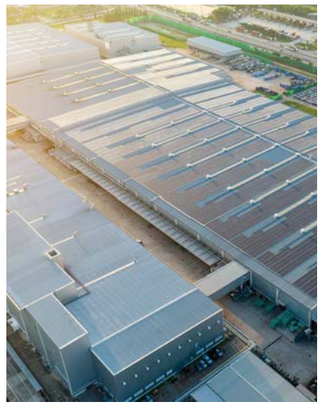
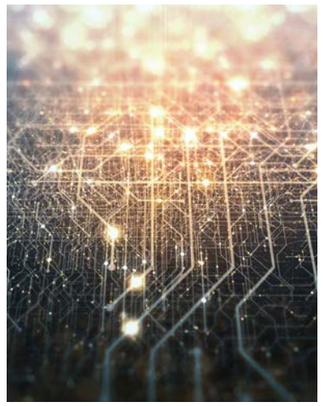
MITSUBISHI ELECTRIC
Changes for the Better

Automating the World

FACTORY AUTOMATION

NUMERICAL CONTROL (CNC)
M800V/M80V Series





Mitsubishi Electric Corporation operates across a wide range of sectors, from home appliances and building systems to railway solutions, factory automation equipment, and satellites and leverages the synergy created by these diverse sectors to address various challenges and provide optimal solutions worldwide.

We, the Mitsubishi Electric Group, will continue to evolve in "carbon neutrality" and a "circular economy" by promoting innovation in products and services and providing integrated solutions through our business activities, all in order to realize a vibrant and sustainable society.

Under "Changes for the Better" which reflects the Mitsubishi Electric Group's commitment to "always strive to achieve something better", Mitsubishi Electric FA will expand the value of its products and services in the FA system business by advancing the provision and expansion of integrated solutions under the slogan "Automating the World" for an even better tomorrow. Through automation technology, we aim to contribute to innovation not only in the manufacturing industry but also across society as a whole.
We stand as your partner in shaping a smarter, more efficient,
and more sustainable future.

SUSTAINABLE DEVELOPMENT GOALS

The Mitsubishi Electric Group is actively solving social issues, such as decarbonization and labor shortages, by providing production sites with energy-saving equipment and solutions that utilize automation systems, thereby helping towards a sustainable society.

INITIATIVES THAT CONTRIBUTE TO ADDRESSING SOCIAL ISSUES

The Mitsubishi Electric Group will pursue value creation by addressing social challenges and will contribute to achieving the 17 goals of the SDGs*1 through all corporate activities.

Environmental Initiatives

The Mitsubishi Electric Group has set forth Environmental Sustainability Vision 2050 to clarify the company's stance on addressing long-term environmental issues and creating new value for a sustainable future toward 2050.
The new vision identifies environmental protection as a top corporate priority and stipulates increased initiatives toward this end. It defines Mitsubishi Electric's future course toward 2050 for implementing key initiatives in the form of the Environmental Declaration and Three Environmental Action Guidelines.

Environmental Sustainability Vision 2050

Environmental Declaration

Environmental Sustainability Vision 2050

Protect the air, land, and water with our hearts and technologies to sustain a better future for all.

To solve various factors that lead to environment issues, the Mitsubishi Electric Group shall unite the wishes of each and every person, and strive to create new value for a sustainable future.

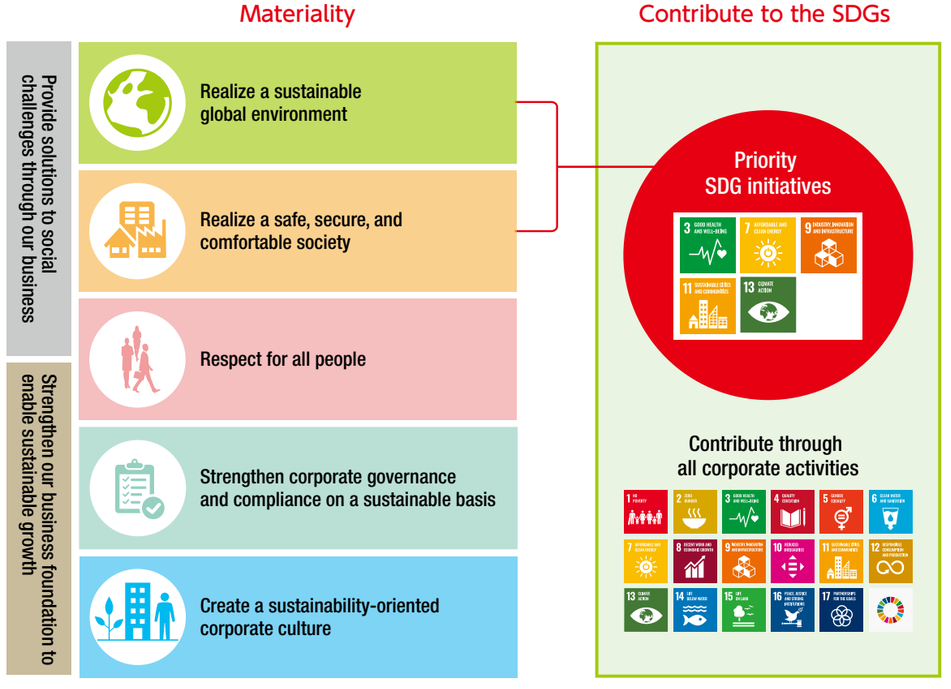
Three Environmental Action Guidelines

1. Apply diverse technologies in wide-ranging business areas to solve environmental issues
2. Challenge to develop business innovations for future generations
3. Publicize and share new values and lifestyles

Key Activities

- Climate Change Measures
- Resource Circulation
- Live in Harmony with Nature
- Long-term Activities
- Innovation
- Nurturing Human Resources
- Understanding Needs
- Co-create and Disseminate New Values
- Live in Harmony with the Region

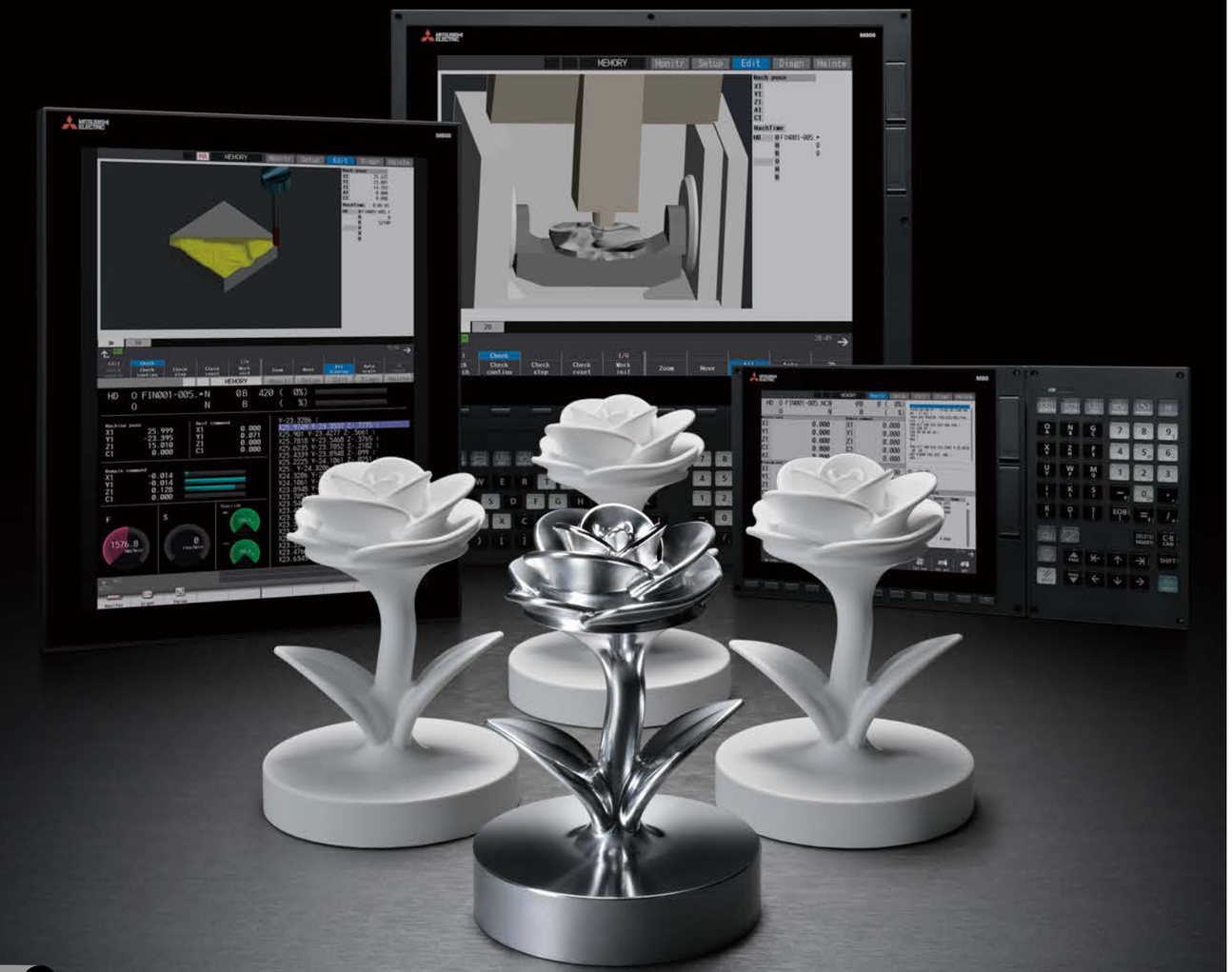
The Mitsubishi Electric Group's Materiality



*1. Sustainable Development Goals adopted by the United Nations as goals to achieve by 2030.

The Difference in your Machining

with MITSUBISHI ELECTRIC CNC



Towards a CNC that can create more Differences

By staying close to our customers, we gain a deep understanding of their commitment to manufacturing and their unique "Difference", including their identity.

We will continuously integrate our refined automation technology, extensive experience with machine tools, and comprehensive technical capabilities as a general electrical equipment manufacturer.

This integration aims to enhance and strengthen our customers' "Difference".

We remain committed to promoting a sustainable society by addressing various social issues through our customers' manufacturing operations.

M800V/M80V Series
COMPUTERIZED NUMERICAL CONTROLLERS

The Evolution in Smart Manufacturing

Seven years after its development, the M800/M80 Series ushers in a new dimension.

A variety of innovative control functions help machine various ‘things’ at high speed and with high accuracy.

The industry's first*1 built-in wireless LAN, which reduces wiring and operators' movement, high-definition 3D machining simulation, which minimizes trial cutting, and advanced user-friendly and intuitive operations streamline overall manufacturing processes and create 'time' as never before envisioned.

Our new CNC, keeping abreast of manufacturers’ needs and the advancement of the times, efficiently optimizes manufacturing from the perspective of ‘things’ and ‘time’.

Introducing the all new M800V/M80V Series.

View the introduction video here. ▶

*1. As of August 2021. According to research by Mitsubishi Electric Corporation.

Functions that contribute to sustainability

Connectivity and usability that further streamline the shop floor

High-speed high-accuracy functions that further improve productivity on the shop floor

OVERVIEW

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FEATURES OF THE M800V/M80V SERIES

The M800V/M80V Series makes an effective difference in each phase of the engineering chain.

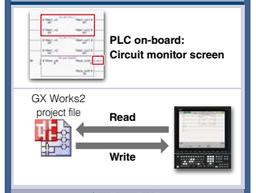
Mechanical and electrical design

- Differentiation of machines through customization
- Easier PLC programming
- Expanded control area (sheet metal laser cutting machines, special mechanisms, etc.)

Image input interface

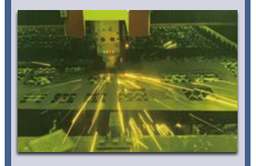
▶ See P.15

MELSEC development tool (GX Works2)



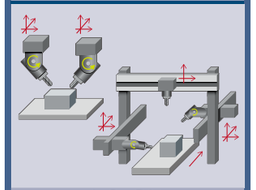
▶ See P.15

Laser processing control



▶ See P.15

Multi-part system control for machining center

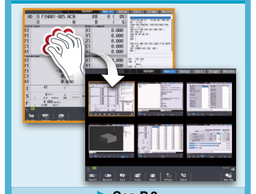


▶ See P.15

Setup

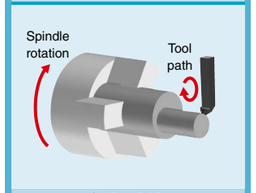
- Enhanced usability
- Efficient programming and parameter adjustment
- High-definition simulation to reduce faulty machining and scrap

Multi-touch gestures



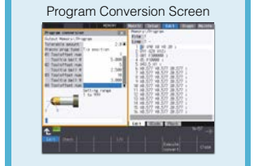
▶ See P.8

Eccentric turning



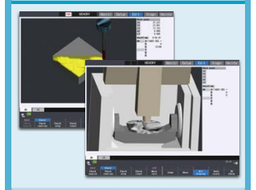
▶ See P.16

Optimum program conversion



▶ See P.16

3D machining simulation

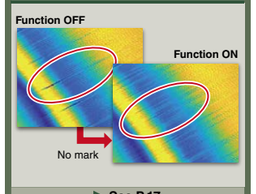


▶ See P.16, 19

Machining

- Enhanced machining quality
- New function to reduce cycle time and extend tool life

Spline interpolation 2 improvement



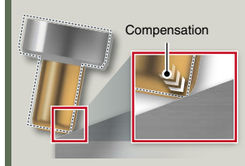
▶ See P.17

OMR-CC (Optimum machine response-contour control)

Improved cutting in arcs and free-form surfaces

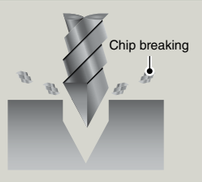
▶ See P.17

Tool cutting point control



▶ See P.17

Vibration Cutting Control



▶ See P.17

Production maintenance

- Support for automation and traceability
- More features and improvements for operation monitoring and remote monitoring applications
- Support for security measures

Two-dimensional barcode (QR code) engraving cycle

▶ See P.18

NC MachiningAID

▶ See P.18

Built-in remote service gateway unit functionality

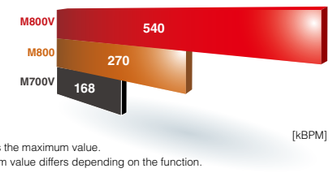
▶ See P.9

Security feature for Windows display

▶ See P.18

BASIC PERFORMANCE IMPROVEMENTS

Increased fine segment processing capability further reduces cycle time



* The above is the maximum value.
The maximum value differs depending on the function.

With improved hardware optimized for CNC, the dedicated CPU significantly improves fine segment processing capability.
High machining program processing capability translates to a shorter cycle time.

Increased number of control axes

Machining center system (M system)

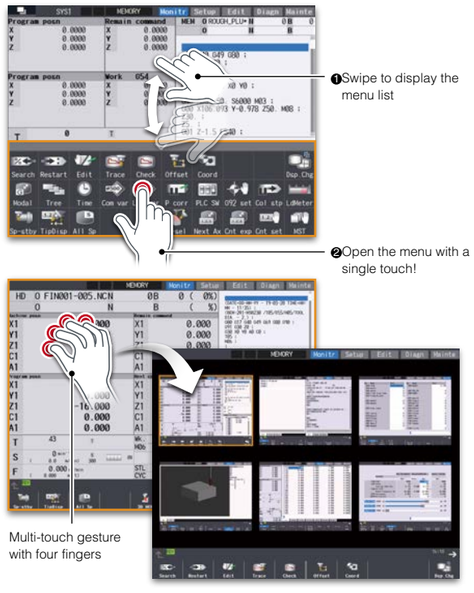
	M800VS M800VW	M80V (TypeA)	M80V (TypeB)
Max. number of axes	32	11 ▶ 24	9 ▶ 12
Number of spindles	6	4	2 ▶ 3

Lathe system (L system)

	M800VS M800VW	M80V (TypeA)	M80V (TypeB)
Max. number of axes	32	12 ▶ 24	9
Number of spindles	8	6	4

The number of some control axes has been increased from the conventional M800/M80 Series, allowing control of more complex mechanisms.

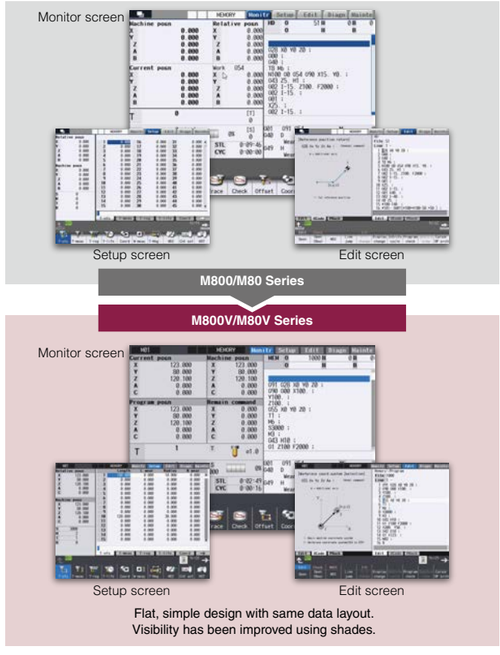
Multi-touch function provides superior usability



Usability of the M800/M80 Series has further evolved!
Multi-touch gestures enable smarter operations, such as:
Pinch-in/pinch-out in program display area to change text size
- Drag/flick the menu upward to open the menu list
- Use grab operation with four or more points to open the list of recently selected screens.

View the introduction video here. ▶

Screen design that ensures visibility

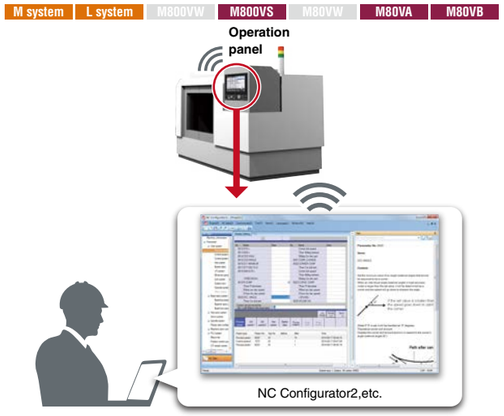


Screen design and colors are optimized for readability considering information content. Better visibility leads to increased work efficiency.

EVOLUTION OF THE CONTROL UNIT AND DISPLAY UNIT

Built-in wireless LAN increases work efficiency

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

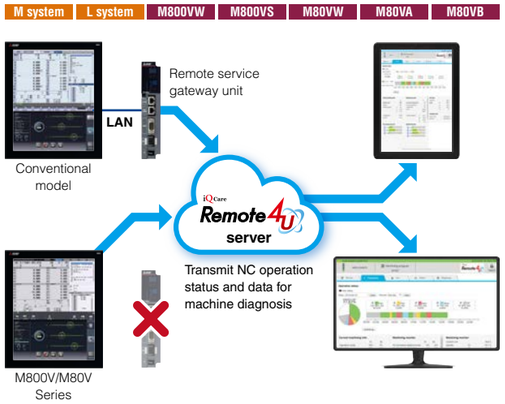


Our industry-first*1 NC control unit with built-in wireless LAN frees operation from the constraints of time and space. It can be connected to software tools on a PC to exchange data using wireless communication.

*1. As of August 2021. According to research by Mitsubishi Electric Corporation.
*2. The available legal wireless frequency bands and channels vary from country to country due to varying regulations governing use of radio waves. Ensure that the country code that matches the country of operation is configured before using the wireless LAN functionality.

A gateway unit functionality for remote service is built into the NC

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB



The functionality of a remote service gateway unit required for remote service iQ Care Remote4U is built into the NC control unit*1, leading to less wiring and easier remote diagnostics.

*1. For regular data retrieval, different interval applies to the built-in capability (Remote gateway unit, one second; built-in capability in NC control unit, 30 seconds).
If the data needs to be retrieved at a one-second interval, use the remote gateway unit like the earlier models.

Addition of a 19-inch display to the lineup of display-integrated control units (M800VS/M80V Series)

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

A 19-type display has been added to the lineup of 8.4, 10.4 and 15 types.
A large screen improves visibility and provides greater flexibility in designing an operation panel.

Evolution of the control unit and display unit (M800VW/M80VW Series)

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

■Evolved Windows display

Advanced design inherited from the M800/M80 Series with double storage capacity.
Equipped with a new PC unit supporting Windows 10.

■New control unit with enhanced field network support

The added LAN connector on the control unit offers connectivity with a wider variety of networks.
Expandability is maintained by the expansion slots while also ensuring installation compatibility with the M800VW/M80W Series.

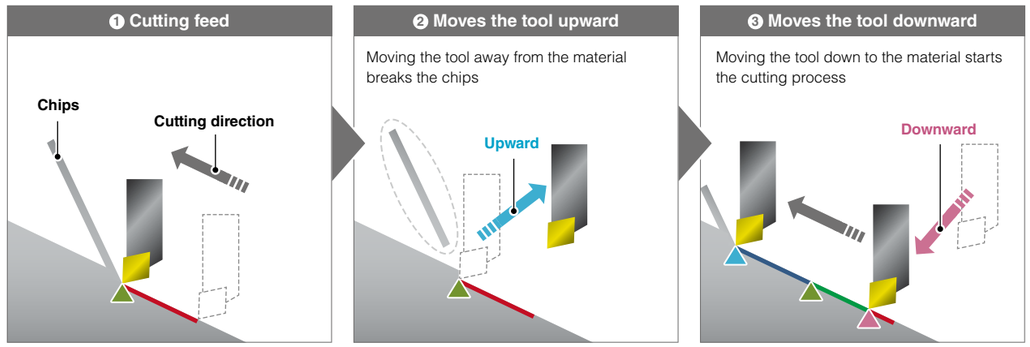
EXPANSION AND EVOLUTION OF CONTROL FUNCTIONS

Chip breaking on tapered and arcuate shapes

Interrupted cut

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

The tool periodically moves upward during the cutting motion to break chips.
Frees your parts and chip conveyor from clinging chips, improving your setup time.
This feature is also applicable to circular interpolation and cutting of tapered part.



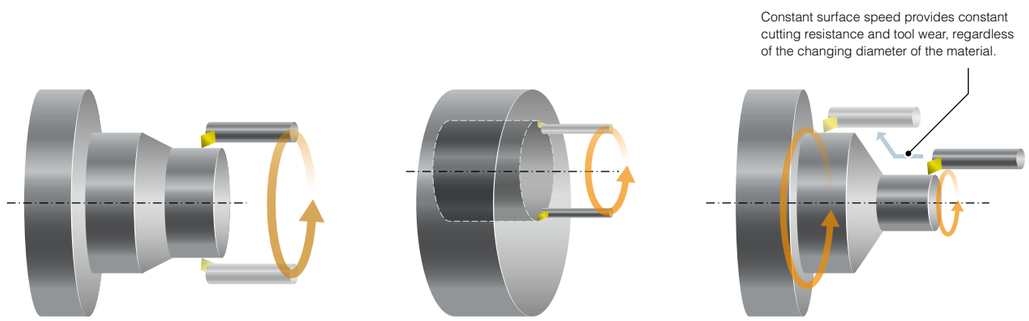
Legend ▲: Tool moves away ▲: Tool touches the surface ▲: Tool moves away (next cut) —: Previous cut —: No cutting —: Next cut

Consolidates the process and reduces man-hours in the machining center operation

Orbit machining

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

Turning-like machining is possible with a cutting tool synchronized with the spindle in a circular motion.
The consistent cutting action produces flawless, smooth surface.
A single tool can machine a variety of surfaces, such as large-diameter hole and seal gland.
Constant Surface Speed control is allowed even running the Orbit Machining. A constant cutting condition is maintained, ensuring precise machining and extending the tool's lifespan.



Example: Machining outer diameter

Example: Cutting internal wall of a hole (various diameter hole with a small tool)

Example: Orbit Machining combined with Constant Surface Speed Control

Legend —·—: Center of the orbital motion

CNC LINEUP

High performance

Standard

M800VW

Premium CNC provides expandability and flexibility

- Separated type with the control unit separate from the display
- A Windows-based display is included in the lineup, providing excellent expandability
- Four expansion slots are provided as a standard specification, and further expansion is realized by an optional card slot

M800VS

High-grade CNC well suited to high-speed high-accuracy machining and multi-axis multi-part system control

- Panel-in type with an integrated control unit and display
- Multi-CPU architecture allows for high performance and high functional graphics
- A non-Windows-based display provides easy operability

M80VW

Standard CNC with expandability and flexibility

- Separated type with the control unit separate from the display
- A Windows-based display is included in the lineup, providing excellent expandability
- Packaged type for easy selection of machine type
- Two expansion slots are provided as a standard specification, and further expansion is realized by an optional card slot

M80V

Standard CNC provides high productivity and easy operability

- Panel-in type, with an integrated control unit and display
- Pre-packaged (TypeA/TypeB) for easier selection
- A non-Windows-based display provides easy operability

Display unit size

Main specifications

	Lathe system	Machining center system
Max. number of axes (NC axes + spindles + PLC axes)	Standard: 16 Optional: 32	
Max. number of spindles	8	6
Max. number of part systems (main+sub)	Standard: 4 Optional: 8	Standard: 2 Optional: 8
Fine segment processing capability [kilo-blocks/min]	168	540

	Lathe system	Machining center system
Max. number of axes (NC axes + spindles + PLC axes)	Standard: 16 Optional: 32	
Max. number of spindles	8	6
Max. number of part systems (main+sub)	Standard: 4 Optional: 8	Standard: 2 Optional: 8
Fine segment processing capability [kilo-blocks/min]	168	540

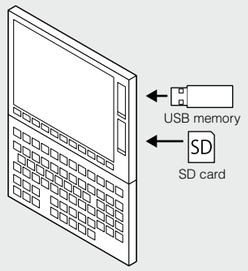
	Lathe system	Machining center system
Max. number of axes (NC axes + spindles + PLC axes)	24	24
Max. number of spindles	6	4
Max. number of part systems (main+sub)	4	4
Fine segment processing capability [kilo-blocks/min]	101	202

	Lathe system	Machining center system
Max. number of axes (NC axes + spindles + PLC axes)	TypeA: 24 TypeB: 9	TypeA: 24 TypeB: 12
Max. number of spindles	TypeA: 6 TypeB: 4	TypeA: 4 TypeB: 3
Max. number of part systems (main+sub)	TypeA: 4 TypeB: 2	TypeA: 4 TypeB: 2
Fine segment processing capability [kilo-blocks/min]	TypeA: 101 TypeB: –	TypeA: 202 TypeB: 67.5

SYSTEM CONFIGURATIONS

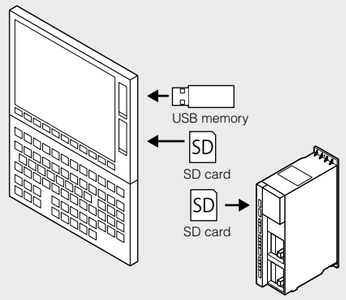
Ethernet

M800VS/M80V Series



Display-integrated control unit & keyboard

M800VW/M80VW Series

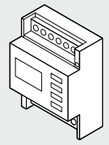


Display & keyboard

Control unit

Field network
- PROFIBUS-DP
- EtherNet/IP
- CC-Link
- CC-Link IE TSN
- CC-Link IE Field Network
- CC-Link IE Field Network Basic
- FL-net
- Modbus TCP

PC server
- Production control system

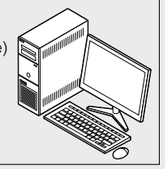


EcoMonitorLight

Software for machine assembly and adjustment
- NC Analyzer2
- NC Configurator2

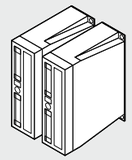
Software for electrical design
- NC Designer2
- NC Trainer2plus

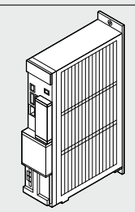
Software for operation and maintenance
- NC Trainer2
- NC Explorer
- NC Monitor2
- Custom API Library (Mitsubishi Electric CNC Communication Software)
- iQ Care Remote4U
- NC Virtual Simulator
- NC MachiningAID



Remote I/O unit

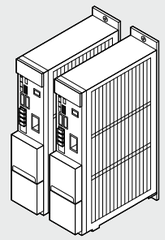
Thermistor input unit

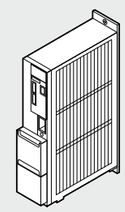




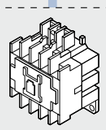
Power backup unit
- MDS-D/DH-PFU

Drive unit
- MDS-E/EH Series
- MDS-EJ/EJH Series
- MDS-EM/EMH Series

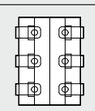




Power supply unit
- MDS-E/EH-CV
- MDS-EX-CV/CVH
- MDS-EX-CVP



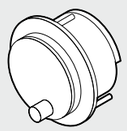
MC



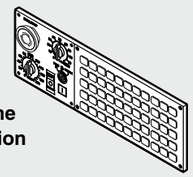
AC reactor

AC power supply

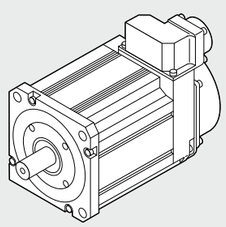
Manual pulse generator



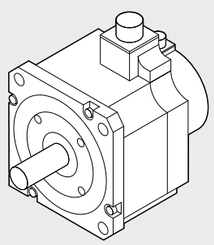
Machine operation panel



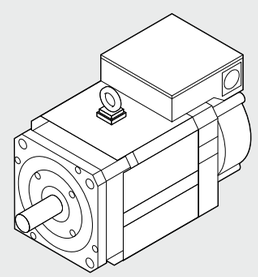
Tool spindle motor
- HG Series
- HG-JR Series



Servo motor
- HG Series
- LM-F Series
- TM-RB Series



Spindle motor
- SJ-D Series
- SJ-DG Series
- SJ-DL Series
- SJ-DN Series
- SJ-DJ Series
- SJ-DM Series
- SJ-BG Series



┌ ─ ┐ Optional parts are not provided as accessories for NC equipment.
└ ─ ┘ Please purchase desired components from a Mitsubishi Electric dealership, etc.

INTRODUCTION OF FUNCTIONS

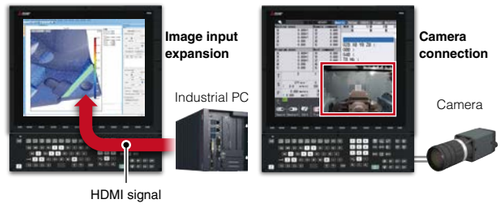
Mechanical and electrical design | Setup | Machining | Production maintenance

"Image input interface" enables flexible customization of NC screens and applications to differentiate machine tools, creating added value.

Image input interface

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

By displaying applications that are installed in an industrial PC and camera images stored inside the machine, the NC screen provides added value to machine tools. Applications in an industrial PC can be operated from the NC screen.



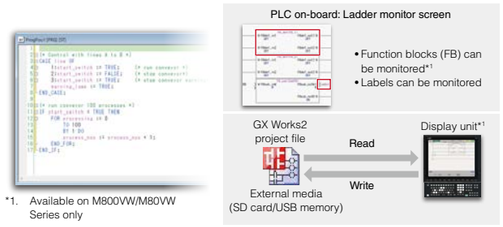
View the introduction video here. ▶

ST language is supported in addition to ladder language. This allows PLC programs to be created and edited efficiently using the syntax resembling that of conventional programming languages.

MELSEC development tool (GX Works2)

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

Unlike ladder language, ST language allows flexible text-based programming and compact operation processing. The use of function blocks (FB) also makes PLC programming more flexible.
Monitoring function blocks using PLC on-board*1 makes development easier and more efficient.



*1. Available on M800VW/M80VW Series only

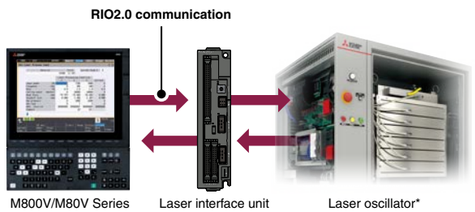
View the introduction video here. ▶

Sheet metal laser cutting machines can also be controlled.

Laser processing control

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

The CNC connects to a fiber laser oscillator via a Laser interface unit.
Controls laser output, frequency, and duty based on the predetermined laser machining condition.



* The laser oscillator must be prepared by the customer.

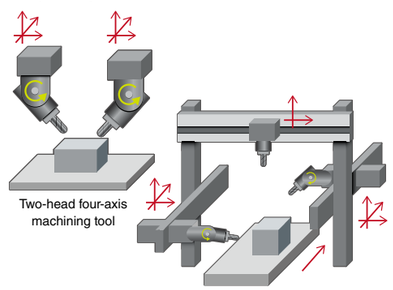
View the introduction video here. ▶

By achieving to control up to four part systems for machining centers, supporting large machining tools that require multi-part system control.

Multi-part system control for machining center

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

For machining tools that are compatible with "gigacasting" manufacturing, where EV bodies and battery frames are machined in single-piece, machining with multiple machining heads on the machining center, and combined machining of gantry-type and horizontal machining are required.
The above machining control is achieved by supporting up to four part system control.



Three-head gantry-type and horizontal machining tool

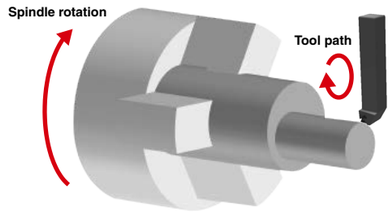
Mechanical and electrical design | Setup | Machining | Production maintenance

Precisely cuts the eccentric part without the need for re-clamping, and saves setup time. Simple steps for eccentric part machining.

Eccentric turning

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

A G code dedicated to a specialized turning that requires no special jigs, 4-jaw chuck, or re-clamping where the axis of rotation does not coincide with the workpiece's center of rotation.
The servo lag compensation feature compensates for errors due to servo delays that cause the tool to deviate from the programmed path inwardly.



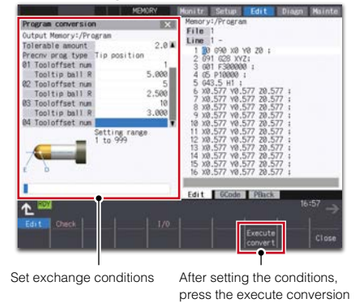
By converting the machining program within the allowable tolerance range settings (such as combining or excluding), it contributes to shortening the cycle time and improving surface quality.

Optimum program conversion

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

When converting a machining program that includes instructions for two rotary axes within the allowable tolerance range settings, micro blocks are combined, which is expected to reduce surface scratches caused by minor movements and reduce deceleration due to rotary axis switching.

Program Conversion Screen

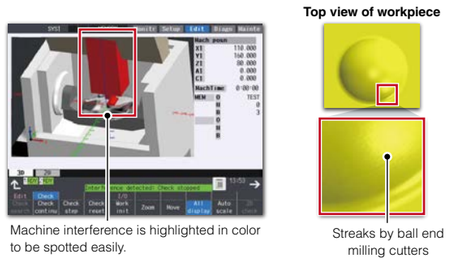


Sophisticated simulations help to shorten work period and reduce material losses.

3D Machining simulation

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

Machine interference and machining quality can be checked before actual machining, preventing collision and faulty machining, which leads to a shorter overall work period.
High-definition simulations, which make even the streaks by cutters visible, allows the machining results to be checked on the NC screen.



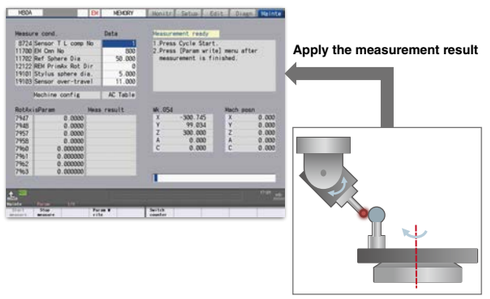
View the introduction video here. ▶

"Rotation center error measurement" can be used to instantly set the error compensation amount for rotation center error of the machine.

Rotation center error measurement

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

This function allows rotation center errors to be measured using the reference sphere and touch probe. It also allows compensation values to be applied effortlessly from the screen. The measurement result can be reflected in the rotary axis configuration parameters.
The machine configurations that support the function now includes not only table-tilt type but also combined type in the M800V/M80V Series.

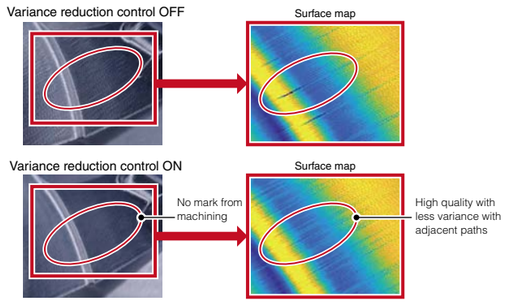


“Spline interpolation 2” delivers high-quality fine surfaces by making adjacent machining paths globally smooth.

Spline interpolation 2

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

This function solves the problem of uneven (marked) surfaces resulting from the variance of programmed points that occur when a machining program is generated by a CAM tool, improving machining quality.



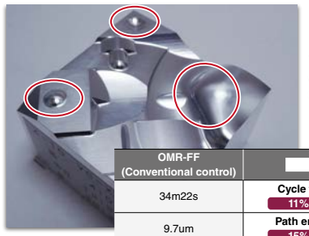
View the introduction video here. ▶

“OMR-CC (Optimum machine response-contour control)” efficiently reduces cycle time while maintaining machining accuracy.

OMR-CC (Optimum machine response-contour control)

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

Cycle time is reduced without compromising accuracy by outputting movement commands considering position error resulting from servo response delay.



The red circle indicates areas where OMR-CC is particularly effective.

OMR-FF (Conventional control)		OMR-CC (New control technology)
34m22s	Cycle time 11%▼	30m21s
9.7um	Path error*1 15%▼	8.2um
2447mm/min	Arc passing speed*1 41%▲	3465mm/min

*1. R10mm F4000 arc command

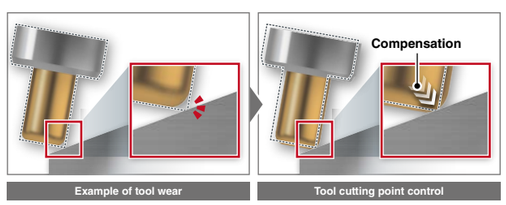
View the introduction video here. ▶

“Tool cutting point control” enables optimum machining without modifying the machining program even when the tool shape changes.

Tool cutting point control

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

In five-axis machining, it was necessary to modify the machining program as tool wear occurs to keep the cutting point constant. Now tool wear is automatically compensated for by simply setting the tool length and tool shape (tool radius, corner radius).



View the introduction video here. ▶

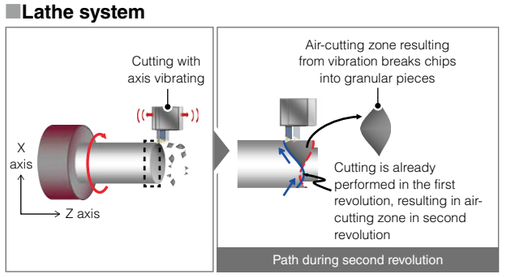
Vibration cutting shortens the time required to remove chips and improve machine utilization.

Vibration cutting

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

Vibration cutting, in which machining is performed with the feed axis vibrating to break up chips, reduces the time it takes to remove the chips and increases machine utilization.

Lathe system



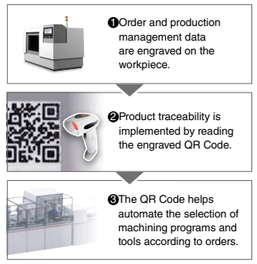
View the introduction video here. ▶ M System L System

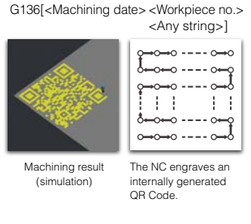
A QR Code engraved directly on a workpiece allows automatic selection of programs and tools and helps to implement traceability easily.

Two-dimensional barcode (QR code) engraving cycle

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

A program for engraving a QR code can be created easily using a fixed cycle.
A QR Code engraved on a workpiece helps automation of high-mix low-volume production and traceability of workpieces.





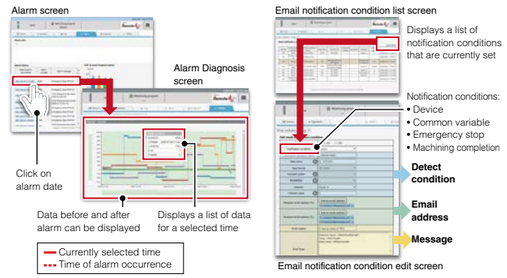
View the introduction video here. ▶

Remote service “iQ Care Remote4U” has evolved. Remote diagnostics through a cloud server help to reduce machine downtime.

iQ Care Remote4U

Machine downtime is reduced by automatic email notifications sent upon occurrence of an alarm and alarm diagnostics, in addition to the built-in remote service gateway unit functionality in the NC control unit (see P.9).

* Connection with Mitsubishi Electric CNC M700(V)/M70(V) Series is also supported

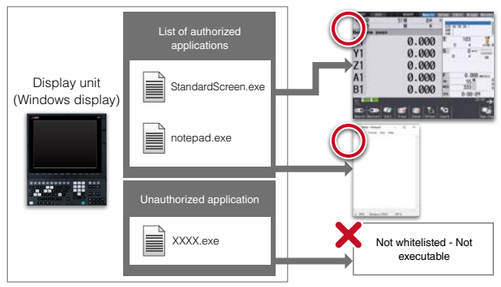


“Security feature for Windows display” effectively protects the NC from virus and other threats using the whitelist technique.

Security feature for Windows display

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

Virus attacks can be blocked by preventing software not whitelisted (unauthorized) for the NC from being run.
It addresses security needs posed by the growth of IoT.



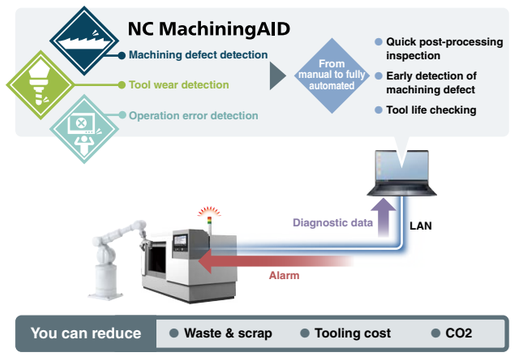
View the introduction video here. ▶

NC MachiningAID retrieves and analyzes the machining data and automatically performs diagnostics to realize full automation and reduce your machining costs as well.

NC MachiningAID

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

NC MachiningAID automatically learns the good machining condition and generates an alarm when it detects bad machining. NC MachiningAID predicts the tool deterioration (erosive wear), and when the tool is nearing the end of its life, it indicates a corresponding CNC alarm message to organize the user to change the tool.



CONTRIBUTION TO SUSTAINABILITY

“3D machining simulation” contributes to reducing waste.

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

Machine interference and machining quality can be checked before machining, to reduce the number of workpieces that are discarded due to trial cutting and defective machining.

View the introduction video here. ▶

“Power consumption calculation” enables visualization of power consumption.

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

Visualization of machine power consumption enables users to see which process has higher power consumption, contributing to power savings in factories.

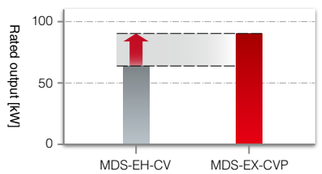
PWM converter MDS-EX-CVP Series

M system | L system | M800VW | M800VS | M80VW | M80VA | M80VB

PWM converter MDS-EX-CP Series controls the boost and stabilization of DC link voltage, for increased output and shorter acceleration and deceleration times in the below combination. Reduced supply current harmonics and improved power factor help to lower power supply equipment capacity.

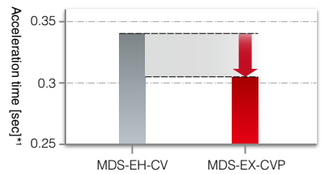
Comparison of rated output

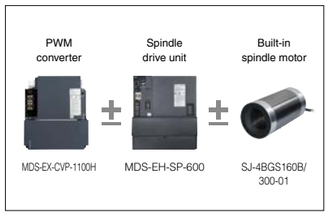
..... **Approx. 28% UP**



Comparison of acceleration time (0⇔30,000 r/min)

.....**Approx. 9% DOWN**





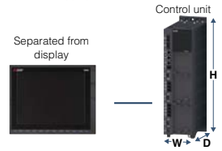
*1. Varies with inertia

HARDWARE

[mm]

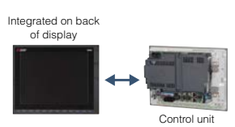
Control unit

M800VW/M80VW Series (Separated type)



M800VW : 90×180×380 (W×D×H)
M80VW : 60×180×380 (W×D×H)

M800VS/M80VS Series (Integrated type)



Machine operation panel

FCU8-KB921 FCU8-KB923 Standard specification A	Key switch: 55 points, LED: 55 points Mitsubishi Electric standard key layout	KB921/922/925: 260 KB923/924/926: 290 140
FCU8-KB925 FCU8-KB926 Standard specification B		
FCU8-KB922 FCU8-KB924	Key switch: 55 points, LED: 55 points Custom specification key layout	
FCU8-KB931 Standard specification A	Rotary switch (Spindle override, cutting override) Selective switch (memory protection) Emergency stop button	140 140
FCU8-KB941 Standard specification B		

Display	Keyboard	M800VW Series	M800VS Series	M80VW Series	M80V Series
19-type touchscreen	—	365 440 Windows based	—	365 440 Windows based	—
19-type, horizontal touchscreen	—	440 365 Windows based	—	440 365 Windows based	—
19-type touchscreen	FCU8-KB091 Clear key Full keyboard	—	475 400 120	—	475 400 120
15-type touchscreen	FCU8-KB083 Clear key Full keyboard	400 320 Windows based display can be selected 140	400 320 140	400 320 Windows based display can be selected 140	400 320 140
10.4-type touchscreen	FCU8-KB047 Clear key Full keyboard	—	290 220 160	—	290 220 160
10.4-type touchscreen	FCU8-KB041 Clear key ONG (XZF) layout for L system FCU8-KB046 Clear key ONG (XYZ) layout	—	290 140 220	—	290 140 220
10.4-type touchscreen	FCU8-KB048 Clear key ABC layout	—	290 230 220	—	290 230 220
8.4-type	FCU8-KB026 Clear key ONG (XYZ) layout FCU8-KB028 Clear key ONG (XZF) layout for L system	—	—	—	260 140 200
8.4-type	FCU8-KB029 Clear key ONG layout	—	—	—	260 200 140

SPECIFICATIONS

M: Machining center system L: Lathe system / ○ Standard △ Optional □ Selection

Class	M800VW				M800VW		M800VS				M80V			
	M		L		M	L	M		L		M		L	
	M850	M830	M850	M830	–	–	M850	M830	M850	M830	TypeA	TypeB	TypeA	TypeB
Max. number of axes (NC axes + Spindles + PLC axes)	○16 △32	○16 △32	○16 △32	○16 △32	24	24	○16 △32	○16 △32	○16 △32	○16 △32	24	12	24	9
Max. number of NC axes (in total for all the part systems)	○16 △32	○16 △32	○16 △32	○16 △32	16	16	○16 △32	○16 △32	○16 △32	○16 △32	16	6	16	7
Max. number of spindles	6	6	8	8	4	6	6	6	8	8	4	2	6	4
Max. number of PLC axes	8	8	8	8	6	6	8	8	8	8	6	6	6	6
Max. number of PLC indexing axes	8	8	8	8	4	4	8	8	8	8	4	4	4	4
Number of simultaneous contouring control axes	8	4	8	4	4	4	8	4	8	4	4	4	4	4
Max. number of NC axes in a part system	○8 △12 △16	○8 △12 △16	○8 △12 △16	○8 △12 △16	8	8	○8 △12 △16	○8 △12 △16	○8 △12 △16	○8 △12 △16	8	6	8	5
Axis name extension*1	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Max. number of part systems (main + sub)	○2 △3*12 △4 △8	○2 △3*12 △4 △8	○4 △8	○4 △8	○4	○4	○2 △3*12 △4 △8	○2 △3*12 △4 △8	○4 △8	○4 △8	○4	○2	○4	○2
Max. number of main part systems	○2 △4 △8	○2 △4 △8	○4 △8	○4 △8	○4	○3	○2 △4 △8	○2 △4 △8	○4 △8	○4 △8	○4	○1	○3	○2
Max. number of sub part systems	○2 △4 △8	○2 △4 △8	○4 △8	○4 △8	○2	○2	○2 △4 △8	○2 △4 △8	○4 △8	○4 △8	○2	○1	○2	○1
Control unit-side High-speed program server mode	△	△	△	△	○	○	–	–	–	–	–	–	–	–
Display unit-side High-speed program server mode	△	△	△	△	○	○	△	△	△	△	○	○	○	○
Data increment														
Least command increment	○0.1μm △1nm	○0.1μm △1nm	○0.1μm △1nm	○0.1μm △1nm	○0.1μm	○0.1μm	○0.1μm △1nm	○0.1μm △1nm	○0.1μm △1nm	○0.1μm △1nm	○0.1μm	○0.1μm	○0.1μm	○0.1μm
Least control increment	○1nm	○1nm	○1nm	○1nm	○1nm	○1nm	○1nm	○1nm	○1nm	○1nm	○1nm	○1nm	○1nm	○1nm
Linear interpolation	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Circular interpolation (Center/Radius designation)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Helical interpolation	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Spiral/Conical interpolation	△	△	–	–	○	–	△	△	–	–	○	–	–	–
Cylindrical interpolation	△	△	△	△	○	○	△	△	△	△	○	○	○	○
Polar coordinate interpolation	△	△	△	△	–	○	△	△	△	△	–	–	○	○
Milling interpolation	–	–	△	△	–	○	–	–	△	△	–	–	○	○
Hypothetical axis interpolation	△	△	–	–	–	–	△	△	–	–	–	–	–	–
Involute interpolation	△	△	–	–	○	–	△	△	–	–	○	–	–	–
Exponential interpolation	△	△	△	△	–	–	△	△	△	△	–	–	–	–
Spline interpolation (G05.1Q2/G61.2)	△	△	–	–	○	–	△	△	–	–	○	–	–	–
NURBS interpolation	△	△	–	–	–	–	△	△	–	–	–	–	–	–
3-dimensional circular interpolation	△	△	–	–	○	–	△	△	–	–	○	–	–	–
Spline interpolation 2 (G61.4)	△	△	–	–	○	–	△	△	–	–	○	–	–	–
High-Speed Synchronous Tapping (OMR-DD)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Memory capacity (number of programs stored)														
500KB [1280m] (1000 programs)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
1000KB [2560m] (1000 programs)	△	△	△	△	–	–	△	△	△	△	–	–	–	–
2000KB [5120m] (1000 programs)	△	△	△	△	–	–	△	△	△	△	–	–	–	–
Extended Memory (NC memory 2)														
2000KB [5120m] (1000 programs)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Multi-part system simultaneous program editing	○	○	○	○	–	○	○	○	○	○	–	–	○	○
Special program editing display for synchronization between part systems	△	△	△	△	○	○	△	△	△	△	○	–	○	○
Finish shape view programming	△	△	△	△	○	○	△	△	△	△	○	○	○	○
Remote desktop connection	–	–	–	–	–	–	△	△	△	△	○	○	○	○
VNC server	–	–	–	–	–	–	△	△	△	△	○	○	○	○
Image input interface*2	–	–	–	–	–	–	□	□	□	□	□	□	□	□
Spindle-mode servo motor control	△	△	△	△	○	○	△	△	△	△	○	○	○	○
Spindle-mode rotary axis control	△	△	–	–	○	–	△	△	–	–	○	–	–	–
Turret gear change control	–	–	△	△	–	○	–	–	△	△	–	–	○	○
Spindle position control (Spindle/C axis control)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
C axis control during Spindle synchronization	△	△	△	△	–	○	△	△	△	△	–	–	○	○
Spindle synchronization I	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Spindle synchronization II	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Guide bushing spindle synchronization	–	–	△	△	–	○	–	–	△	△	–	–	○	–
Spindle superimposition control	–	–	△	△	–	○	–	–	△	△	–	–	○	–
Multiple spindle synchronization set control	–	–	○	○	–	○	–	–	○	○	–	–	○	○
Number of tool offset sets	○200 △400/999	○200 △400/999	○128 △400/999	○128 △400/999	○400	○256	○200 △400/999	○200 △400/999	○128 △400/999	○128 △400/999	○400	○400	○256	○99
Graphic check	○	○	○	○	○	○	○	○	○	○	○	○	○	○
3D solid program check	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Graphic check rotary axis drawing	–	–	△	△	–	○	–	–	△	△	–	–	○	○
3D machining simulation	△	△	–	–	–	–	–	–	–	–	–	–	–	–
Variable command														
600 sets	–	–	–	–	–	–	–	–	–	–	–	–	–	○
700 sets	○	○	○	○	○	○	○	○	○	○	○	○	○	–
8000 sets	△	△	△	△	○	○	△	△	△	△	○	–	○	–
(600 + 100 × number of part systems) sets	○	○	○	○	○	○	○	○	○	○	○	–	○	–
(7900 + 100 × number of part systems) sets	△	△	△	△	○	○	△	△	△	△	○	–	○	–
Two-dimensional barcode engraving cycle	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Vibration cutting control*3	□	□	□	□	□	□	□	□	□	□	□	□	□	□
Rapid traverse block overlap	△	△	△	△	○	○	△	△	△	△	○	○	○	○
High-speed machining mode I (G05P1) maximum [kBPM]	△33.7	△33.7	△33.7	△33.7	○33.7	○33.7	△33.7	△33.7	△33.7	△33.7	○33.7	○16.8	○33.7	–
High-speed machining mode II (G05P2) maximum [kBPM]	△168	△168	△168	△168	○101	○101	△168	△168	△168	△168	○101	○101	○67.5	–
High-accuracy control (G61.1/G08)	△	△	△	△	○	○	△	△	△	△	○	○	○	○
Multi-part system simultaneous high-accuracy control*4	△	△	△	△	○	–	△	△	△	△	○	–	–	–
SSS control	△	△	△	△	○	○	△	△	△	△	○	○	○	○
Tolerance control	△	△	△	△	○	○	△	△	△	△	○	○	○	○
High-speed high-accuracy control I (G05.1Q1) maximum [kBPM]	△67.5	△67.5	△67.5	△67.5	○33.7	○33.7	△67.5	△67.5	△67.5	△67.5	○33.7	○33.7	○33.7	–
High-speed high-accuracy control II (G05P10000) maximum [kBPM]	△168	△168	△168	△168	○101	○101	△168	△168	△168	△168	○101	○101	○67.5	–
High-speed high-accuracy control III (G05P20000) maximum [kBPM]	△540	△540	–	–	○202	–	△540	△540	–	–	○202	–	–	–
Smooth fairing	△	△	–	–	○	–	△	△	–	–	○	–	–	–
Interactive cycle insertion	△	△	△	△	○	○	△	△	△	△	○	○	○	○
Simple programming (NAVI MILL/LATHE)	△	△	△	△	○	○	△	△	△	△	○	○	○	○
G code guidance	○	○	○	○	○	○	○	○	○	○	○	○	○	○
DXF data input	△	△	△	△	○	○	△	△	△	△	○	–	○	–
Process Analysis	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Spatial Error Compensation	△	△	–	–	○	–	△	△	–	–	○	–	–	–
OMR II (Backlash with filter)	△	△	△	△	○	○	△	△	△	△	○	○	○	○
OMR III (Continuous variable backlash)	–	–	–	–	–	–	–	–	–	–	–	–	–	–
OMR-FF	△	△	△	△	○	○	△	△	△	△	○	○	○	○
OMR-CC (Optimum Machine Response-Contour Control)	△	△	△	△	○	○	△	△	△	△	○	○	○	○
Rotation center error measurement	△	△	–	–	○	–	△	△	–	–	○	–	–	–
Number of tool life management sets	○200 △400/999	○200 △400/999	○128 △400/999	○128 △400/999	○200	○256	○200 △400/999	○200 △400/999	○128 △400/999	○128 △400/999	○200	○200	○256	○99
Direct robot control	□	□	□	□	□	□	□	□	□	□	□	□	□	□
Cutting load control	△	△	–	–	○	–	△	△	–	–	○	–	–	–
Chatter Suppression	–	–	△	△	–	○	–	–	△	△	–	–	○	–
Interference Check III	△	△	△	△	○	○	△	△	△	△	○	○	○	○
Data protection by user's level	△	△	△	△	○	○	△	△	△	△	○	○	○	○
Machine group-based alarm stop	△	△	△	△	○	○	△	△	△	△	○	○	○	○
On-board Servo Tuning	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Email notification to operator	△	△	△	△	○	○	△	△	△	△	○	○	○	○
NC MachiningAID	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Security feature for Windows display	△	△	△	△	–	–	–	–	–	–	–	–	–	–
Safety observation	△	△	△	△	○	○	△	△	△	△	○	○	○	○
Smart Safety observation														
Safety-related I/O observation	△	△	△	△	○	○	△	△	△	△	□*5	□*5	□*5	□*5
Emergency stop observation	△	△	△	△	○	○	△	△	△	△	□*5	□*5	□*5	□*5
SLS (Safely-Limited Speed)	△	△	△	△	○	○	△	△	△	△	□*5	□*5	□*5	□*5
SLP (Safely-Limited Position)	△	△	△	△	○	○	△	△	△	△	□*5	□*5	□*5	□*5
SOS (Safe Operating Stop)	△	△	△	△	○	○	△	△	△	△	□*5	□*5	□*5	□*5
SSM (Safe Speed Monitor)	△	△	△	△	○	○	△	△	△	△	□*5	□*5	□*5	□*5
SBC/SBT (Safe Brake Control/Safe Brake Test)	△	△	△	△	○	○	△	△	△	△	□*5	□*5	□*5	□*5
SCA (Safe Cam)	△	△	△	△	○	○	△	△	△	△	□*5	□*5	□*5	□*5
SS1/SS2 (Safe Stop)	△	△	△	△	○	○	△	△	△	△	□*5	□*5	□*5	□*5
STO (Safe Torque Off)	△	△	△	△	○	○	△	△	△	△	□*5	□*5	□*5	□*5
Function block (FB)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Label programming	○	○	○	○	○	○	○	○	○	○	○	○	○	○
ST language	○	○	○	○	○	○	○	○	○	○	○	○	○	○
MELSEC development tool (GX Developer)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
MELSEC development tool (GX Works2)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
GOT connection														
GOT connection (Ethernet connection)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
GOT connection (CC-Link connection)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Tool handle feed & interruption	△	△	–	–	–	–	△	△	–	–	–	–	–	–
Tool center point control (G43.4/G43.5)	△	△*6	–	–	○*6	–	△	△*6	–	–	○*6	–	–	–
Tool cutting point control (G43.8/G43.9)	△	–	–	–	–	–	△	–	–	–	–	–	–	–
Inclined surface machining command	△	△	△	△	○	○	△	△	△	△	○	–	○	–
Simple inclined surface machining command*7	–	–	△	△	–	○	–	–	△	△	–	–	○	○
3-dimensional tool radius compensation (Tool's vertical-direction compensation)	△	△	△*8	△*8	–	–	△	△	△*8	△*8	–	–	–	–
Workpiece installation error compensation	△	–	△*8	–	–	–	△	–	△*8	–	–	–	–	–
3-dimensional manual feed	△	△	△	△	○	○	△	△	△	△	○	–	○	–
Real-time tuning 1 (speed gain)	△	△	△	△	○	○	△	△	△	△	○	–	○	–
Real-time tuning 2 (rapid traverse time constant)	△	△	△	△	○	○	△	△	△	△	○	–	○	–
Constant torque control	△	△	△	△	○	○	△	△	△	△	○	○	○	○
CC-Link (Master/Local)	□	□	□	□	□	□	□	□	□	□	□	□	□	□
PROFIBUS-DP (Master)	□	□	□	□	□	□	□	□	□	□	□	□	□	□
CC-Link IE Field (Master/Local)	□	□	□	□	□	□	□	□	□	□	□	□	□	□
EtherNet/IP	□	□	□	□	□	□	□	□	□	□	□	□	□	□
FL-net	□	□	□	□	□	□	□	□	□	□	□	□	□	□
CC-Link IE Field Basic	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Customization (NC Designer2)*9	△	△	△	△	○	○	△	△	△	△	○	○	○	○
APLC release*9	△	△	△	△	○	○	△	△	△	△	○	○	○	○
Custom API library	○	○	○	○	○	○	○	○	○	○	○	○	○	○
MES interface library	△	△	△	△	○	○	△	△	△	△	○	○	○	○
SLMP Server	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Numerical Control (CNC) communication software FCSB1224W000*9	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Motion control release: Coordinate transformation	△	–	–	–	–	–	△	–	–	–	–	–	–	–
Power consumption computation	○	○	○	○	○	○	○	○	○	○	○	○	○	○
EcoMonitorLight connection	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Laser processing control*10	□	□	–	–	□	–	□	□	–	–	□	□	–	–
Wireless LAN*11	–	–	–	–	–	–	○	○	○	○	○	○	○	○

*1. Two alphabet letters.
*2. Image input expansion unit is required.
*3. Vibration cutting expansion unit is required.
*4. Up to two part systems.
*5. Functional safety expansion unit is required for M80V.
*6. Restrained to 4-axis simultaneous contouring for M830VW, M830VS, M80VW, M80V (TypeA).
*7. This includes Simple tool center point control.
*8. For L system, this function is available only during program format switch.
*9. Separately sold software is required.
*10. Laser interface unit is required.
*11. This function is available in the following countries. Supported versions of software and control units may be limited by country. Please contact us for more information.
Austria, Belgium, Bulgaria, China, Cyprus, Czech Republic, Germany, Denmark, Estonia, Spain, Finland, France, United Kingdom, Greece, Croatia, Hungary, Ireland, Italy, Japan, Lithuania, Luxembourg, Latvia, Malta, Netherlands, Poland, Portugal, Romania, Sweden, Slovenia, Slovakia, Turkey, Taiwan, United States, Switzerland, Iceland, Liechtenstein, Norway, India, Korea, Thailand (As of August 2023)
*12. The 3rd part system is the loader-dedicated part system.

DRIVE SYSTEM

•Drive units

High-performance Servo/ Spindle Drive Units MDS-E/EH Series

•The servo control-dedicated core processor realizes improved control speed, leading to enhanced basic performance. When combined with a higher resolution motor sensor and enhanced high-speed optical communication, this drive contributes to high-speed, high-accuracy control.
•The motor power connector is equipped with an anti-misinsertion mechanism. This helps to eliminate connection errors.
•Improved diagnostic and preventive maintenance features
•Safe Torque Off (STO) and Safe Brake Control (SBC) are also incorporated as additional safety features.

Multi-hybrid Drive Units MDS-EM/EMH Series

•Multi-hybrid drive units are capable of driving a maximum of three servo axes and one spindle. This contributes to downsizing machines and offers technical advantages.
•The motor power connector is equipped with an anti-misinsertion mechanism. This helps to eliminate connection errors.
•Safe Torque Off (STO) and Safe Brake Control (SBC) are also incorporated as additional safety features.
•The fan unit facilitates fan exchange.
•An MDS-EMH drive unit is available for 400V systems.

All-in-one Compact Drive Units MDS-EJ/EJH Series

•Ultra-compact drive units with built-in power supply contribute to smaller control panel size.
•A 2-axis type has been added for further downsizing.
•The servo control-dedicated core processor realizes improved control speed, leading to improved basic performance. When combined with a higher resolution motor sensor and enhanced high-speed optical communication, this drive contributes to high-speed, high-accuracy control.
•Safe Torque Off (STO) and Safe Brake Control (SBC) are also incorporated as additional safety features.
•An MDS-EJH drive unit is available for 400V systems. (Note 1)

Next-generation Converter MDS-EX-CV/CVH Series

•The latest power supply unit that has been downsized in some lineup compared to the conventional series.
•Instantaneous regeneration capability improved by the new regeneration method.
•Uses a fan unit, contributing to the simplification of fan replacement.

PWM Converter MDS-EX-CVP Series

•Stabilizes DC voltage and, with the boosting function, reduces the output drop of the spindle motor, improving output at high speeds.
•Only 400V power supply units are available in the lineup.

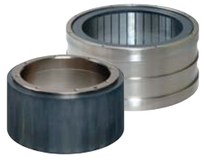
•Servo motors

Medium-inertia, High-accuracy, High-speed Motors HG Series

•Sensor resolution has been significantly improved. These servo motors, which boast smooth rotation and outstanding acceleration capabilities, are well-suited as feed axes of machine tools.
•Range: 0.2 to 11 [kW]
•Maximum rotation speed:
2,000 to 6,000 [r/min]
•Safety support sensors are included as standard specification. Three sensor resolutions (i.e., 1, 4 or 67 million pulses/rev) are available.
•These motors can also be used as a tool spindle motor.
•The small-sized connector allows horizontal cable connection to save space in machines. (Note 2)

Linear Servo Motors LM-F Series

•These motors can be used in clean environments, since no ball screws are used, eliminating possible grease contamination.
•Elimination of transmission mechanisms, including backlash, enables smooth, quiet operation even at high speeds.
•Range:
Maximum thrust: 900 to 18,000 [N·m]



Direct-drive Servo Motors TM-RB Series

•High-torque, direct-drive motors combined with high-gain control provide quick acceleration and positioning, making rotation smoother.
•Suitable for rotary axes that drive tables or spindle heads
•Range:
Maximum torque: 36 to 1,280 [N·m]

•Spindle motors

High-performance Spindle Motors SJ-D Series

•Motor energy loss has been significantly reduced by optimizing the magnetic circuit.
•High-speed bearings are incorporated as a standard feature, helping to achieve higher speed, lower vibration and improved durability.
•Range: 3.7 to 26 [kW]
•Maximum rotation speed: 8,000 to 12,000 [r/min]

High-output, High-speed Spindle Motors SJ-DG Series

•The addition of S3 rating (%ED rating) has improved output and torque acceleration/deceleration characteristics.
•A balance adjustment ring added to the counter-load side allows for fine tuning.
•Range:
S3 rating: 5.5 to 48 [kW]
•Maximum rotation speed: 10,000 to 12,000 [r/min]

High-torque Spindle Motors SJ-DN Series

•Higher torque characteristics than those of the SJ-D Series with the same output. This series can be driven with a small-capacity multi-hybrid drive unit.
•Suitable for heavy cutting. Helps to improve productivity.
•Range: 7.5 to 18.5 [kW]
•Maximum rotation speed: 8,000 [r/min]

Low-inertia, High-speed Spindle Motors SJ-DL Series

•This series of spindle motors is dedicated for use in tapping machines that require faster drilling and tapping.
•The latest design technologies make it possible to attain lower vibration and greater rigidity even with lighter weight.
•Range: 0.75 to 7.5 [kW]
•Maximum rotation speed: 10,000 to 24,000 [r/min]

Compact, Lightweight Spindle Motors SJ-DJ Series

•Spindle motors that are smaller and lighter than the SJ-D Series with the same output. This helps to further downsize machines.
•Range: 5.5 to 15 [kW]
•Maximum rotation speed: 8,000 to 12,000 [r/min]

High-output High-torque IPM Spindle Motors SJ-DM Series

•The use of magnets allows for higher output and torque, leading to reduced cycle time.
•The SJ-DM Series can provide torque characteristics comparable to the former SJ-D Series of the next frame number.
•Maximum rotation speed: 12,000 [r/min]

Built-in Spindle Motors SJ-BG Series

•The electrical design has been optimized to increase the continuous rated torque per unit volume, contributing to downsizing spindle units.
•Options for mold and cooling jacket specifications are available.

Tool Spindle Motors HG-JR Series

•Compact tool spindle motors are designed to have the small, high-output characteristics of servo motors yet offer high-speed rotation (8,000r/min). These motors contribute to downsizing spindle size, like rotary tool spindles.
•Range: 0.75 to 1.5 [kW]
•Maximum rotation speed: 8,000 [r/min]
•Small-sized connector allows horizontal cable connection to save space in machines. (Note 2)

(Note 1) For servo motors only
(Note 2) Options supported (Flange size 90SQ only)
* Use Mitsubishi Electric CNC's dedicated drive unit and motor.

SOFTWARE TOOLS

Process flow from machine design and development to operation and maintenance

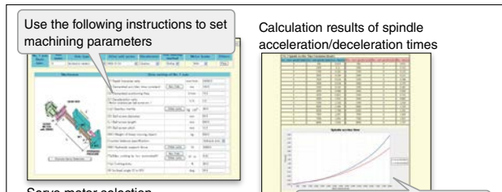
Machine design → Electrical circuitry design → Machine assembly and adjustment → Operation and maintenance

NC-related processes

Servo selection	Custom screen creation	Parameter creation	Training
NC Servo Selection	NC Designer2	NC Configurator2	NC Trainer2
	NC Compiler2	Servo/spindle adjustment	Operation and maintenance
	Debug	Machine adjustment	NC Explorer
	NC Trainer2 plus	NC Analyzer2	NC Monitor2
			NC Virtual Simulator*
			NC MachiningAID*
			Operation monitoring and remote diagnostics
			iQ Care Remote 4U*

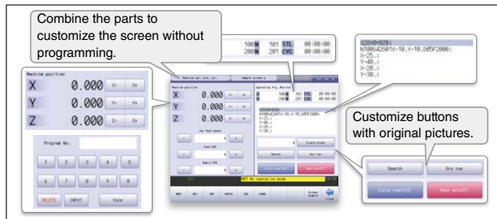
* Refer to P.18 or individual catalogs for details.

Machine design



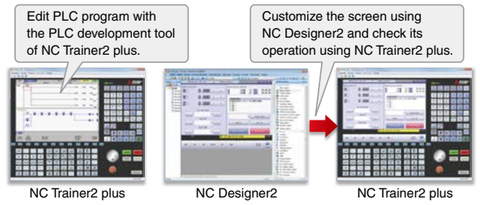
[NC Servo Selection]
Input machining parameters to determine the optimum servo motor. This function automatically calculates spindle acceleration/deceleration time and selects the optimum power supply module.

Electrical circuitry design



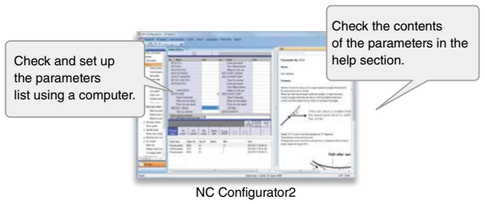
[NC Designer2]
NC Designer2 provides a development environment where machine tool builders can customize screens easily. Two types of screen development methods are available: the interpreter method (programming without C++) for simple screen development and the compilation method with a complex controller (programming with C++).

[NC Compiler2]
NC Compiler2 is required when the compilation method is used.



[NC Trainer2 Plus]
NC Trainer2 plus supports customization development. It helps to program and debug the ladder programming of the user PLC that is developed by machine tool builders and to check the operations of customized screens.

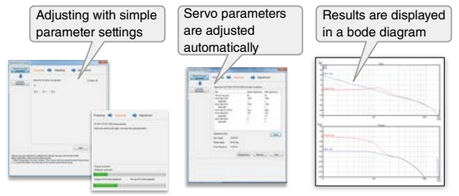
Machine assembly and adjustment



[NC Configurator2]
NC parameters required for NC control or machine operation can be edited on a computer.
It is also possible to create initial parameters simply by inputting the machine configuration.

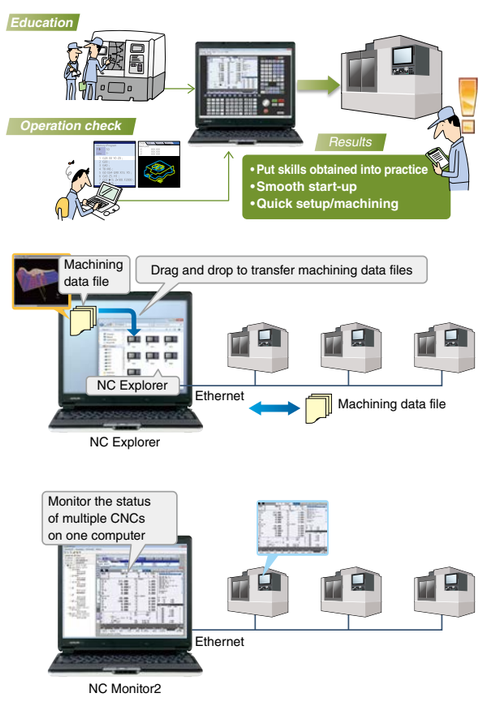
For details on each software tool, refer to the software tools catalog (BNP-A1246).

Machine assembly and adjustment



[NC Analyzer2]
Servo parameters can be adjusted automatically by measuring and analyzing machine characteristics. Measurement and analysis can be performed by running a servo motor using the machining program for adjustment, or using the vibration signal. This function can sample various types of data.

Operation and maintenance

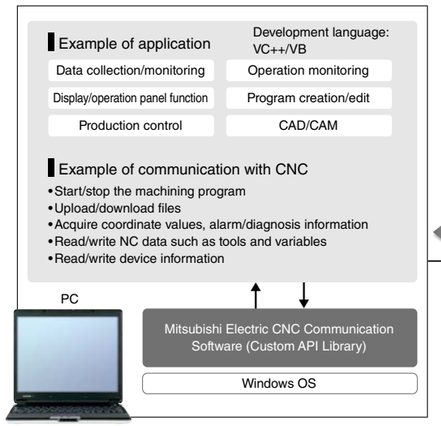


[NC Trainer2]
This is an application for operating the CNC screen and machining programs on a computer without a CNC control unit or special display unit.
It can also be used for learning CNC operations and checking machining programs. The machining programs created on NC Trainer2/NC Trainer2 plus can be used in actual CNCs.

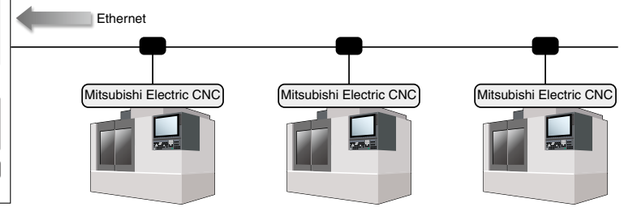
[NC Explorer]
CNC machining data can be managed using Windows Explorer when the computer is connected to multiple CNCs via Ethernet.

[NC Monitor2]
Taking advantage of the connection with a factory network, CNC operation status can be monitored from remote locations. Several CNCs can be connected and monitored simultaneously.

Application development support



[Mitsubishi Electric CNC Communication Software (Custom API Library)]
This software product is equipped with a set of API functions that make it easier to develop Windows applications that need to connect to Mitsubishi Electric numerical control and handle communication processes. The latest M800V and M80V series support real-time reading of CNC sampling data. It supports the development of applications such as machining monitoring and production management that prioritize real-time performance.



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WARRANTY

Please confirm the following product warranty details before using MITSUBISHI ELECTRIC CNC.

1.Warranty Period and Coverage

Should any fault or defect (hereafter called "failure") for which we are liable occur in this product during the warranty period, repair services shall be provided at no cost through the distributor from which the product was purchased or through a Mitsubishi Electric service provider. Note, however, that this does not apply if the customer was informed prior to purchasing the product that the product is not covered under warranty. Also note that we are not responsible for any on-site readjustment and/or trial run that may be required after a defective unit is replaced.

[Warranty Term]

The term of warranty for this product shall be twenty-four (24) months from the date of delivery of the product to the end user, provided the product purchased from Mitsubishi Electric or a distributor in Japan is installed in Japan (but in no event longer than thirty (30) months, including distribution time after shipment from Mitsubishi Electric or a distributor).

Note that, in the case where the product purchased from Mitsubishi Electric or a distributor in or outside Japan is exported and installed in any country other than where it was purchased, please refer to "2. Service in Overseas Countries" below.

[Limitations]

(1)The machine tool builder is requested to conduct an initial failure diagnosis, as a general rule. The diagnosis may also be carried out by Mitsubishi Electric or our service provider for a fee at the machine tool builder's request.

(2)This warranty applies only when the conditions, method, environment, etc., of use are in compliance with the terms, conditions and instructions that are set forth in the instruction manual, user's manual, and the caution label affixed to the product, etc.

(3)Even during the term of warranty, repair costs will be charged to the customer in the following cases:

(a) a failure caused by improper storage or handling, carelessness or negligence, etc., or a failure caused by a problem with the customer's hardware or software

(b) a failure caused by any alteration, etc., to the product made by the customer without Mitsubishi Electric's approval

(c) a failure which could have been avoided if the customer's equipment in which this product is incorporated had been equipped with a safety device required by applicable laws or has any function or structure considered indispensable in the light of industrial common sense

(d) a failure which could have been avoided if consumable parts designated in the instruction manual, etc. had been duly maintained and replaced

(e) any replacement of consumable parts (including the battery, relay and fuse)

(f) a failure caused by external factors such as inevitable accidents, including without limitation fire and abnormal fluctuation of voltage, and acts of God, including without limitation earthquakes, lightning, and natural disasters

(g) a failure which could not have been foreseen under technologies available at the time of shipment of this product from Mitsubishi Electric

(h) any other failures which are not attributable to Mitsubishi Electric or which the customer acknowledges are not attributable to Mitsubishi Electric

2.Service in Overseas Countries

If the customer installs a product purchased from Mitsubishi Electric in a machine or equipment and exports it to any country other than where it was purchased, the customer may sign a paid warranty contract with our local FA center.
This applies in the case where the product purchased from us in or outside Japan is exported and installed in any country other than where it was purchased.

For details please contact the distributor from which the product was purchased.

3.Exclusion of Responsibility for Compensation against Loss of Opportunity, Secondary Loss, etc.

Regardless of the gratis warranty term, Mitsubishi Electric shall not be liable for compensation for:

(1)Damage arising from any cause found not to be the responsibility of Mitsubishi Electric.

(2)Lost opportunity or lost profit incurred by the user due to a failure of a Mitsubishi Electric product.

(3)Special damage or secondary damage, whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi Electric products.

(4)Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

4.Changes in Product Specifications

Specifications shown in our catalogs, manuals or technical documents are subject to change without notice.

5.Product Application

(1)For use of this product, applications should be those that will not result in a serious damage even if a failure or malfunction occurs in the product, and a backup or fail-safe function should operate on an external system when any failure or malfunction occurs to the product.

(2)Mitsubishi Electric CNC is designed and manufactured solely for applications to machine tools for industrial purposes. Do not use this product in applications other than those specified above, especially those which have substantial influence on public interest or which are expected to have significant influence on human lives or properties.

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Creating Solutions Together.

Industrial Computer

Controllers

Computerized Numerical Controllers

Drive Products

Human Machine Interfaces

Robots

Low-voltage Power Distribution Products

Medium-voltage Power Distribution Products

Energy Saving Supporting Devices

Processing Machines: EDM, Lasers

Engineering and Solution Software

Mitsubishi Electric's FA division provides robust support for our customers' manufacturing needs. We offer a vast array of FA products, including industry-leading PLCs, control devices, drive devices, energy efficiency support equipment, power distribution control equipment, and industrial mechatronics. Our presence on every type of production floor enables us to assist in labor-saving initiatives and quality improvements, helping customers achieve sustainable manufacturing. We also address challenges such as decarbonization and labor shortages through the utilization of automation technology.

Additionally, by leveraging synergies among FA technologies, manufacturing expertise, and digital innovations, we aim to streamline the construction of systems for data collection, accumulation, and analysis. This contributes to reducing manufacturing and quality losses.

We enable flexible manufacturing processes that respect legacy systems while embracing innovations to drive optimization. As your solution partner, Mitsubishi Electric FA delivers high-performance, high-quality products that enhance your competitiveness.

Let's automate the world together!

Note: not all products are available in all countries

Official Mitsubishi Electric Mechatronics YouTube account

User support videos are available, including how to backup/restore data and replace batteries, and an introduction to our products and technologies.

Official Mitsubishi Electric FA LinkedIn/X account

Visit our page for information about exhibitions, products, technologies, and FAQ.

⚠ Safety Warning

To ensure proper use of the products listed in this catalog, please be sure to read the instruction manual prior to use.

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