MITSUBISHI ELECTRIC

Changes for the Better

Anniversary

FACTORY AUTOMATION

NUMERICAL CONTROL (CNC) M800V/M80V Series

Mitsubishi Electric Group positions environmental protection as a great corporate priority and commits to proactive initiatives toward this end.

The Mitsubishi Electric Group has set forth its 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 company's new Environmental Sustainability Vision 2050 positions environmental protection as a great corporate priority and stipulates increased initiatives toward this end. The vision establishes Mitsubishi Electric's future course for implementing key initiatives based on its Environmental Declaration and Three Environmental Action Guidelines toward 2050.

Environmental Sustainability Vision 2050

Environmental Declaration

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

Environmental Sustainability Vision 2 0 5 0

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

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

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

MITSUBISHI ELECTRIC CNC
M800V/M80V Series
Concept video

M800V/M80V Series
COMPUTERIZED NUMERICAL CONTROLLERS

The Evolution in Smart Manufacturing

Seven years on, M800/M80 Series ushers in a new dimension.

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

Industry-first built-in wireless LAN, which allows an operator to manage machining at a distance, high-definition 3D machining simulation, which minimizes trial cutting, and advanced user-friendly and intuitive operation will streamline overall manufacturing processes and unlock ‘time’ that has been unnoticed so far.

Our new CNC, keeping abreast of manufacturers’ needs and the advancement of the times, will optimize manufacturing in a smarter way from the perspective of ‘things’ and ‘time’.

The all new M800V/M80V CNC Series.

Looking for solutions for machining?

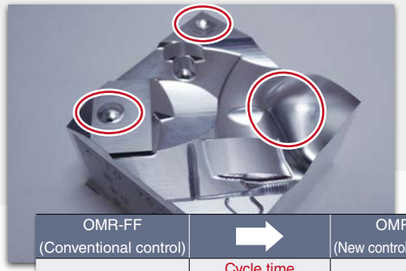
- I want to reduce cycle time without decreasing machining accuracy
- I want to reduce cycle time, but I worry about the tool life too.

Looking for solutions to streamline work processes?

- I want to begin digital transformation and remote work.
- I want to make screen operation easier and more efficient.

Fast and high-quality machining is nothing special anymore. New control technologies support your machining.

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

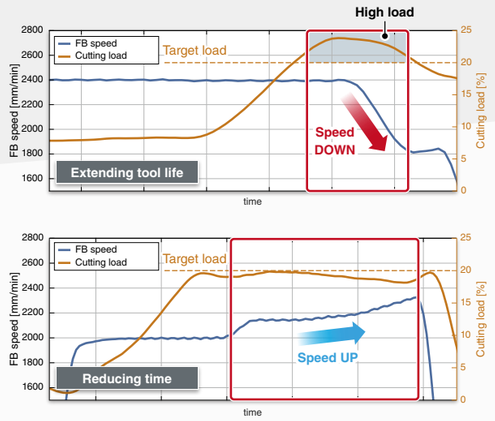


OMR-FF (Conventional control)		OMR-CC (New control technology)
34m22s	Cycle time 11%▼	30m21s
9.7um	Path error*1 15%▼	8.2um
2447mm/min	Arc passing speed*1 41%▲	3465mm/min

*1. R10mm F4000 arc command

Optimum machine response-contour control (OMR-CC)

Cutting load is automatically controlled, leading to longer tool life and shorter cycle time.



Cutting load control

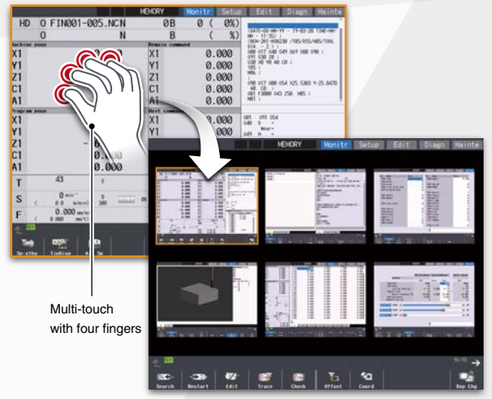
Streamline your work through our industry-first*1 NC control unit with built-in wireless LAN and intuitive multi-touch operation not requiring expertise or know-how.

NC control unit with built-in wireless LAN and screen mirroring to a tablet allow you to operate NCs without constraints of time and place.

Wireless LAN connection, Screen mirroring to tablet

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

The usability of previous M800/M80 Series has further evolved!
Four-point multi-touch makes operation easy and efficient.



Multi-touch operation

Looking for solutions to differentiate your machine tools?

I want to develop original screens and applications more easily.

Image input interface allows for flexible customization of NC screens and applications, helping you to differentiate machine tools and create added value.

The applications on the industrial PC can be operated from the NC screen.

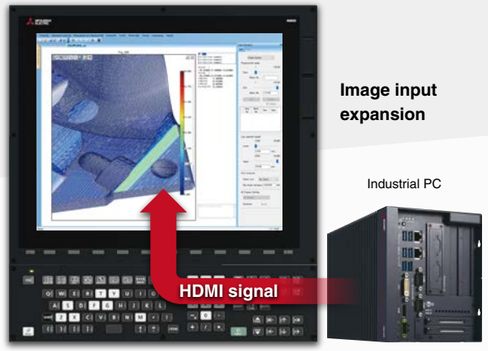


Image input interface

The NC screen can display camera images such as the inside of the machine by connecting an external camera.

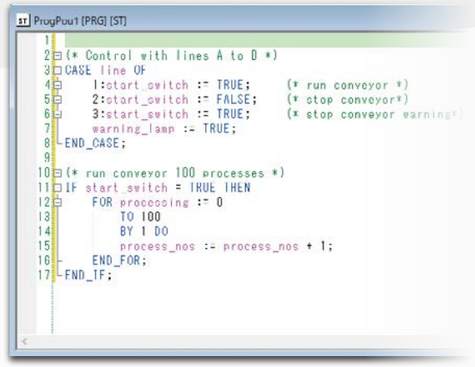
Image input interface

Looking for solutions to create and edit PLC programs?

I want to create and edit PLC programs more easily.

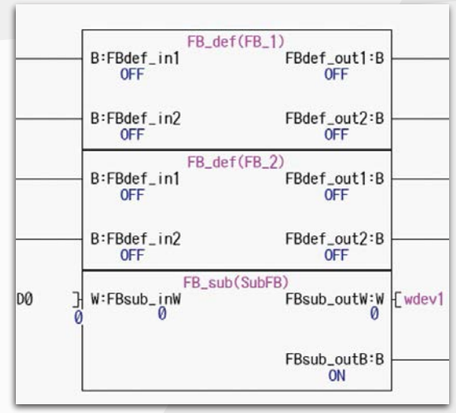
ST language is supported in addition to the ladder language. This allows you to create and edit PLC programs efficiently using the syntax resembling that of conventional programming languages.

Unlike the ladder language, ST language allows for flexible text-based programming and compact operation processing.



MELSEC development tool (GX Works2)

You can convert a program into function blocks (FBs) and use them in a similar way to function call in C language and Basic.



MELSEC development tool (GX Works2)

Looking for solutions for demanding and time-consuming set-up tasks?

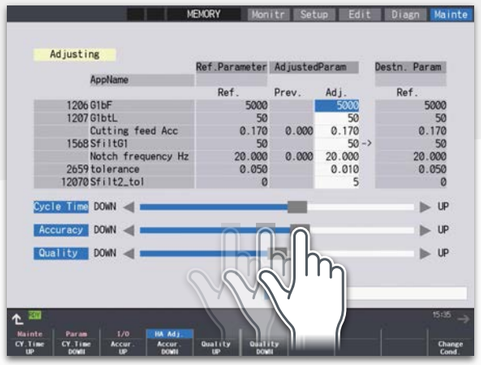
- I want to improve machining accuracy, but parameter adjustment is troublesome....
- The machining program must be modified when the tool shape changes, but it takes time…

Looking for solutions for automation and traceability?

- High-mix low-volume production causes a burden of choosing workpieces and tools as well as implementing traceability.

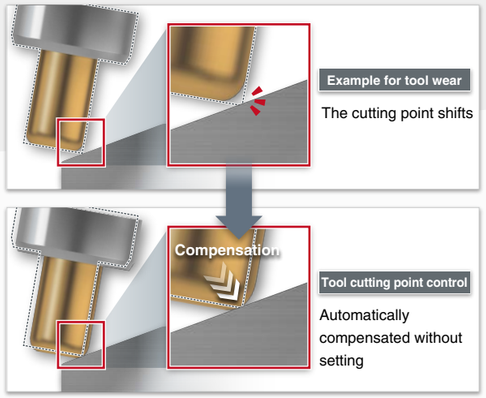
You can complete setting up easily and quickly using intuitive parameter adjustment screen and new compensation function.

Parameter setting guidance on the dedicated screen makes it easy for anyone to improve machining quality.



Parameter adjustment screen for high-accuracy control

Tool cutting point control enables optimum machining without modification of the machining program even when the tool shape changes.



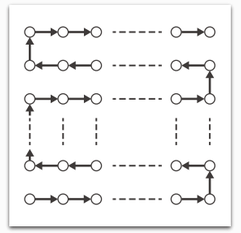
Tool cutting point control

The QR Code engraved directly on the workpiece enables automatic selection of programs and tools as well as easy traceability.

You can create a program for engraving a QR code easily using a fixed cycle.

G136[<Machining date><Workpiece No.><Any string>]

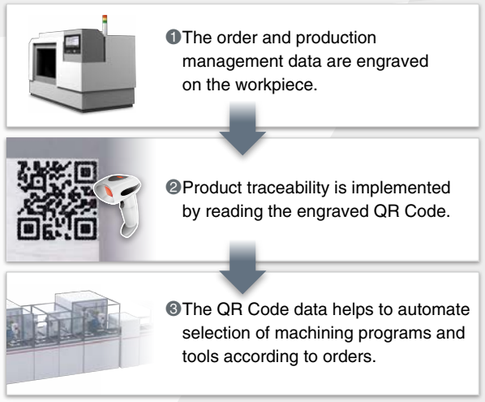
Machining result (simulation)



The NC engraves an internally generated QR Code.

Two-dimensional barcode (QR Code) engraving cycle

The QR Code engraved on the workpiece helps automation of high-mix low-volume production and traceability of workpieces.



❶The order and production management data are engraved on the workpiece.

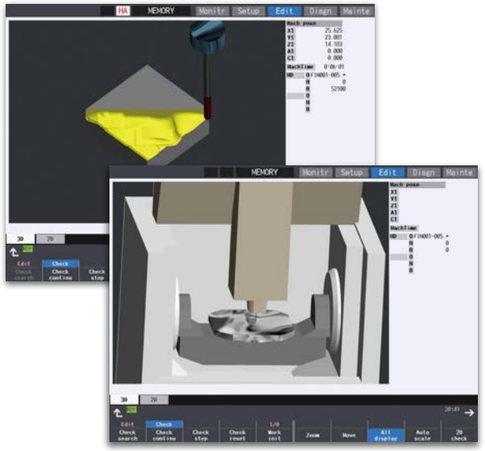
❷Product traceability is implemented by reading the engraved QR Code.

❸The QR Code data helps to automate selection of machining programs and tools according to orders.

Two-dimensional barcode (QR Code) engraving cycle

M800V/M80V Series contributes to your company's sustainability by reducing waste caused by trial machining and defective machining and by visualizing power consumption.

Machine interference and machining quality can be checked before machining, which reduces workpieces discarded because of trial cutting and defective machining.



3D machining simulation

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

Power consumption calculation

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

Class	M800VW				M80VW		M800VS				M80V			
	M		L		M	L	M		L		M		L	
	M850	M830	M850	M830	—	—	M850	M830	M850	M830	TypeA	TypeB	TypeA	TypeB
Number of basic control axes (NC axes)	○3	○3	○2	○2	○3	○2	○3	○3	○2	○2	○3	○3	○2	○2
Max. number of axes (NC axes + Spindles + PLC axes)	○16 △32	○16 △32	○16 △32	○16 △32	11	13	○16 △32	○16 △32	○16 △32	○16 △32	11	9	13	9
Max. number of NC axes (in total for all the part systems)	○16	○16	○16 △32	○16 △32	9	10	○16	○16	○16 △32	○16 △32	9	5	10	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	○8 △12	○8 △12	○8 △12	8	8	○8 △12	○8 △12	○8 △12	○8 △12	8	5	8	5
Axis name extension*1	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Standard number of part systems	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Max. number of part systems (main + sub)	○2	○2	○4 △8	○4 △8	○2	○4	○2	○2	○4 △8	○4 △8	○2	○1	○4	○2
Max. number of main part systems	○2	○2	○4 △8	○4 △8	○2	○2	○2	○2	○4 △8	○4 △8	○2	○1	○2	○2
Max. number of sub part systems	○2	○2	○4 △8	○4 △8	—	○2	○2	○2	○4 △8	○4 △8	—	—	○2	○1
Least command increment 1μm	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Least command increment 0.1μm	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Least command increment 0.01μm (10nm)	△	△	△	△	—	—	△	△	△	△	—	—	—	—
Least command increment 0.001μm (1nm)	△	△	△	△	—	—	△	△	△	△	—	—	—	—
Least control increment 0.01μm (10nm)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Least control increment 0.001μm (1nm)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Indexing increment	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Memory capacity (number of programs stored)														
500KB [1280m] (1000 programs)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
1000KB [2560m] (1000 programs)	△	△	△	△	—	—	△	△	△	△	—	—	—	—
2000KB [5120m] (1000 programs)	△	△	△	△	—	—	△	△	△	△	—	—	—	—
Extended memory														
2000KB [5120m] (1000 programs)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Two-dimensional barcode (QR Code) engraving cycle	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Image input interface*2	—	—	—	—	—	—	□	□	□	□	□	□	□	□
3D machining simulation	△	△	—	—	—	—	—	—	—	—	—	—	—	—
Optimum machine response-contour control (OMR-CC)	△	△	△	△	○	○	△	△	△	△	○	○	○	○
Cutting load control	△	△	—	—	○	—	△	△	—	—	○	—	—	—
MELSEC development tool (GX Works2)	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Tool center point control														
Tool center point control (G43.4/G43.5)	△	△*3	—	—	○*3	—	△	△*3	—	—	○*3	—	—	—
Tool cutting point control (G43.8/G43.9)	△	—	—	—	—	—	△	—	—	—	—	—	—	—
Power consumption monitor	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Wireless LAN connection	—	—	—	—	—	—	○	○	○	○	○	○	○	○

*1. Two alphabetic characters.
*2. Image input expansion card is required.
*3. Restrained to 4-axis simultaneous contouring for M830VW, M830VS, M80VW, M80V.

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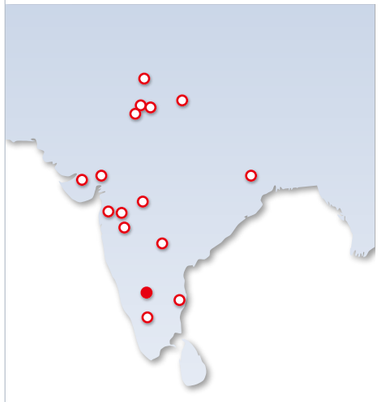

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ISO 14001 JACO EC 98 J 2017 UKAS MANAGEMENT SYSTEMS 0051

ISO 9001 BUREAU VERITAS Certification UKAS MANAGEMENT SYSTEMS 0008

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