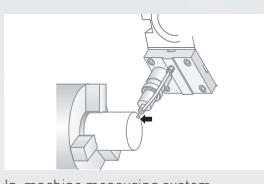


Various modules are available

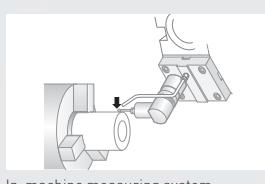
- + Standardized peripherals enable flexible system change even after installation



Functions to support automation



In-machine measuring system
(Measurement of workpiece length)



In-machine measuring system
(Measurement of workpiece diameter)



Tool breakage detection
(Automatic in-machine tool presetter)

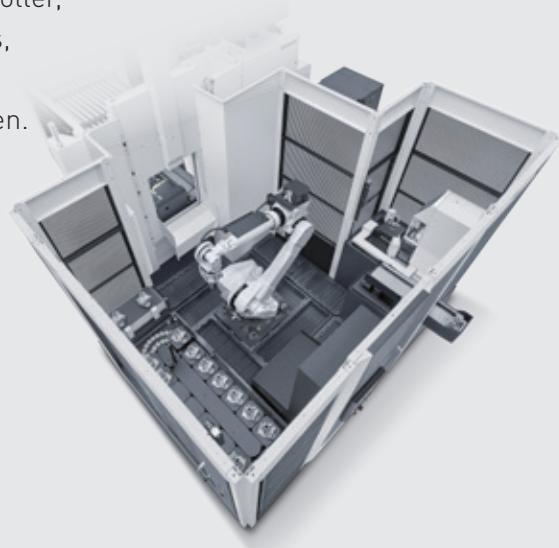
NZX 1500 / NZX 2000

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

Intercommunication

Robot



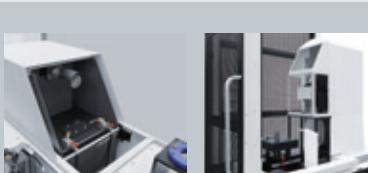
Intercommunication

Module



Intercommunication

Machine



NZX 1500 / NZX 2000

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.

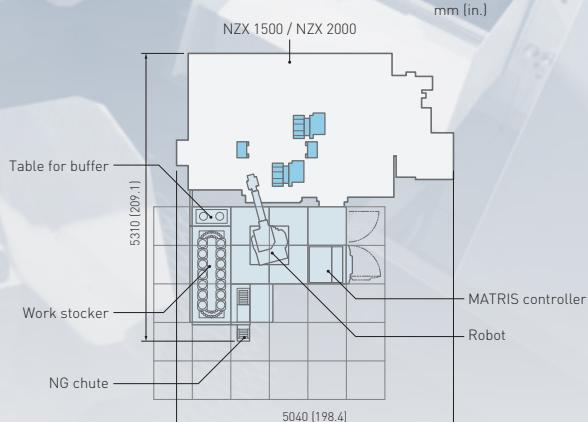
01 Handling package

- + 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

02 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

Example of layout



Example: Handling package

● For details, please refer to the MATRIS catalog.

Robo2Go

- + Available for all DMG MORI universal turning machines with CELOS
- + Free access for maximum operator acceptance
- + No robot knowledge required, control system completely via CELOS
- + Simple positioning of the automation equipment by pallet truck
- + Two options:
Max. transfer mass 20 kg (44 lb.) or 35 kg (77 lb.)



NZX 1500 / NZX 2000



DMG MORI Qualified Products

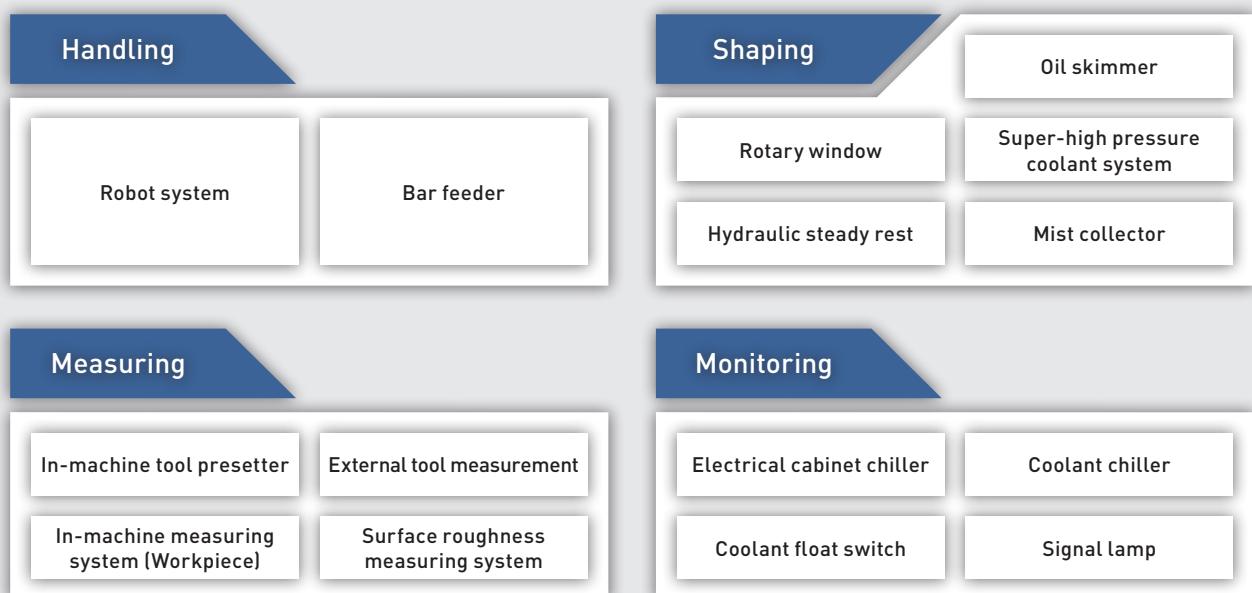
One-stop Service for Various Needs

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



Four DMQP categories



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

Bar feeder



In-machine tool presetter



Mist collector



Super-high pressure coolant system



External chip conveyor



Coolant chiller



Air dryer



Air compressor



Oil skimmer



Coolant flow switch



Tool cabinet



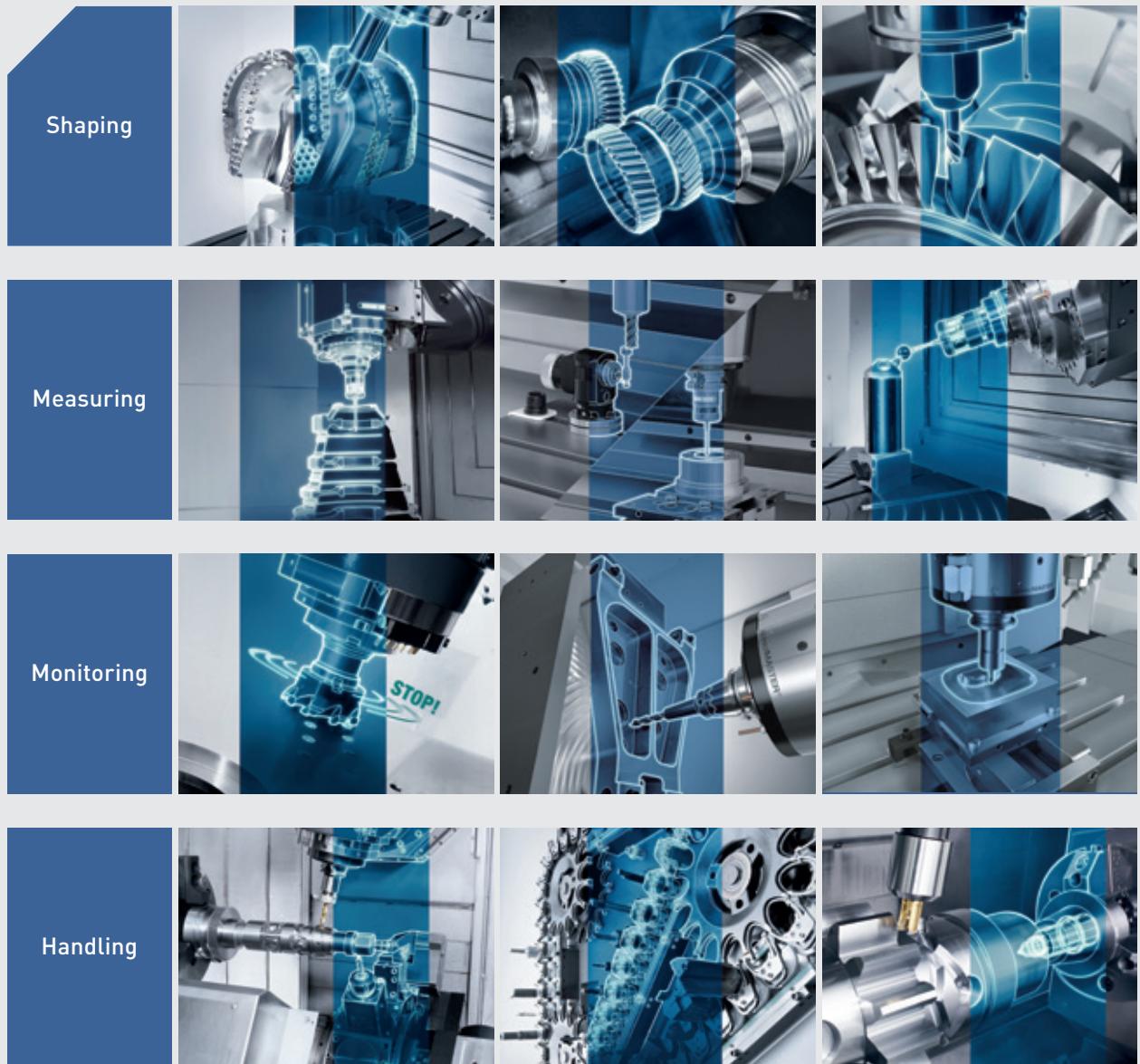
Robot system



NZX 1500 / NZX 2000

DMG MORI Technology Cycles

Technology Cycles (Option) are total solutions that achieve complex machining easily in a short time. They enable every operator to easily perform high-quality machining, setups and measurement with general-purpose machine tools and standard tools / fixtures, which used to be done with specialized machines, programs and tools.

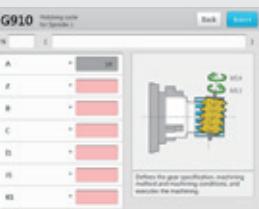
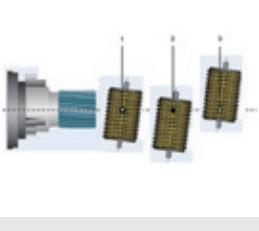


Respond to Various Technology Cycles

Shaping

Gear hobbing^{*1}



| Issue (Before introduction) | Results (After introduction) |
|---|--|
|   + 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 |  + 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 |

*1 Only the following combinations are possible. 2-turret, Y-axis specification (Y1 / Y2): Turret 1 (Upper) + Spindle 1, Turret 2 (Lower) + Spindle 2
3-turret, Y-axis specification (Y1 / Y2 / Y3): Turret 1 (Upper left) + Spindle 1, Turret 3 (Upper right) + Spindle 2

*2 <Reference> Wikipedia: Hobbing; <https://ja.wikipedia.org/wiki/%E3%83%9B%E3%83%96%E7%9B%A4> [Quoted on September 19, 2018]

Applications and Parts

Highlights

Machine and Technology

Others

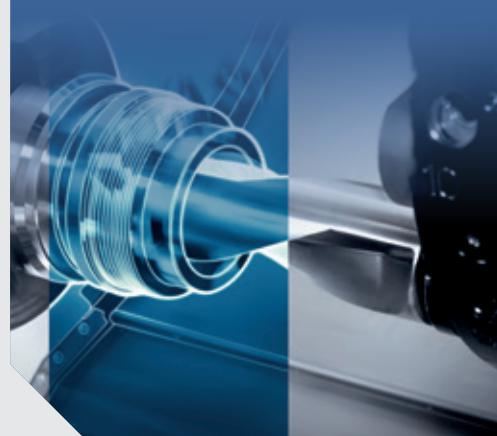
Machine specifications

Monitoring

Easy tool monitoring

Monitoring load of spindle and traveling axes

 Efficient  Safe

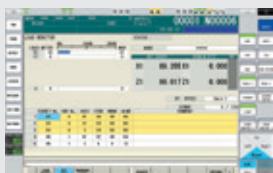


Issue (Before introduction)

- + 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

Maximizing number of tools & minimizing non-cutting time

 Efficient



Issue (Before introduction)

- + Models with the Y-axis or Spindle 2 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



Handling

Alternating speed

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




35

Shaping

Multi-threading

Cutting special thread



Efficient



Issue (Before introduction)

- + Hope to cut special thread shapes
- + Hope to simplify complicated programming

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



Triangle



Square



Trapezoidal



Round



Buttress



Shaping

Excentric machining

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



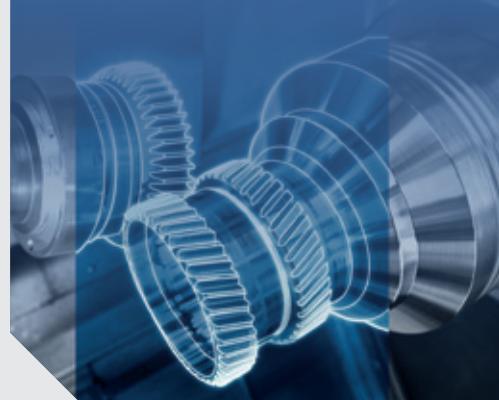
Shaping

gearSKIVING*

High-speed gear cutting including internal teeth

Efficient High-precision



Issue (Before introduction)

- + Not sure how to create a program because it involves a special machining technique
- + Require multiple processes with a gear machine and a cutting machine

Results (After introduction)

- + Can easily program a machining technique called gear skiving
- + Internal teeth that cannot be machined by hobbing can be cut
- + Consolidation of processing operations into the general-purpose machine reduces setup time and enhances accuracy such as concentricity due to no setup change



Handling

Retraction cycle



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



Shaping

Efficient Production Package (High-speed canned cycle)



Easy inputting of various machining patterns

- + 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



Handling

Counter spindle tip



Mounting tailstock center on Spindle 2

- + Simple operation for teaching positions of thrust, approach, and retraction
- + Simultaneous operation of the tailstock center on Spindle 2 supports long workpieces



Shaping

DMG MORI gearMILL*



Integrating gear cutting into Turning / Milling

- + PC software for gear cutting
- + All processes of Turning, Milling, and gear cutting are done on one machine
- + Investment cost can be reduced by use of commercially available tools and generalpurpose machines



NZX 1500 / NZX 2000

From the Idea to the Finished Product

DMG MORI's cutting-edge operation system, CELOS, enables consistent management, documentation and visualization of orders, processes and machine data. CELOS can be extended with apps and is also compatible with your company's existing infrastructures and programs.

CELOS APPs facilitate quick and easy operation: three examples >>>



JOB MANAGER

Systematic planning, administration and preparation of work orders

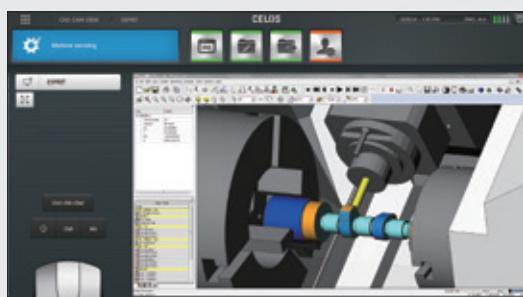
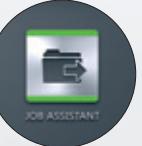
- + Machine related creation and configuration of new work orders
- + Structured storage of all production related data and documents
- + Easy visualization of job information on drawings, models, tools, fixtures, etc.



JOB ASSISTANT

Process-defined orders

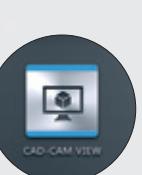
- + Menu guided set-up of the machine and conversational processing of production orders
- + Reliable error prevention thanks to windowsbased assistance instructions with a mandatory acknowledgement function



CAD-CAM VIEW

Visualize workpieces and improve program data

- + Direct remote access to external CAD / CAM workstations
- + Central master data as basis for component viewing
- + Immediate change options for machining steps, NC programs and CAM strategies, directly in the CNC system



CELOS |

APP MENU:

Central access to all available applications



ERGOline Control
with 21.5-inch
multi-touch-screen
and FANUC

STANDARD

- + Standard user interfaces for all new high technology machines from DMG MORI

CONSISTENT

- + Consistent administration, documentation and visualization of order, process and machine data

COMPATIBLE

- + Compatible with PPS and ERP systems
- + Can be networked with CAD / CAM products
- + Open to trendsetting CELOS APP extensions

PPS: Production Planning and Scheduling System
ERP: Enterprise Resource Planning

NZX 1500 / NZX 2000

Revolutionary Productivity with Cutting-Edge Technology DMG MORI's Connected Industries

By making full use of cutting-edge technology, DMG MORI realizes its Connected Industries* to help improve your productivity and profitability significantly. Our Connected Industries is structured in three layers. Centering around the cutting-edge operation system "CELOS," our Connected Industries networks not just individual machines but also production systems and the entire plant. This network will help clearly define your problems, offering the best and customized solutions.

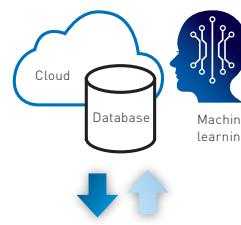
* An industrial society in which new added value will be created through connected humans, machines, and technologies – A new vision for the future of Japanese industries that the Ministry of Economy, Trade and Industry advocates.



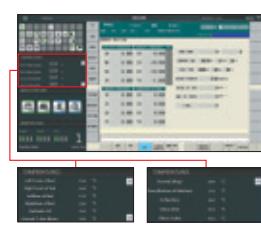
AI-based thermal displacement compensation (Ultra Thermal Precision)

Research is underway toward the practical use of thermal displacement compensation based on AI-based information analysis.

- + In order to improve machining accuracy, AI estimates and compensates thermal displacement by learning the information received from the sensors mounted on the machine.
- + The speed of learning is effectively improved by accumulating data from multiple machines in a single server for integrated data management.



The speed of learning is increased by accumulating data from multiple machines in the DMG MORI's server for integrated data management.



Each monitoring value is displayed in an easy-to-understand manner.

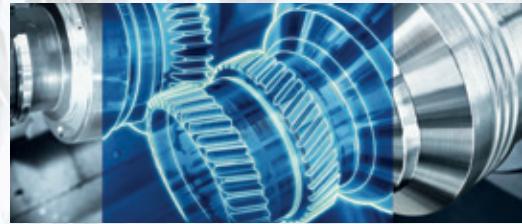
Machine status monitoring

Various machine data generated by sensors can be easily checked on the CELOS.

CELOS Machine Extremely Easy-to-Use Machine

- + This machine is loaded with the cutting-edge operating system CELOS, offering various applications useful for your machining
- + By accumulating machining know-how on the CELOS, all operators are able to make products at the same level of quality
- + Productivity will be improved by streamlining time-consuming and burdensome setups to reduce the operator's workloads
- + Complex machining, which used to require dedicated machines and technical knowledge, is made simpler and faster with Technology Cycles
- + The use of AI prevents the occurrence of machine problems

* The information needed to machine a workpiece [Setups, tools, programs, etc.]



CELOS Manufacturing Connected Production Processes

- + A CELOS application called "Messenger" connects machines in your plant, visualizing the status of machine operation
- + The causes of machine stops will be identified easily, contributing to improved machine operation rates
- + CELOS applications can be upgraded to their latest versions through CELOS Club, allowing for smooth IoT deployment
- + The machine's operational status can be monitored through smartphones and tablets even from outside your plant

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Digital Factory Digitization accelerates connected plants

- + Your plant can be connected to external business partners by the utilization of IoT, significantly streamlining the flow of your entire production system
- + CELOS Club can maximize the ability of CELOS
- + ADAMOS* offers an open platform for IoT

* Please consult our sales representative for more detailed information, including the service start time in your country.



CELOS Club



Continuously supporting your productivity improvements

- + Latest functions always available through version upgrades
- + Centralized machine management and streamlined programming

● Japan only.

WERKBLIQ



Productivity improvements through cutting-edge machine maintenance services

- + Streamlined maintenance work based on digitized plant equipment information
- + Minimizing down time by promptly identifying the cause of machine stop
- + The integrated management of maintenance procedures and standards eliminates dependency on individual operator skills

● Please consult our sales representative for more detailed information, including the release time in your country.

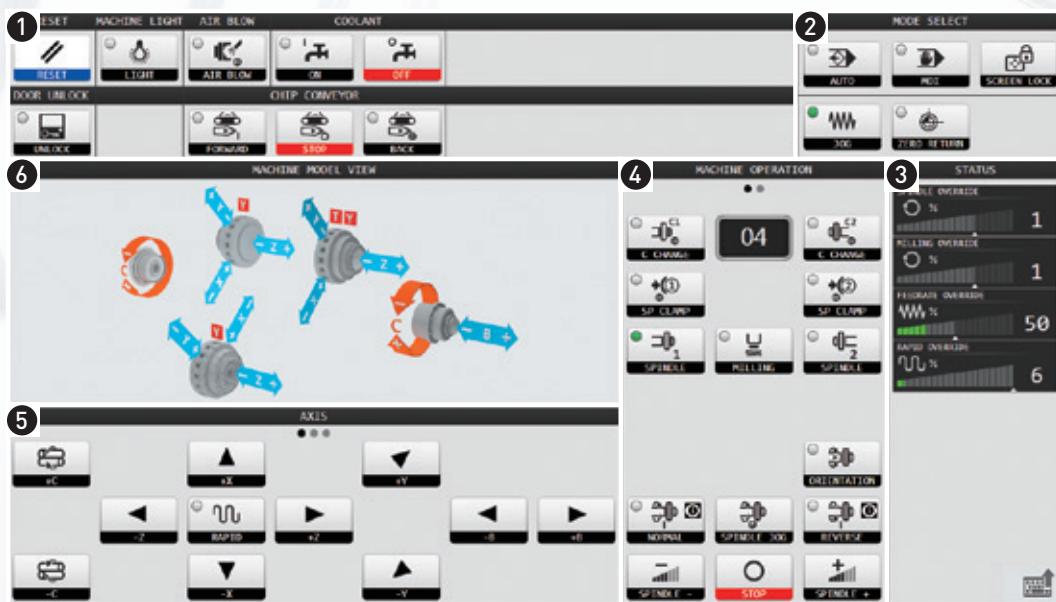
NZX 1500 / NZX 2000

High-Performance Operation System MAPPS IV

MAPPS IV is a smart operation system mounted on CELOS.
It enables operators to easily control machine operation with touch operation.



MAPPS: Mori Advanced Programming Production System
CELOS: Control Efficiency Lead Operation System



Lower Touch Panel Screen Layout

- ① Individual function operation area : Displays function buttons at all times regardless of the operation mode.
- ② Operation mode selection area : Displays mode selection buttons at all times.
- ③ Status display area : Displays the override status.
- ④ Machine operation area : Displays buttons related to spindle / turret operation and optional functions over multiple pages.
- ⑤ Mode-by-mode operation area : Displays buttons related to axis feed, zero return or automatic operation over multiple pages. The available buttons will change depending on the mode selected.
- ⑥ In-machine display area : Displays the image showing the controlled axes and their travel directions.

NZX 1500 / NZX 2000

Unique Energy-saving Function GREENmode



DMG MORI has developed the energy-saving function "GREENmode" to accomplish sustainable development goals (SDGs).

SDGs: Sustainable Development Goals

The machine's power consumption is reduced by cutting unnecessary standby power and using efficient machining programs to shorten machining time.

- + Improve cutting conditions to reduce machining time by bringing the best out of machine tools and cutting tools
- + Reduce unnecessary power consumption during stand-by time by shutting off power of the spindle, chip conveyor and coolant pump at a time of machine stop
- + Visualize power consumption and CO₂ emission amount

GREENmode

GREEN monitoring

- + Visualize power consumption and CO₂ emission amount on the CELOS operation screen



GREEN device

- + High-brightness LED light

GREEN idle reduction

- + Shut off the power of the servo motor, spindle and coolant pump at a time of machine stop
- + Turn off the operation panel screen when a machine is not in operation for a certain time

GREEN control

- + Quicken standard M codes
- + Inverter-controlled coolant supply



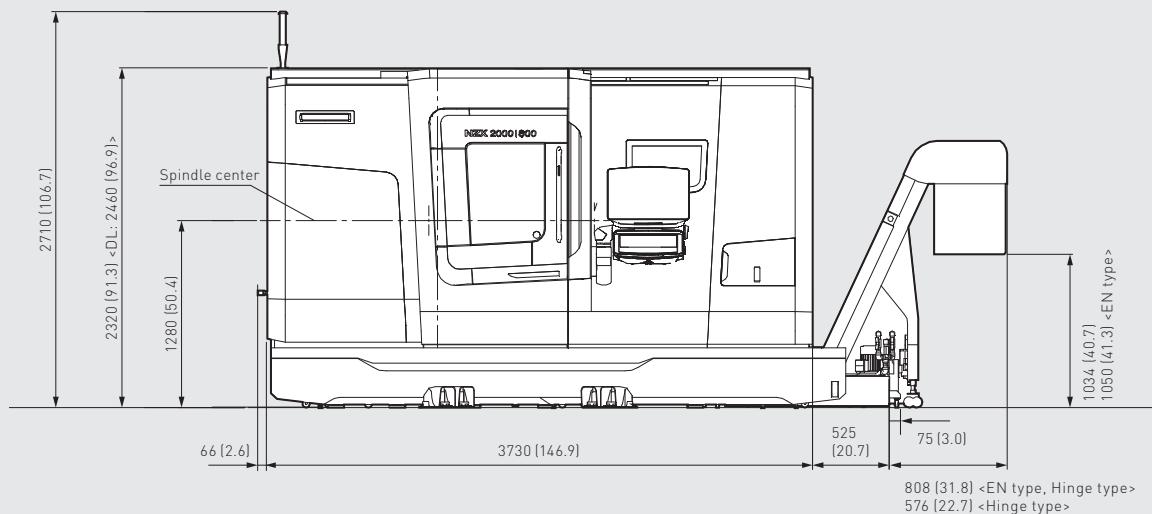
NZX 1500 / NZX 2000

Machine size

NZX 1500 / NZX 2000

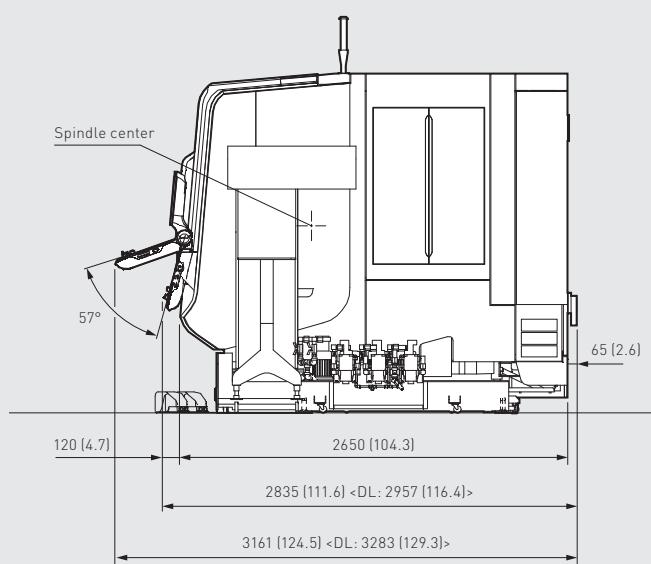
mm (in.)

Front view



45

Side view



Q56324A01

NZX 1500 / NZX 2000

Machine specifications (NZX 1500)

| | | NZX 1500 800 | | | | |
|---|---|--|--|---|--|---|
| Basic specification | | T1 T2 MC1 MC2 S1 S2 | | | | |
| Optional specifications | | — | Y1 | Y1 Y2 | DL | Y1 Y2 DL |
| Capacity | | | | | | |
| Swing over bed | mm [in.] | | | 800 [31.5] | | |
| Max. turning diameter | mm [in.] | | | 320 [12.5] <Interference with the cover> | | |
| Max. workpiece delivery diameter | mm [in.] | | | 300 [11.8] | | |
| Bar work capacity | mm [in.] | | | 52 [2.0] | | |
| Travel | | | | | | |
| X-axis travel | mm [in.] | | | X1, X2: 210 [8.2] | | |
| Y-axis travel | mm [in.] | — | Y1: 110 [4.3] <+65 [2.5], -45 [1.7]> | Y1: 110 [4.3] <+65 [2.5], -45 [1.7]> Y2: 110 [4.3] <+45 [1.7], -65 [2.5]> | — | Y1, Y2: 110 [4.3] <+65 [2.5], -45 [1.7]> |
| Z-axis travel | mm [in.] | | Z1, Z2: 810 [31.8] | | Z1, Z2: 280 [11.0] | |
| Spindle 1 | | | | | | |
| Max. spindle speed | min ⁻¹ | | | 6,000 | | |
| Spindle nose | | | | JIS A ₂ -5 | | |
| Through-spindle hole diameter | mm [in.] | | | 61 [2.4] | | |
| Spindle 2 | | | | | | |
| Max. spindle speed | min ⁻¹ | | | 6,000 | | |
| Spindle nose | | | | JIS A ₂ -5 | | |
| Through-spindle hole diameter | mm [in.] | | | 61 [2.4] | | |
| Turret | | | | | | |
| Turret type | | | | 16-station × 2 | | |
| Shank height for square tool | mm [in.] | | | 20 [0.8] | | |
| Max. rotary tool spindle speed | min ⁻¹ | | | 6,000, 12,000 [High-speed] | | |
| Feedrate | | | | | | |
| Rapid traverse rate | mm/min (ipm) | X1, X2: 30,000 (1,181.1) Z1, Z2: 50,000 (1,968.5) | X1, X2: 30,000 (1,181.1) Y1: 20,000 (787.4) Z1, Z2: 50,000 (1,968.5) | X1, X2: 30,000 (1,181.1) Y1, Y2: 20,000 (787.4) Z1, Z2: 50,000 (1,968.5) | X1, X2: 30,000 (1,181.1) Z1, Z2: 50,000 (1,968.5) | X1, X2: 30,000 (1,181.1) Y1, Y2: 20,000 (787.4) Z1, Z2: 50,000 (1,968.5) |
| Motors | | | | | | |
| Spindle 1 drive motor (30 min / cont) | kW [HP] | | | 22 / 18.5 (30 / 24.7), 25 / 22 (33.3 / 30) <High output> | | |
| Spindle 2 drive motor (30 min / cont) | kW [HP] | | | 22 / 18.5 (30 / 24.7), 25 / 22 (33.3 / 30) <High output> | | |
| Rotary tool spindle drive motor (30 min / cont) | kW [HP] | | | 7.5 / 5.5 (10 / 7.5) | | |
| Machine size | | | | | | |
| Machine height <From floor> | mm [in.] | | 2,320 [91.3] | | 2,460 [96.9] | |
| | mm [in.] | | 4,396 × 2,835 (173.1 × 111.6) | | 4,396 × 2,957 (173.1 × 116.4) | |
| Floor space <Width × Depth> | Right-disposal chip conveyor specifications | mm [in.] | 4,897 × 2,835 (192.8 × 111.6) 5,129 × 2,835 (201.9 × 111.6) <EN type> | | 4,897 × 2,957 (192.8 × 116.4) 5,129 × 2,957 (201.9 × 116.4) <EN type> | |
| Mass of machine | kg [lb.] | 8,000 [17,600] | 8,100 [17,820] | 8,300 [18,260] | 8,000 [17,600] | 8,300 [18,260] |
| Control unit | | | | | | |
| FANUC | | | | F31iB | | |

- Bar work capacity: Depending on the 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.
- The information in this catalog is valid as of June 2019.

JIS: Japanese Industrial Standard

| | |
|--|---|
| <input checked="" type="checkbox"/> : Standard | <input type="checkbox"/> : Option |
| <input checked="" type="checkbox"/> T1 : Turret 1 | <input type="checkbox"/> T3 : Turret 3 |
| <input checked="" type="checkbox"/> T2 : Turret 2 | <input type="checkbox"/> MC3 : Milling (Turret 3) |
| <input checked="" type="checkbox"/> MC1 : Milling (Turret 1) | <input type="checkbox"/> Y1 : Y-axis (Turret 1) |
| <input checked="" type="checkbox"/> MC2 : Milling (Turret 2) | <input type="checkbox"/> Y2 : Y-axis (Turret 2) |
| <input checked="" type="checkbox"/> S1 : Spindle 1 | <input type="checkbox"/> Y3 : Y-axis (Turret 3) |
| <input checked="" type="checkbox"/> S2 : Spindle 2 | <input type="checkbox"/> D1 : Center shutter specification |
| The basic model is equipped with T1 , T2 , MC1 , MC2 , S1 and S2 | |

NZX 1500 | 800

| Basic specification | | T1 T2 MC1 MC2 S1 S2 | | | | | | |
|---|---|--|--|---|----------------------------|---|--|--|
| Optional specifications | | T3 MC3 | | | T3 MC3 Y1 Y2 | | T3 MC3 Y1 Y2 Y3 | |
| Capacity | | | | | | | | |
| Swing over bed | mm (in.) | | | | | | 800 (31.5) | |
| Max. turning diameter | mm (in.) | | | | | | 320 (12.5) <Interference with the cover> | |
| Max. workpiece delivery diameter | mm (in.) | | | | | | 300 (11.8) | |
| Bar work capacity | mm (in.) | | | | | | 52 (2.0) | |
| Travel | | | | | | | | |
| X-axis travel | mm (in.) | | | | X1, X2, X3: 210 (8.2) | | | |
| | | | | | Y1: 110 (4.3) | Y1, Y3: 110 (4.3) | | |
| Y-axis travel | mm (in.) | — | | | <+65 (2.5), -45 (1.7)> | <+65 (2.5), -45 (1.7)> | | |
| | | | | | Y2: 110 (4.3) | Y2: 110 (4.3) | | |
| Z-axis travel | mm (in.) | | | Z1, Z3: 300 (11.8) < + 100 (3.9)*>, Z2: 810 (31.8) | | | <+45 (1.7), -65 (2.5)> | |
| Spindle 1 | | | | | | | | |
| Max. spindle speed | min ⁻¹ | | | | 6,000 | | | |
| Spindle nose | | | | | JIS A ₂ -5 | | | |
| Through-spindle hole diameter | mm (in.) | | | | 61 (2.4) | | | |
| Spindle 2 | | | | | | | | |
| Max. spindle speed | min ⁻¹ | | | | 6,000 | | | |
| Spindle nose | | | | | JIS A ₂ -5 | | | |
| Through-spindle hole diameter | mm (in.) | | | | 61 (2.4) | | | |
| Turret | | | | | | | | |
| Turret type | | | | | 16-station × 3 | | | |
| Shank height for square tool | mm (in.) | | | | 20 (0.8) | | | |
| Max. rotary tool spindle speed | min ⁻¹ | | | | 6,000, 12,000 (High-speed) | | | |
| Feedrate | | | | | | | | |
| Rapid traverse rate | mm/min (ipm) | X1, X2, X3: 30,000 (1,181.1) Z1, Z2, Z3: 50,000 (1,968.5) | | X1, X2, X3: 30,000 (1,181.1) Y1, Y2: 20,000 (787.4) Z1, Z2, Z3: 50,000 (1,968.5) | | X1, X2, X3: 30,000 (1,181.1) Y1, Y2, Y3: 20,000 (787.4) Z1, Z2, Z3: 50,000 (1,968.5) | | |
| Motors | | | | | | | | |
| Spindle 1 drive motor (30 min / cont) | kW (HP) | | | 22 / 18.5 (30 / 24.7), 25 / 22 (33.3 / 30) <High output> | | | | |
| Spindle 2 drive motor (30 min / cont) | kW (HP) | | | 22 / 18.5 (30 / 24.7), 25 / 22 (33.3 / 30) <High output> | | | | |
| Rotary tool spindle drive motor (30 min / cont) | kW (HP) | | | 7.5 / 5.5 (10 / 7.5) | | | | |
| Machine size | | | | | | | | |
| Machine height <From floor> | mm (in.) | | | 2,320 (91.3) | | | | |
| | mm (in.) | | | 4,396 × 2,835 (173.1 × 111.6) | | | | |
| Floor space <Width × Depth> | Right-disposal chip conveyor specifications | mm (in.) | | 4,897 × 2,835 (192.8 × 111.6) 5,129 × 2,835 (201.9 × 111.6) <EN type> | | | | |
| Mass of machine | kg (lb.) | 8,900 [19,580] | | 9,200 [20,240] | | 9,300 [20,460] | | |
| Control unit | | | | | | | | |
| FANUC | | | | F31iB | | | | |

*1 When one turret is moving in the plus direction, another turret moves in the minus direction.

● Bar work capacity: Depending on the 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.

● The information in this catalog is valid as of June 2019.

JIS: Japanese Industrial Standard

NZX 1500 / NZX 2000

Machine specifications (NZX 2000)

| | | NZX 2000 800 | | | | |
|---|---|--|--|---|---|---|
| Basic specification | | T1 T2 M1 M2 S1 S2 | | | | |
| Optional specifications | | — | Y1 | Y1 Y2 | DL | Y1 Y2 DL |
| Capacity | | | | | | |
| Swing over bed | mm (in.) | | | 800 (31.5) | | |
| Max. turning diameter | mm (in.) | | | 320 (12.5) <Interference with the cover> | | |
| Max. workpiece delivery diameter | mm (in.) | | | 300 (11.8) | | |
| Bar work capacity | mm (in.) | | | 65 (2.5), 80 (3.1)*1 | | |
| Travel | | | | | | |
| X-axis travel | mm (in.) | | | X1, X2: 210 (8.2) | | |
| Y-axis travel | mm (in.) | — | Y1: 110 (4.3) <+65 (2.5), -45 (1.7)> | Y1: 110 (4.3) <+65 (2.5), -45 (1.7)> Y2: 110 (4.3) <+45 (1.7), -65 (2.5)> | — | Y1, Y2: 110 (4.3) <+65 (2.5), -45 (1.7)> |
| Z-axis travel | mm (in.) | | Z1, Z2: 810 (31.8) | | Z1, Z2: 280 (11.0) | |
| Spindle 1 | | | | | | |
| Max. spindle speed | min ⁻¹ | | | 5,000, 4,000*1 | | |
| Spindle nose | | | | JIS A ₂ -6, JIS A ₂ -8*1 | | |
| Through-spindle hole diameter | mm (in.) | | | 73 (2.8), 91 (3.5)*1 | | |
| Spindle 2 | | | | | | |
| Max. spindle speed | min ⁻¹ | | | 5,000 | | |
| Spindle nose | | | | JIS A ₂ -6 | | |
| Through-spindle hole diameter | mm (in.) | | | 73 (2.8) | | |
| Turret | | | | 16-station × 2 | | |
| Turret type | | | | | | |
| Shank height for square tool | mm (in.) | | | 20 (0.8) | | |
| Max. rotary tool spindle speed | min ⁻¹ | | | 6,000, 12,000 [High-speed] | | |
| Feedrate | | | | | | |
| Rapid traverse rate | mm/min (ipm) | X1, X2: 30,000 (1,181.1) Z1, Z2: 50,000 (1,968.5) | X1, X2: 30,000 (1,181.1) Y1: 20,000 (787.4) Z1, Z2: 50,000 (1,968.5) | X1, X2: 30,000 (1,181.1) Y1, Y2: 20,000 (787.4) Z1, Z2: 50,000 (1,968.5) | X1, X2: 30,000 (1,181.1) Y1, Y2: 20,000 (787.4) Z1, Z2: 50,000 (1,968.5) | X1, X2: 30,000 (1,181.1) Y1, Y2: 20,000 (787.4) Z1, Z2: 50,000 (1,968.5) |
| Motors | | | | | | |
| Spindle 1 drive motor (30 min / cont) | kW (HP) | | 25 / 22 (33.3 / 30), 26 / 22 (34.7 / 30)*1, 25 / 22 (33.3 / 30) <High-torque> | | | |
| Spindle 2 drive motor (30 min / cont) | kW (HP) | | 25 / 22 (33.3 / 30), 25 / 22 (33.3 / 30) <High-torque> | | | |
| Rotary tool spindle drive motor (30 min / cont) | kW (HP) | | 7.5 / 5.5 (10 / 7.5) | | | |
| Machine size | | | | | | |
| Machine height <From floor> | mm (in.) | | 2,320 (91.3) | | 2,460 (96.9) | |
| | mm (in.) | | 4,396 × 2,835 (173.1 × 111.6) | | 4,396 × 2,957 (173.1 × 116.4) | |
| Floor space <Width × Depth> | Right-disposal chip conveyor specifications | mm (in.) | 4,897 × 2,835 (192.8 × 111.6) 5,129 × 2,835 (201.9 × 111.6) <EN type> | | 4,897 × 2,957 (192.8 × 116.4) 5,129 × 2,957 (201.9 × 116.4) <EN type> | |
| Mass of machine | kg (lb.) | 8,200 (18,040) | 8,300 (18,260) | 8,500 (18,700) | 8,200 (18,040) | 8,500 (18,700) |
| Control unit | | | | | | |
| FANUC | | | | F31iB | | |

*1 Bar work capacity ϕ 80 mm (ϕ 3.1 in) Specifications <Spindle 1 only>

- Bar work capacity: Depending on the 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.
- The information in this catalog is valid as of June 2019.

JIS: Japanese Industrial Standard

| | |
|---|--|
| <input checked="" type="checkbox"/> : Standard | <input type="checkbox"/> : Option |
| <input checked="" type="checkbox"/> T1 : Turret 1 | <input type="checkbox"/> T3 : Turret 3 |
| <input checked="" type="checkbox"/> T2 : Turret 2 | <input type="checkbox"/> MC3 : Milling (Turret 3) |
| <input checked="" type="checkbox"/> MC1 : Milling (Turret 1) | <input type="checkbox"/> Y1 : Y-axis (Turret 1) |
| <input checked="" type="checkbox"/> MC2 : Milling (Turret 2) | <input type="checkbox"/> Y2 : Y-axis (Turret 2) |
| <input checked="" type="checkbox"/> S1 : Spindle 1 | <input type="checkbox"/> Y3 : Y-axis (Turret 3) |
| <input checked="" type="checkbox"/> S2 : Spindle 2 | <input type="checkbox"/> DL : Center shutter specification |
| The basic model is equipped with T1, T2, MC1, MC2, S1 and S2 | |

| NZX 2000 800 | | | | | |
|--|---|---|---|---|---|
| Basic specification | | T1 T2 MC1 MC2 S1 S2 | | | |
| Optional specifications | | T3 MC3 | | T3 MC3 Y1 Y2 | |
| Capacity | | | | | |
| Swing over bed | mm [in.] | | | | 800 [31.5] |
| Max. turning diameter | mm [in.] | | | | 320 [12.5] <Interference with the cover> |
| Max. workpiece delivery diameter | mm [in.] | | | | 300 [11.8] |
| Bar work capacity | mm [in.] | | | | 65 [2.5], 80 [3.1]*1 |
| Travel | | | | | |
| X-axis travel | mm [in.] | | | X1, X2, X3: 210 [8.2] | |
| | | | | Y1: 110 [4.3] | Y1, Y3: 110 [4.3] |
| Y-axis travel | mm [in.] | — | | <+65 [2.5], -45 [1.7]> | <+65 [2.5], -45 [1.7]> |
| | | | | Y2: 110 [4.3] | Y2: 110 [4.3] |
| Z-axis travel | mm [in.] | | | <+45 [1.7], -65 [2.5]> | <+45 [1.7], -65 [2.5]> |
| | | | | Z1, Z3: 300 [11.8] <+ 100 [3.9]*2>, Z2: 810 [31.8] | |
| Spindle 1 | | | | | |
| Max. spindle speed | min ⁻¹ | | | 5,000, 4,000*1 | |
| Spindle nose | | | | JIS A ₂ -6, JIS A ₂ -8*1 | |
| Through-spindle hole diameter | mm [in.] | | | 73 [2.8], 91 [3.5]*1 | |
| Spindle 2 | | | | | |
| Max. spindle speed | min ⁻¹ | | | 5,000 | |
| Spindle nose | | | | JIS A ₂ -6 | |
| Through-spindle hole diameter | mm [in.] | | | 73 [2.8] | |
| Turret | | | | | |
| Turret type | | | | 16-station × 3 | |
| Shank height for square tool | mm [in.] | | | 20 [0.8] | |
| Max. rotary tool spindle speed | min ⁻¹ | | | 6,000, 12,000 [High-speed] | |
| Feedrate | | | | | |
| Rapid traverse rate | mm/min (ipm) | X1, X2, X3: 30,000 (1,181.1) Z1, Z2, Z3: 50,000 (1,968.5) | X1, X2, X3: 30,000 (1,181.1) Y1, Y2: 20,000 (787.4) Z1, Z2, Z3: 50,000 (1,968.5) | X1, X2, X3: 30,000 (1,181.1) Y1, Y2, Y3: 20,000 (787.4) Z1, Z2, Z3: 50,000 (1,968.5) | X1, X2, X3: 30,000 (1,181.1) Y1, Y2, Y3: 20,000 (787.4) Z1, Z2, Z3: 50,000 (1,968.5) |
| Motors | | | | | |
| Spindle 1 drive motor [30 min / cont] | kW [HP] | 25 / 22 [33.3 / 30], 26 / 22 [34.7 / 30]*1, 25 / 22 [33.3 / 30] <High-torque> | | | |
| Spindle 2 drive motor [30 min / cont] | kW [HP] | 25 / 22 [33.3 / 30], 25 / 22 [33.3 / 30] <High-torque> | | | |
| Rotary tool spindle drive motor (30 min / cont) | kW [HP] | | 7.5 / 5.5 [10 / 7.5] | | |
| Machine size | | | | | |
| Machine height <From floor> | mm [in.] | | 2,320 [91.3] | | |
| | mm [in.] | | 4,396 × 2,835 [173.1 × 111.6] | | |
| Floor space <Width × Depth> | Right-disposal chip conveyor specifications | mm [in.] | 4,897 × 2,835 [192.8 × 111.6] 5,129 × 2,835 [201.9 × 111.6] <EN type> | | |
| Mass of machine | kg [lb.] | 9,100 [20,020] | 9,400 [20,680] | 9,500 [20,900] | |
| Control unit | | | | | |
| FANUC | | | F31iB | | |

*1 Bar work capacity ϕ 80 mm (ϕ 3.1 in) Specifications <Spindle 1 only>

*2 When one turret is moving in the plus direction, another turret moves in the minus direction.

● Bar work capacity: Depending on the 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.

● The information in this catalog is valid as of June 2019.

JIS: Japanese Industrial Standard

Applications and Parts

Highlights

Machine and Technology

Others

Machine specifications

NZX 1500 / NZX 2000

Standard & optional features

●: Standard ○: Option
-: Not applicable

| | | NZX 1500 800 | | | | | | | |
|---|--|----------------|----|-------|--------|--------|--------|----|-------|
| Basic specification | | T1 | T2 | MC1 | MC2 | S1 | S2 | | |
| Optional specifications | | - | Y1 | Y1 Y2 | T3 MC3 | T3 MC3 | T3 MC3 | DL | Y1 Y2 |
| Spindle [Spindle 1, Spindle 2] | | | | | | | | | |
| 6,000 min ⁻¹ : 22 / 18.5 kW [30 / 24.7 HP] <30 min / cont> | | ● | ● | ● | ● | ● | ● | ● | |
| 6,000 min ⁻¹ : 25 / 22 kW [33.3 / 30 HP] <30 min / cont> <High output> | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |

| | | NZX 2000 800 | | | | | | | |
|---|--|----------------|----|-------|--------|--------|--------|----|-------|
| Basic specification | | T1 | T2 | MC1 | MC2 | S1 | S2 | | |
| Optional specifications | | - | Y1 | Y1 Y2 | T3 MC3 | T3 MC3 | T3 MC3 | DL | Y1 Y2 |
| Spindle [Spindle 1, Spindle 2] | | | | | | | | | |
| 5,000 min ⁻¹ : 25 / 22 kW [33.3 / 30 HP] <30 min / cont> | | ● | ● | ● | ● | ● | ● | ● | |
| 5,000 min ⁻¹ : 25 / 22 kW [33.3 / 30 HP] <30 min / cont> <High-torque> | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |
| 4,000 min ⁻¹ : 26 / 22 kW [34.7 / 30 HP] <30 min / cont> <Bar work capacity φ 80 mm (φ 3.1 in) Specifications> <Spindle 1 only> | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |

| | | NZX 1500 800 / NZX 2000 800 | | | | | | | |
|---|--|---------------------------------|----|-------|--------|--------|--------|----|-------|
| Basic specification | | T1 | T2 | MC1 | MC2 | S1 | S2 | | |
| Optional specifications | | - | Y1 | Y1 Y2 | T3 MC3 | T3 MC3 | T3 MC3 | DL | Y1 Y2 |
| Turret | | | | | | | | | |
| Y-axis | Turret 1 | - | ● | ● | - | ● | ● | - | ● |
| | Turret 2 | - | - | ● | - | ● | ● | - | ● |
| | Turret 3 | - | - | - | - | - | ● | - | - |
| 16-station bolt-tightened turret | Turret 1 | ● | ● | ● | ● | ● | ● | ● | ● |
| | Turret 2 | ● | ● | ● | ● | ● | ● | ● | ● |
| | Turret 3 | - | - | - | ● | ● | ● | - | - |
| Max. rotary tool spindle speed | Turret 1 | ● | ● | ● | ● | ● | ● | ● | ● |
| | 6,000 min ⁻¹ | ● | ● | ● | ● | ● | ● | ● | ● |
| | Turret 2 | - | - | - | ● | ● | ● | - | - |
| | Turret 3 | - | - | - | ● | ● | ● | - | - |
| Fixture / Steady rest | | | | | | | | | |
| Hydraulic steady rest [Turret 2] SLU-X2Z | Unit only | ○* | ○* | ○* | ○* | ○* | ○* | - | - |
| | Interface | ○ | ○ | ○ | ○ | ○ | ○ | - | - |
| Coolant | | | | | | | | | |
| Coolant system | 350 / 550 W [50 / 60 Hz] | ● | ● | ● | ● | ● | ● | ● | ● |
| Chip flushing coolant | 800 / 1,100 W [50 / 60 Hz] | ● | ● | ● | ● | ● | ● | - | - |
| Mist collector | HVS-220 ^{*1} | ○* | ○* | ○* | ○* | ○* | ○* | ○* | ○* |
| | AFS1600 ^{*2} | ○* | ○* | ○* | ○* | ○* | ○* | ○* | ○* |
| Chip disposal | | | | | | | | | |
| Chip conveyor | Right discharge, Scraper type | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Right discharge, Hinge type | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Right discharge, Hinge type + Drum filter type | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Right discharge, Magnet scraper type | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

| | |
|---|--|
| <input checked="" type="checkbox"/> : Standard | <input type="checkbox"/> : Option |
| <input checked="" type="checkbox"/> T1 : Turret 1 | <input type="checkbox"/> T3 : Turret 3 |
| <input checked="" type="checkbox"/> T2 : Turret 2 | <input type="checkbox"/> MC3 : Milling (Turret 1) |
| <input checked="" type="checkbox"/> MC1 : Milling (Turret 1) | <input type="checkbox"/> Y1 : Y-axis (Turret 1) |
| <input checked="" type="checkbox"/> MC2 : Milling (Turret 2) | <input type="checkbox"/> Y2 : Y-axis (Turret 2) |
| <input checked="" type="checkbox"/> S1 : Spindle 1 | <input type="checkbox"/> Y3 : Y-axis (Turret 3) |
| <input checked="" type="checkbox"/> S2 : Spindle 2 | <input type="checkbox"/> DL : Center shutter specification |
| The basic model is equipped with T1, T2, MC1, MC2, S1 and S2 | |

●: Standard ○: Option
-: Not applicable

NZX 1500 | 800 / NZX 2000 | 800

| Basic specification | | NZX 1500 800 / NZX 2000 800 | | | | | | | | | | | |
|--|--|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | | T1 | | T2 | | MC1 | | MC2 | | S1 | | S2 | |
| Optional specifications | | - | | <input type="checkbox"/> Y1 | | <input type="checkbox"/> Y1 | <input type="checkbox"/> Y2 | <input type="checkbox"/> T3 | <input type="checkbox"/> MC3 | <input type="checkbox"/> T3 | <input type="checkbox"/> MC3 | <input type="checkbox"/> Y1 | <input type="checkbox"/> Y2 |
| Measurement | | | | | | | | <input type="checkbox"/> Y1 | <input type="checkbox"/> Y2 | <input type="checkbox"/> Y3 | <input type="checkbox"/> DL | <input type="checkbox"/> Y1 | <input type="checkbox"/> Y2 |
| Manual in-machine tool presetter | Spindle 1 side | <input checked="" type="checkbox"/> |
| | Spindle 2 side | <input checked="" type="checkbox"/> |
| Improved accuracy | Turret 1 (X-axis, Z-axis) | <input type="checkbox"/> |
| Full closed loop control (Scale feedback) | Turret 2 (X-axis, Z-axis) | <input type="checkbox"/> |
| | Turret 3 (X-axis, Z-axis) | - | - | - | <input type="checkbox"/> | - | - | - |
| Automation | Spindle 1 (Workpiece receiver) | <input type="checkbox"/> |
| Workpiece unloader | Spindle 1 (Workpiece receiver) + Spindle 2 (Hand) <With workpiece transfer conveyor> | <input type="checkbox"/> | - | - | - |
| | Spindle 1 (Workpiece receiver) + Spindle 2 (Workpiece receiver) <With workpiece transfer conveyor> | <input type="checkbox"/> | - | - | - |
| | Spindle 2 (Hand) <With workpiece transfer conveyor> | <input type="checkbox"/> | - | - | - |
| | Spindle 2 (Workpiece receiver) <With workpiece transfer conveyor> | <input type="checkbox"/> | <input type="checkbox"/> *3 | <input type="checkbox"/> *3 | |
| In-machine traveling type workpiece unloader | In-machine traveling type (Workpiece receiver) <With workpiece transfer conveyor> | <input type="checkbox"/> | - | - | - |
| | In-machine traveling type (Hand) <With workpiece transfer conveyor> | <input type="checkbox"/> | - | - | - |
| Loader | Gantry loader | LG-05 | | <input type="checkbox"/> |
| | | LG-10 | | <input type="checkbox"/> |
| Other | | | | | | | | | | | | | |
| Built-in worklight | Tool holders | Hand tools | <input checked="" type="checkbox"/> |
| Chuck foot switch | 1 foot switch | | <input checked="" type="checkbox"/> |
| Signal lamp | 4 colors (LED type: Red, Yellow, Green, Blue) | | <input type="checkbox"/> |
| Manual pulse generator (Separate type) | | | <input type="checkbox"/> |

* DMQP (DMG MORI Qualified Products)

*1 For oil based coolant only (Not available in Europe)

*2 For water-soluble coolant

*3 Without workpiece transfer conveyor

● DMQP: Please see Page 30 for details.

● The information in this catalog is valid as of June 2019.

● 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.

<Precautions for Machine Relocation>

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