

**DMG MORI
NTX 2500 | 1500 2nd Generation****Basic Machine**

J-A01868 NTX 2500 | 1500
Integrated Mill Turn Center
Tool spindle : 12,000/ 20,000 min-1
Axis travel X/ Y/ Z/ B : 675 (-125~+550)/ 300
(±150) / 1,562+164<for ATC> mm/
240°(±120°)
[26.5 (-4.9~+21.6)/ 11.8
(±5.9)/ 61.4+6.4 <for ATC> in.]
Spindle 1 : 4,000 min-1
Bar work capacity : dia.80 [3.1]

Control

J-008071 Control F31iB5 with CELOS (NTX Gen2)
Control unit: Fanuc F31iB5
Operation system: CELOS (MAPPS)

J-003261 CELOS - ERGOline Touch
to facilitate machine operation incl. 21.5 "
ERGOline Touch ® control with multi touch
screens. Uniform management,
documentation and visualization of order,
process - and machine data.
Networkable with CAD / CAM
User friendly and productive
MAPPS system

Spindle

J-008478 (Spindle 1) Through-spindle Hole dia.91 mm
(3.58 inch.), 4,000 min-1 (STD) (FANUC)
turnMASTER
Max. spindle speed: 4,000 min-1
Chuck size: 10 inch., 12 inch.
Spindle nose type: JIS A2-8
Through-spindle hole diameter: φ91 mm
(dia.3.58 inch.)
Bar work capacity: φ80 mm (dia.3.15 inch.)
Spindle drive motor: 18.5/18.5/15 kW
(24.7/24.7/20 HP) (25%ED/50%ED/cont)
Spindle torque: 599/505/409 Nm
(441.8/372.47/301.66 ft-lbf)
(15%ED/30min/cont)
MASTER series spindle: Covered by a
3-year warranty service
*The new quotation requests or product
orders that are made on and after January
2018 are covered.

J-008610 (Spindle 2) Through-spindle Hole Dia.91 mm
(3.58 inch.), 4,000 min⁻¹ (FANUC)
turnMASTER
FANUC specifications
Output: 18.5/18.5/15 kW (24.7/24.7/20 HP)
(25%ED/50%ED/cont)
Max. spindle speed: 4,000 min⁻¹
Max. torque: 599/505/409 Nm
(441.8/372.47/301.66 ft·lbf)
(15%ED/30min/cont)
Through-spindle hole diameter: ϕ 91 mm
(dia.3.58 inch.)
Bar work capacity: ϕ 80 mm (dia.3.15 inch.)
MASTER series spindle: Covered by a
3-year warranty service
*The new quotation requests or product
orders that are made on and after January
2018 are covered.

Chuck for Main spindle

J-020603 (Spindle 1) KITAGAWA 12-inch Hollow
Chuck B-212A821H
Three-jaw hydraulic chuck manufactured by
Kitagawa Iron Works.
Chuck outer diameter: ϕ 304 mm (dia.11.97
inch.)
Through-hole diameter: ϕ 91 mm (dia.3.58
inch.)
Gripping diameter: Max. ϕ 304 mm
(dia.11.97 inch.), Min. ϕ 34 mm (dia.1.34
inch.)
Jaw stroke (diameter): 10.6 mm (0.42 inch.)
Plunger stroke: 23 mm (0.91 inch.)
Max. allowable pull force: 55 kN (12.36 klbf)
Max. static gripping force: 144 kN (32.37
klbf)
Dynamic gripping force at max. speed: 48
kN (10.79 klbf)
Max. allowable speed: 3,300 min⁻¹
Mass: 64 kg (140.8 lb.)

J-020335 (Spindle 1) Hollow Cylinder Set for
KITAGAWA 12-inch Hollow Chuck
B-212A821H
Hollow cylinder and draw bar are included as
a set. Chuck is not included. Please see the
chuck-cylinder combination diagram for the
combination with chuck and the
specification.

Chuck for Counter spindle

- J-020659 (Spindle 2) KITAGAWA 12-inch Solid Chuck N-12A0821
Three-jaw hydraulic chuck manufactured by Kitagawa Iron Works.
Chuck outer diameter: $\phi 304$ mm (dia. 11.97 inch.)
Gripping diameter: Max. $\phi 304$ mm (dia. 11.97 inch.), Min. $\phi 26$ mm (dia. 1.02 inch.)
Jaw stroke (diameter): 10.5 mm (0.41 inch.)
Plunger stroke: 30 mm (1.18 inch.)
Max. allowable pull force: 41 kN (9.22 klpf)
Max. static gripping force: 156 kN (35.07 klpf)
Dynamic gripping force at max. speed: 52 kN (11.69 klpf)
Max. allowable speed: 3,000 min-1
Mass: 57.3 kg (126.06 lb.)
*The data above are information on the chuck body. Since it may be limited by this machine specification, please check the contents of the mounted cylinder set for details.

- J-020617 (Spindle 2) Solid Cylinder set for 12 in. chuck

Equipment for Chucks

- J-002276 Chuck Foot Switch (Double) For Main And Counter Spindle
Chuck unclamping and clamping are operated by separate foot switches to prevent mistakes. To activate a foot switch, you must first press the locking plate of the foot switch forward to release the switch lock. Chuck unclamping and clamping are performed with two sets of double foot switches, one for the main spindle and one for the sub spindle.

Tool Spindle

- J-008483 Standard Tool Spindle, 12,000 min-1, 23/22.2 kW (FANUC) compactMASTER
Max. tool spindle speed: 12,000 min-1
Tool spindle output: 23/22.2 kW (31.3/30 HP) (40% ED/cont)
Tool spindle torque: 116/89 Nm (85.56/65.64 ft·lbf) (40% ED/cont)
MASTER series spindle: Covered by a 3-year warranty service
*The new quotation requests or product orders that are made on and after January 2018 are covered.

J-020701 Capto C6
This specification uses the Capto C6 tool holder.

J-005482 Tool spindle full indexing specifications
(Standard)

Tailstock

J-003188 Spindle 2 Tailstock Specification
The specification to push a workpiece by the center mounted in the spindle 2 chuck. This allows you to machine the tip of the workpiece. When using spindle 2 as a tailstock, the motor equipped with a brake is installed as the spindle may be pushed back.
*The center is not included. Please purchase it separately.

Steady Rest

J-010988 Preparation for Automatic Centering Steady Rest SMW SLU-X3.1 (Servo-driven)
This is an I/F for automatic centering steady rest body attachment. When cutting a long workpiece, it prevents vibration and deflection. The steady rest arm is automatically opened and closed by hydraulic pressure, and the open end is checked by the proximity switch. The steady rest is driven and held by the servo motor when positioning. This specification includes bracket, hydraulic pipe, electrical wire, lubricating oil pipe, pneumatic pipe (air purge) and coolant pump for roller of rest arm.
*Hydraulic steady rest is not included.

J-020732 Automatic Centering Steady Rest SMW SLU-X3.1 (Dia.20-165 mm, Unit Only)
Automatic centering steady rest manufactured by SMW. The steady rest prevents vibration and deflection of a long workpiece during machining.
*I/F is not included. Please select it separately.
Gripping diameter: ϕ 20-165 mm (dia.0.79 - 6.5 inch.)

Tool Magazine

- J-009041 Tool Storage Capacity 76 Tools (Capto C6)
Tool capacity: 76 tools
Max. tool diameter
- With adjacent tools: $\phi 70$ mm (dia.2.76 inch.)
- Without adjacent tools: $\phi 130$ mm (dia.5.12 inch.)
Max. tool length: 400 mm (15.75 inch.)
Max. tool mass: 8 kg (17.6 lb.)
Max. tool moment (from gage line): 7.84 Nm (5.78 ft·lbf)
*For the details, please consult DMG MORI.
<Features>
- It consists of 2 chain magazines.
- The ball screw drive is adopted for the tool transfer between the magazines.
(Conventionally, driven by the air cylinder)
This reduces the transfer time significantly.
- The tool change window is a automatic door. (With opening/closing button)
- Since the tool pusher is installed, the tool can be detached just by pushing the button.
(A dedicated tool is necessary for the conventional machine.)

Coolant supply / Chip removal

- J-G00428 Usable coolant type: Water-soluble
To avoid the risk of poor accuracy or machine trouble, do not use oil-based coolant.
Please select oil-based coolant specification in case of using oil-based coolant.
- J-009046 Chip Conveyor (Right Discharge, Hinge Type + Drum Filter Type) (/1500)
This chip conveyor is suitable for discharging all types of metal chips other than powdery ones. Long chips are conveyed and discharged using the hinge belt. Fine chips are accumulated on the inner pan and scraped out to the discharge port with the rear side of the belt. The built-in drum filter can reduce the frequency of cleaning inside the tank.
Chip conveying capacity: 1,588 L/h (419.23 gph) (long chips) / 18 L/h (4.75 gph) (short chips)
Max. coolant throughput: 150 L/min (39.6 gpm)

- J-004915 Interface for Super-High-Pressure Coolant System (8 Steps Pressure)
(Through-Spindle Coolant System for Tool Spindle) (For 1-Path System)
Interface for mounting the high-pressure coolant system (separate type). The electrical components and coolant piping are included. The predefined 8 steps of pressure can be selected by the M-code.
Max. discharge pressure: 7 MPa (1,015 psi)
*The high pressure coolant unit is not included.
*Please prepare the power source supplied to the high pressure coolant unit separately.
*When using the high-pressure coolant system, the machining accuracy may be influenced by a rise in the coolant temperature. Select the coolant chiller and mist collector to reduce the influence on the machining accuracy.
- J-003220 Coolant Gun
The magnet type coolant gun is attached to the machine front. Pressing the "coolant gun" button on the operation panel activates the coolant pump, and depressing its trigger starts the coolant discharge. The coolant pump automatically stops in 2 minutes. It can be used for flushing away chips in the machining chamber.
- J-004572 Air Blow for Chuck (Spindle 2)
Air is blown to the chuck for removing chips adhering to it. Removing the chips prevents the gripping accuracy from being impaired by the chip pinching. The air blow nozzle is installed on the upper part of chuck. The copper pipe of the nozzle tip is supplied, so please process it to the desired shape for use. The air blow ON/OFF is controlled by the M codes.
*The time until the air blow OFF can be set using the timer.
*The spindle can be jogged during the air blow using the parameters.
- J-004996 Mist Collector (HVS-220), Including Stand
The mist collector collects, absorbs and dehydrates mist, dust particles and oily fumes generated during machining using the filter. The sucked oil mist is filtered and returned to the coolant tank through the drain hose. This specification includes a stand for mounting the mist collector.

Coolant supply / Chip removal*

- J-EU1070 INTERLIT- TMF300/600 compact filter unit
70 bar
Paper belt filter TMF300, tank volume 600 l,
high pressure pump 70 bar - 32 l/min with
pressure regulating valve and gauge, level
indicator with 3 level switches, level sensor
IFM LK1022/LK1023 for chip conveyor, incl.
hose package and signal cable connecting
machine. Connection cable designed for
machine I/F
"IKZ-IF-DMQP-CO-DE-201910".

Measuring / Monitoring

- J-009026 Full-closed Loop Control for X-axis (Tool
Spindle) (Direct Scale Feedback)
The magnetic scale is used for the X-axis
position sensing of the tool spindle, instead
of the axis servomotor pulse encoder. It is
not susceptible to ball screw precision error
or thermal displacement. The magnetic
scale is mounted parallel to the X-axis of the
tool spindle, and the coordinates of the
position are directly fed back to the NC unit.
This enables the higher precision
positioning.
Resolution: 0.01 μm
(Magnescale)
- J-009028 Full-closed Loop Control for Y-axis (Tool
Spindle) (Direct Scale Feedback)
The magnetic scale is used for the Y-axis
position sensing of the tool spindle, instead
of the axis servomotor pulse encoder. It is
not susceptible to ball screw precision error
or thermal displacement. The magnetic
scale is mounted parallel to the Y-axis of the
tool spindle, and the coordinates of the
position are directly fed back to the NC unit.
This enables the higher precision
positioning.
Resolution: 0.01 μm
(Magnescale)

- J-009030 Full-closed Loop Control for Z-axis (Tool Spindle) (Direct Scale Feedback)
The magnetic scale is used for the Z-axis position sensing of the tool spindle, instead of the axis servomotor pulse encoder. It is not susceptible to ball screw precision error or thermal displacement. The magnetic scale is mounted parallel to the Z-axis of the tool spindle, and the coordinates of the position are directly fed back to the NC unit. This enables the higher precision positioning.
Resolution: 0.01 μm
(Magnescale)
- J-004574 In-machine Workpiece Measuring System
Radio Signal Transmission Type Touch Sensor (RENISHAW, RMP60)
Using the radio signal transmission type sensor mounted on the tool spindle, the workpiece is positioned and the positions of the fixture and workpiece are measured. The workpiece coordinate values read by the touch sensor are transmitted as a radio signal to the NC unit via the receiver installed inside the machine. The touch sensor is stored in the tool magazine and called to the tool spindle by automatic tool change.
- Measuring direction: +X, -X, +Y, -Y, +Z
- J-004278 Automatic In-machine Tool Presetter for Tool Spindle (In-out Type) (Without Turret 2 specifications)
It simplifies the complicated setup work at the tool change. The position of the tool nose is measured precisely by just bringing the tool nose into contact with the sensor, and the measured value is fed back to NC. The tool breakage can also be detected by comparing the measured value with the setting value. The presetter is stored in the upper part of the Spindle 1 chuck cover and is moved in/out automatically with the M codes.

Automation

- J-004166 Signal lamp 4 colors (Red, yellow, green, blue)
Indicate machine status by the LED color. Mounted at top front of machine for visibility from distance. Bright LED lighting with 360 degree viewing angle. Low maintenance and low power consumption.
Color Specification (2 type):
<Type 1 (Standard)>
•Red: general error
•Yellow: intervention necessary (Machine Error)
•Green: automatic mode
•Blue: set-up mode
<Type 2>
•Red: general error
•Yellow: Program end (M02/M30)
•Green: automatic mode
*Does not include buzzer, can be ordered separately
1 lamp 4 kleuren (rood, geel, groen, blauw)
- J-010982 Workpiece unloader (spindle 2, hand) + Workpiece unloading conveyor+ Workpiece stocker
- J-009032 Automatic Door
The front door is opened and closed automatically using the air cylinder. Even when the operator is caught by the front door, the tape switch installed in the door is immediately activated to stop the door. The automatic door opening/closing can be operated by the M codes or the buttons on the operation panel.
Door opening/closing time: 5 sec
- J-015384 EtherNet/IP I/F
I/F for exchanging control signals between the machine and peripheral equipment using the EtherNet/IP communication protocol. It is necessary for connecting the peripheral equipment that supports EtherNet/IP. The wiring is saved compared to normal hard wiring communication as the control signals are exchanged via the EtherNet communication. This specification includes I/F for receiving and executing emergency stop signals transmitted from peripheral equipment via separate non-LAN cable.
*The LAN cable between the machine and peripheral equipment is not included.

- J-015385 Robot interface (EtherNet/IP)
Prepares I/O signals for exchanging
workpiece between the machine and robot
by EtherNet/IP protocol. (separate,
stand-alone type)
Advantages of long-term unmanned
operation and automatic workpieces set up.
*Robot system and cable between the
machine and robot are not included.
*Requires EtherNet/IP option.
*The automatic door is not included.
- J-003356 Safety Fence I/F (Electric I/F)
This is the signal to indicate the status of the
safety fence door to the machine. When the
machine receives the signal indicating that
the safety fence door is closed, power is
supplied even if the machine front door is
open. When the safety fence I/F is used with
the robot I/F, the spindle orientation can be
executed by the command specified from
the robot.
*Safety fence and a cable between the
safety fence and machine are not included.
- J-008878 Bar Feeder Interface (LNS) (Multiple)
The Bar feeder interface (I/F) is used for
connection to the bar feeder which achieves
higher productivity by the automatic bar
stock feed. To install any bar feeder other
than the LNS-made, the I/F needs to be
changed. Please consult DMG MORI
Service Department.
* Caution : If it is necessary the Guide bush
according to the workpiece, the Guide bush
needs to be arranged separately.

General Options

- J-015367 10 External M-Codes
10 M-codes are added for general purpose
use by customers. The terminal blocks are
provided for output/completion of the added
M-codes. When the M-code is specified, the
signal is output to the terminal block relayed
to the relay circuit (A-contact) in the
electrical cabinet. At completion of the
M-code, the signal is input to the completion
terminal block with dry contact. It is available
for the ON/OFF control of external
equipment set up by customers.
*Specifications of relay contact: AC250V,
Max 5A

- J-003686 **Manual Pulse Generator (Separate Type)**
It is a separate type hand-held handle switch, and addition of it improves the operability at the setup. The switch on the operation panel allows switching between the handle switch on the operation panel and the separate type one. The separate type handle switch is connected to the operation panel with a curled cord. It can be attached to a desired place on the machine using the magnet on the back side. The separate type handle switch equipped with the high-intensity white LED as standard can also be used as a hand-held light to illuminate the workpiece machining face or the dark area where the machine light does not reach.
- J-G00952 **Voltage of Customer Factory 380 V**
This machine is shipped with voltage set to 200 V specification. Please arrange transformer if necessary.
(Caution)
IF the setting is incompatible, there is a possibility of trouble such as operation abnormality and alarm occurrence. Be sure to check the supply voltage and frequency of the customer's factory.
- J-G00960 **Frequency 50 Hz**
This machine is shipped with frequency set to 50 Hz specification.
(Caution)
IF the setting is incompatible, there is a possibility of trouble such as operation abnormality and alarm occurrence. Be sure to check the supply voltage and frequency of the customer's factory.
- J-004471 **Instelling in mm**
- J-EU0007 **95 kVA three phase autotransformer with cabinet CLPB 50F- 1427T18001.** Cable lugs of transformer cable might have to be replaced during installation.

Technology Cycle

- J-015571 **Alternating Speed**
This technology cycle minimizes vibration during turning by periodically changing spindle speeds on the turning. The cycle is automatically calculated only by setting the fluctuation width in the guidance screen. It is the optimal solution for machining of long, easy-to-chatter workpieces such as shafts.
*Additional necessary NC option : none

J-008946 3D Quick SET(Without Calibration Sphere)
The function for control and compensation of the accuracy of 5 axis machine configurations. Improve accuracy because of error reduction of rotation and tilt axis. The calibration sphere is not included.
*If the customer already has calibration sphere for other machine and it will be used for this new machine, please select this option.
(Need be selected In-machine workpiece measuring touch sensor separately.)
【Feature】
- Automatic correction with dedicated program
- Easy programming in accordance with guidance
- It can be corrected with work and fixture
*Please note that there is a possibility of having interference depending on the position of the calibration sphere.

J-015572 MPC (Machine Protection Control)
It monitors vibration with acceleration sensors mounted on the spindle. This technology cycle stops the spindle to minimize the damage to the machine when abnormal vibration value is detected. It is also equipped with the function to diagnose the condition of spindle bearings and imbalance. Therefore, It is useful for preventive maintenance of the spindle.
*Additional necessary NC option : none

Options for Control

J-008021 Program Restart
This function restarts an interrupted machining program from any block in the case where a tool is broken, after holidays, etc.. To restart the program, specify the sequence number of the block to be restarted or the block number.
*There are two restart methods: P-type and Q-type. The P-type method allows the direct return to any restart position, while the Q-type method allows the return by moving the axes to the machining start point.

- J-008244 Addition of Optional Block Skip (Soft Key Type 2-9)
8 optional block skip functions are added.
The switches for enabling/disabling them is added on the operation panel.
(How to Use)
By programming a slash "/" and the number (/n (n=2 to 9)) following it at the beginning of a block and turning on the optional block skip switch with the same number as programmed on the screen or machine operation panel, the information of the block is ignored in the DNC or memory operation. Turning off the optional block skip switch n enables the information of the block with n. Namely, the block including /n can be skipped by the operator's selection.
- J-G00618 X-axis Direction, JIS/ISO-compliant
The X-axis movement direction is compliant with the JIS/ISO standard.

Screen Text Language

- J-000086 Screen display Dutch
Language on MAPPS Screen: Dutch
Language on MAPPS Warning Screen: Dutch
Language on NC Screen: Dutch
Language on PC Screen: English

Options for MAPPS / CELOS Control*

- J-004769 DMG MORI Messenger

Services

J-004965

3D Machine Model Data

The 3D model data of the machine is provided.

The data can be used in the customer's CAD system for various applications such as simulation.

The following two types of 3D model data can be provided:

- Model for checking the outer shape of the machine (to be used to create the layout in the factory)
- Model for checking interference inside the machine (to be used to check machining programs and tool paths)

*The non-disclosure agreement needs to be concluded.

*For preventing the technical information from being leaked, the data to be provided is simplified. Information other than the machine outer shape and interference inside the machine is not included.