The Best Partner for Your Success

It is the MITSUBISHI CNC business philosophy. All the staffs who are committed to MITSUBISHI CNC business wish to be "the best partner for customers aiming at global and future-oriented development". We will continue our efforts with the aim that our CNCs be great help to the customers.

Optimum Solutions for the Future
As a global CNC provider and best partner, we provide optimum technologies and supports for the users stepping toward the future. Mitsubishi CNC creates new values with the users.

Advanced Technologies for the Next Generation
Our sophisticated technologies developed as a total factory automation manufacturer enable advanced machining controls, and support manufacturing seeking the best accuracy and productivity. Mitsubishi CNC changes machine tools, machining and manufacturing.

Solid Support for Day-to-day Comfort
Prompt responses, solid technologies and user-friendly support. We continuously improve our after-sales services for our world-wide users. For your "Mitsubishi CNC again!”.

Contents
Technologies P.3-4
Solutions P.5-6
Support P.7-8
Lineup P.9-10
M700V Series P.11-12
M70 Series P.13-14
User Friendly P.15-16
C70 Series P.17-18
User Support Tool P.19
Development Tool P.20
Global Service Network P.21-22

*Contents of this catalog includes optional specifications. Refer to specification manual for details.
Our sophisticated technologies cultivated as a total factory automation manufacturer enable advanced machining controls, and support manufacturing seeking the best accuracy and productivity. Mitsubishi CNC changes machine tools, machining and manufacturing.

High-accuracy Machining with Complete Nano Control

The advanced machining control technology supports ultra-accurate machining for the next generation. The complete nano control enables all processing in nano-units, from NC-operation to servo processing. The highest machining can be achieved.

High-quality Machining with Balanced Accuracy and Speed

SSS control ensures high machining stability and quality with virtually no effects resulting from cutting shape or speed. Smooth surface can be achieved even when small step exists in a path, and machining time can be reduced by 5 to 30% relative to conventional system.

High-speed and High-accuracy Tapping

Servo axis directly detects and compensates spindle’s delay on the network. This control enables quicker and more accurate tapping machining than the previous.

OMR-DD Control (Optimum Machine Response Direct Drive)

A machine is modeled with this function. When the possibility of interference is detected, the parts to interfere will be shown in a different color, and the motor will be decelerated to stop before interfering.

Prevent Interferences in Machine Beforehand

High-grade 5-Axis Machining Control Technology

Control will be performed at the speed of the table coordinate system so that the tool center point trace a straight line. This function contributes to high-accuracy machining on the surface.
As a global CNC provider and best partner, we provide optimum technologies and supports for the users stepping toward the future. Mitsubishi CNC creates new values with the users.

Original Screen Design Environment

- Well-developed screen design tools support CNC's individualization.
- N/C Designer, which helps creating original screens easily, enables users to equip unique custom screens that meet machine tool characteristics.
- No-programming method that enables automatic programming by laying out switches, buttons and data display frames, etc. and programming method that enables higher-level processing are available.

Manufacturing Support Software

By the combination of various software, optimal solutions can be provided to shop floor.

Saving Energy

- **Drive units**
  Power regeneration system that allows an energy generated during deceleration to be used as power supply is used. Use of lower energy loss device has enabled reducing loss of power.

- **Spindle motors/Servo motors**
  Energy loss of spindle motors during high-speed operation has been substantially reduced. Drive current of servo motors has been reduced by making the servo motors smaller with higher torque.

Mitsubishi Factory Automation Solutions

- We provide best suited systems for users from our cultivated Factory Automation technologies and experiences.
- Supports from lower to upper components required in manufacturing, network and applications that control these.
Support for the Day-to-day Comfort

Prompt responses, solid technologies and user-friendly support. We continuously improve our after-sales services for our world-wide users. For your “Mitsubishi CNC again!”

Global Service & Support Network

We provide satisfying after-sales service globally to be your best partner.

FA Centers have been established to control service centers and service satellite in each area to enhance services such as providing training for engineers and enhancing service parts and repair facilities.

After-sales Service

Maintenance service
Service centers with high-quality customer services are located in various regions around the world to provide secured and reliable services to the users. We offer wide range of services such as giving prompt and precise advices and suggestions, and on-site-repairs, etc.

Providing parts
Should there be any failure, maintenance parts stored in every service center can minimize down time. We are trying our best to provide services so that you can use your valuable CNC machine tools securely.

1-year maintenance contract
We provide 1-year maintenance service after completion of warranty period. Should there be any failure, our engineers in the closest service center will be at your support as quick as possible.

Training
We provide training for both basic and advanced operations using actual machines. Individually tailored training program and on-site lessons are also available.

Displays in 17 Languages

Supports 17 languages.

Supported languages
- Japanese
- English
- German
- Dutch
- Italian
- French
- Spanish
- Chinese (simplified)
- Chinese (traditional)
- Korean
- Portuguese
- Hungarian
- Swedish
- Turkish
- Polish
- Russian
- Czech

High-quality

Our priority is to provide the users with high-performance and high-quality products. We are trying our best to improve quality and reliability in every process from planning to development, designing, manufacturing and operation after delivery.
Lineup

Advanced product lines lead your machine to the next level.

High-grade Mitsubishi CNC, M700V Series, Equipped with Advanced Complete Nano Control.

- The latest RISC-CPU is equipped to achieve advanced complete nano control.
- High-accuracy machining with complete nano control.
- Comfortable operability that significantly reduces machining setup time.

Global Standard Mitsubishi CNC, M70 Series, Pursuing High Speed and Accuracy

- Enhanced machining accuracy and reduced tact time.
- Comfortable and advanced operation contributing to setup time reduction.
- Compact size achieved.

Incorporated Mitsubishi’s State-of-the-Art Technologies.

- iQ Platform Compatible CNC C70 Series
- Compatible with Mitsubishi FA integrated solution, “iQ Platform”.
- High-performance CNC and high-speed PLC are integrated. High-speed control reduces cycle time.
- Wide variety of FA unit group supports structuring flexible lines.

Drive Units

Multi-hybrid Drive MDS-DM Series
- The high-performance multi-hybrid drive units control multiple servo motors and spindle motor, supporting downsizing of machines and driving technical advantages.
- Connection between the drive unit and CNC is fast and reliable optical communication. Power regeneration system that efficiently uses energy or deceleration as power supply contributes to highly frequent acceleration/deceleration and energy-saving.

Servo/Spindle Drive MDS-D-SV3/SPJ3 Series
- Ultra-compact drive units with built-in power supply contribute to reducing control panel size.
- High-speed optical communication enables shorter position interpolation cycle and direct communication between drive, promoting further high-speed and high-accuracy machining.
- High-efficiency fans and low-loss power module have enabled unit downsizing, which also leads to a reduction in control panel size.

Servo Motors

- HF Series: Medium-inertia, high-accuracy and high-speed motors.
- HF-KP Series: Suitable for auxiliary axis that requires high-speed positioning.
- Linear Servo Motors LM-F Series: An optimized magnetic circuit and improved motors material have realized a larger maximum output. High-speed specification bearings are equipped as standard, achieving higher-speed, lower-vibration and improved durability.
- Direct Drive Servo Motor TM-RB Series: High-torque DD motor in combination with high-gain control system provides quick acceleration and positioning, which makes rotation smoother.
- High-performance Servo/Spindle Drive MDS-D/DM Series: With the fastest current control cycle, basic performance has drastically enhanced (high-gain control). Combination of high-speed servo motor and high-accuracy detector helps enhance overall drive performance.
- High-speed optical communication enables shorter position interpolation cycle and direct communication between drive, promoting further high-speed and high-accuracy machining.
- A high-efficiency fan and low-loss power module have enabled unit downsizing, which also leads to a reduction in control panel size.

Spindle Motors

- High-performance New Type Spindle Motor SJ-D Series: Motor’s energy loss has been significantly reduced by optimizing magnetic circuits.
- High-speed precision bearings are equipped as standard, achieving higher-speed, lower-vibration and improved durability.
- Built-in Spindle Motors: Motor’s energy loss has been minimized by providing better efficiency during high-speed rotation.
- Motor efficiency and size has been reduced, realizing a shorter overall motor length.

- High-performance Spindle Motors SJ-V Series: A vast range of spindle motors is available, including standard, high-speed and wide-range output units, all ready to support diversified machine tool needs.
High-grade Mitsubishi CNC, M700V Series, equipped with advanced complete nano control.

Latest RISC-CPU for Achieving Advanced Complete Nano Control
- The latest RISC-CPU and high-speed optical serve network are equipped, achieving high-speed and high-accuracy control, nano control and 5-axis machining.
- Functions can be easily expanded by adding an expansion unit.
- Ultra-high-speed PLC engine reduces cycle time.

High-accuracy Machining with Complete Nano Control
- Combination of "complete nano control" that processes everything from NC operation to serve control processing in nano-units, a State-of-the-Art technology "SSS control" and "OMR control" makes it possible to achieve ultra-high-quality machining.
- High-speed and high-accuracy machining at 151,000 blocks per minute can be achieved.

Comfortable Operability that Significantly Reduces Machining Setup Time
- NC screen design has been renewed, and strongly supports operation from machining set-up to monitoring. The NC screen displays machining program check and machining states visually by using 3D display.
- Windows®XPe-based Model Added to the Product Line
  - Since Windows®XPe is installed in M720VW, M730VW and M750VW, they facilitate developing such as MTB’s original CAM function and data managing function that can enhance the operability.

Main Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>M710V</th>
<th>M730V</th>
<th>M750V</th>
<th>M720VW</th>
<th>M730VW</th>
<th>M750VW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model name</td>
<td>SP1</td>
<td>SP2</td>
<td>SP3</td>
<td>SP4</td>
<td>SP5</td>
<td>SP6</td>
</tr>
<tr>
<td>Maximum number of control axes (NC axes + spindles + PLC axes)</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Least command increment</td>
<td>0.1μm</td>
<td>0.1μm</td>
<td>1nm</td>
<td>1nm</td>
<td>1nm</td>
<td>1nm</td>
</tr>
<tr>
<td>Least control increment</td>
<td>10nm</td>
<td>10nm</td>
<td>1nm</td>
<td>1nm</td>
<td>1nm</td>
<td>1nm</td>
</tr>
<tr>
<td>Machining program capacity</td>
<td>2,000KB</td>
<td>2,000KB</td>
<td>2,000KB</td>
<td>2,000KB</td>
<td>2,000KB</td>
<td>2,000KB</td>
</tr>
</tbody>
</table>

By judging the shape in large from commanded paths, unnecessary deceleration is reduced even when fine steps exist; thereby realizing smooth and deviation free die-mold machining.

Machining time can be shorter by 5 to 30% relative to a conventional system, effective especially at a higher feed rate.

Control will be performed at the speed of the table coordinate system so that the tool center point traces a straight line. This function contributes to high-accuracy machining on the surface.

OMR Control Optimum Machine Response
- Unlike conventional control, which simply matches the motor path to the commands, OMR control calculates the machine’s status based on a model and applies correction to motor control in order to match machine tool position—motor position—motor position—motor position.

3D Machine Interference Check Tool Path Checkamental
- This function prevents interference in machine beforehand, by modeling the machine (in both manual and automatic operations).
- Interfered part can be checked by moving, rotating or enlarging the models. Interference can be prevented for tilt-type tool axis and rotating table.

SSS Control Super Smooth Surface
- The latest RISC-CPU and high-speed optical servo network are equipped, achieving high-speed and high-accuracy control, nano control and 5-axis machining.
- Machining time can be shorter by 5 to 30% relative to a conventional system, effective especially at a higher feed rate.

Multi-axis, Multi-part System Control
- Flexibly supports various compound machining from multi-axis machining center and multi-system multi-axis milling to hobbing.

Machining center system Machining center system Lathe system Lathe system Multi-part system Multi-part system
- Maximum number of part systems | 8 | 4 | 4 | 4 |
- Minimum number of part systems | 4 | 4 | 2 | 2 |
- Maximum number of control axes (NC axes + spindles + PLC axes) | 8 | 8 | 8 | 8 |
- Least command increment | 0.1μm | 0.1μm | 1nm | 1nm |
- Least control increment | 10nm | 10nm | 1nm | 1nm |
- Machining program capacity | 2,000KB | 2,000KB | 2,000KB | 2,000KB |

Machine Machining Machining Machining Machining
- Machining Machining Machining Machining
- Machining Machining Machining Machining
- Machining Machining Machining Machining
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- Maximum number of control axes (NC axes + spindles + PLC axes) | 8 | 8 | 8 | 8 |
- Least command increment | 0.1μm | 0.1μm | 1nm | 1nm |
- Least control increment | 10nm | 10nm | 1nm | 1nm |
- Machining program capacity | 2,000KB | 2,000KB | 2,000KB | 2,000KB |

Machine Machining Machining Machining Machining
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- Machining Machining Machining Machining
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Multi-axis, Multi-part System Control
- Flexibly supports various compound machining from multi-axis machining center and multi-system multi-axis milling to hobbing.
Global standard for Mitsubishi CNC, pursuing high speed and accuracy

Enhanced Machining Accuracy and Reduced Tact Time

- The minimum command unit 0.1μm and minimum internal interpolation unit 0.01μm allow highly accurate and smooth machining.
- High-speed error compensation function is equipped for controlling spindles and servos, enabling high-speed and high-accuracy tapping.
- The high-speed PLC engine enhances the operation speed, contributing to cycle time reduction.

Comfortable and Advanced Operation Contributing to Setup Time Reduction

- Equipped with pop-up screens to liberate operators from screen hierarchy, and guidance function on operations, programs and alarms.
- Ethernet interface is equipped as standard; thus, program management can be easily realized.
- With a compact flash installed in front of the display, large amount of NC programs can be saved and maintenance data can be easily managed.
- Simple programming functions, NAVI MILL and NAVI LATHE are installed.

Compact Size Achieved

- Unit dimensions have been downsized by integrating a display and CNC control part, contributing to downsizing control panel.
- High visibility TFT color LCD is used. 8.4-type and 10.4-type size displays are available.

### Main Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>M70 TypeB</th>
<th>M70 TypeA</th>
<th>M70 TypeBM</th>
<th>M70 TypeA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum number of control axes</td>
<td>13</td>
<td>14</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Maximum number of simultaneous contour control axes</td>
<td>14</td>
<td>15</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Number of control axes (NC axes + PLC axes + spindle)</td>
<td>11</td>
<td>12</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Number of part systems</td>
<td>9</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Number of axes (NC axes + spindles + PLC axes)</td>
<td>9</td>
<td>4</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Control increment</td>
<td>0.1μm</td>
<td>0.01μm</td>
<td>0.1μm</td>
<td>0.01μm</td>
</tr>
<tr>
<td>Display</td>
<td>8.4-type/10.4-type touch panel (selectable)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum program capacity</td>
<td>32,000 steps</td>
<td>20,000 steps</td>
<td>20,000 steps</td>
<td>20,000 steps</td>
</tr>
<tr>
<td>HIMI customization function</td>
<td>Available</td>
<td>—</td>
<td>Available</td>
<td>—</td>
</tr>
</tbody>
</table>

### High-speed Synchronous Tapping Function <OMR-DD>

High-speed error compensation function is used for controlling the spindle and servo, enabling fast and accurate tapping. (Compatible model: M70 TypeA)

### Multi-axis Control

Supports a wide variety of machines by offering control with up to 2 part-systems and 11 axes (up to 9 NC axes, 4 spindles and 6 PLC axes).

### High-speed Machining Mode

By reading ahead some blocks in a program that contain successive fine travel distances, the program can be rapidly executed at up to 33,000 blocks/minute. (Compatible model: M70 TypeA)

### High-accuracy Control Function

- At a corner that consists of straight lines, sharp interpolation control is performed to follow the commanded path by correcting curvature.
- Inward deviation error in arc motion is reduced to further accurately follow the command value.

### Spindle/C-axis Control

Spindle's constant position loop control has eliminated zero point return time at switching from spindle to C-axis.

### High-speed Spindle Orientation

The maximum torque deceleration is enabled without being influenced by load inertia, which always allows spindle orientation in the shortest time.
**User Friendly**

for M700V Series & M70 Series

**Human Machine Interface for easier and visible use**

- **HMI for Easier and Visible Use**
  - Screen structure linking to the operation processes
    - Operation processes are divided into three steps: “Monitor”, “Setup” and “Edit”, and necessary information is aggregated into three screens. These screens can be displayed by just a single touch of a button on the keyboard.
  - Pop-up screens
    - Tabs allow the user to select necessary operation from the operation menu, and pop-up screens allow the user to access desired information while the original screen remains displayed. For the display with a touch panel, a keyboard can be displayed on the screen.
  - 2-part system display
    - The Monitor screen of the 2nd part system can be displayed together with the 1st part system. Switching screens is not necessary.
  - Menu customization function
    - Menu keys bottom of the screen can be freely arranged. Frequently used menu keys can be concentrated in the first page.

**Operation Support**

- Manual/Automatic backup function
  - Manual/Automatic backup function
    - Batch backup of the NC data into the memory card inserted in the front interface of the display is possible. For the built-in hard disk type M700VW Series, backup in the hard disk is also possible.
    - Data is automatically backed-up at a certain interval set by parameter.

- Program input error warning function
  - The 3D solid model check function is added for further realistic cutting check.
  - This function supports an operator to input and check programs. Errors are indicated when omitted decimal point, input range overflow or G code input error is found.

- Guidance function
  - By pushing the help button, guidance (operation procedure/descriptions of parameter/alarm and G code format) regarding the currently displayed screen will be displayed.

- Menu list
  - Menu list buttons are newly introduced. With these buttons, a screen to be displayed can be called directly. Selected screen’s function outline is also displayed.

- Simple Programming Functions with Simple Machining Menu
  - NAVI MILL (Machining center system) / NAVI LATHE (Lathe system)
    - Automatically create programs for each process when you just select machining process and input data on screen. If you register tools and cutting conditions in advance, tool path can be graphically drawn for the program check. This function also supports inclined surface machining.
C70 Series

iQ Platform compatible CNC, providing largest effect on TCO reduction

- CNC structured in building block method on iQ Platform.
- Compact and high-speed CNC CPU module <Q173NCCPU> equipped with multiple-axes in multi-part systems.
- Ultra-high-speed connection between ultra-high-speed PLC CPU module <MELSEC QnUD (H) CPU> and CNC CPU.
- Variety of modules for power supply, input/output interface, network and measurement are available.
- Mitsubishi Graphic Operation Terminal, easily customizable HIM with high-performance and multiple functions.
- MELSOFT, easy-to-use engineering tools with multiple functions.

### Specifications

<table>
<thead>
<tr>
<th>Model name</th>
<th>Number of control axes</th>
<th>Number of control part systems</th>
<th>PLC function</th>
</tr>
</thead>
<tbody>
<tr>
<td>C70 Machining</td>
<td>3</td>
<td>16</td>
<td>1616</td>
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<td></td>
<td></td>
<td></td>
<td>774817</td>
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<tr>
<td>Lathe System</td>
<td>2</td>
<td>16</td>
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<td></td>
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<td></td>
<td></td>
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<td>354</td>
</tr>
</tbody>
</table>

#### Main Specifications

- Efficient productivity
- Efficient maintainability
- Effective designing
- Advanced ease

### Building Block Type

- Variety of network modules of Mitsubishi PLC MELSEC-Q series are available.
- Motion controllers and robots are compatible with iQ platform, enabling system expansion.

### High-speed Bus Between Multiple CPUs

For data transfer between CNC CPU and PLC CPU, we have newly developed high-speed bus between multiple CPUs.

### Safety Observation Function

This function supports safety signal comparison, speed observation and emergency stop duplexing. This function complies with the requirement of European Safety Standards 954-1 Safety Category 3.

### New Model Q PLC

Sequence processing time is widely accelerated, including 3.5 times faster basic instruction performance compared to the conventional one. Reduced scan time reduces the tact time.

### Multi-axis, Multi-part System Control

CNC CPU module can control up to 16 NC axes and spindles and up to 7 part systems. iQ Platform can be equipped with up to 2 CNC CPU modules.

### GOT 1000 Series Displays

- Original screens can be easily developed with GOT screen creation tool (GT Designer2). Machine operation is enabled with a touch-panel display instead of a conventional machine operation panel.
- NC Monitor is installed in SVGA and XGA models as standard, which enables setting each NC data and editing machining programs, etc.
User Support Tool

Network Support Tools for improving CNC environment

**Ethernet Communication Function** (Supported by: M700V, M70, C70)

- 10/100Mbps Ethernet communication function is equipped as standard, enabling large-capacity program input/output and interaction-operation of high-speed program server.

**Machining programs in the CF card (inserted in the display) or hard disk (in the case of M700VW Series) can be directly searched and run. Direct edit is also available.**

**Insert**

- There is no limitation in program format.

**Machining program**

- Machining programs in the CF card can be loaded in the control unit.

- CF card can be also used with an adapter.

**NAVI MILL** (Supported by: M700V, M70)

- PC Version of Simple Programming Functions

Simple programming functions, "NAVI MILL" and "NAVI LATHE" can be operated on a personal computer.

**Remote Monitoring Tool** (Supported by: M700V, M70, C70)

- An identical screen with NC display can be displayed on a personal computer. By connecting a personal computer to NC unit when necessary, various data can be checked and set on the same HMI (Human Machine Interface) as the standard NC screen.

**Remote Monitoring Tool**

- Only by locating parts of various functions on the screen, original screens can be designed easily.

- Created screens' performance can be easily checked on a personal computer.

**Data Transfer Tool** (Supported by: M700V, M70, C70)

- By connecting the NC and host personal computer via Ethernet, NC data such as machining programs, variables, parameters, etc. can be transferred mutually.

**Machining program**

- Data transfer is possible even via Ethernet communication function.

**Data Server Operation** (Supported by: M700V, M70)

- When using touch panel display, a machine operation panel can be built on NC display.

- Events of the standard parts can be described in the macro language.

- Using the C language source generation function of NC Designer, customized functions can be added by programming in C language. (Dedicated development environment necessary)

**Edit on a personal computer**

- Install into NC using a CF card.

**Fulfilling Development Tools Support Individualization of CNC.**

**NC Designer** (Supported by: M700V, M70)

- Screen Design Tool

- By laying out ready-made standard parts, you can easily create original screens without programs.

**Screen Design Tool**

- When using touch panel display, a machine operation panel can be built on NC display.

**NC Monitor** (Supported by: M700V, M70, C70)

- Remote Monitoring Tool

- Ethernet communication function is equipped as standard, enabling large-capacity program input/output and interaction-operation of high-speed program server.

**Remote Monitoring Tool**

- NC data file necessary for NC control and machine operation (such as parameters, tool data, common variables) can be edited on a personal computer. The edited data can be transferred to the NC via Ethernet.

**Parameter Setup Support Tool**

- Servo parameters can be automatically adjusted by activating the motor with machining programs for adjustment or vibration signals, and measuring/analyzing the machine characteristics.

**Parameter Setup Support Tool**

- Servo adjustment can be performed even in the setup mode.

**NC Explorer** (Supported by: M700V, M70)

- Data Transfer Tool

- By laying out ready-made standard parts, you can easily create original screens without programs.

**Data Transfer Tool**

- By connecting the NC and host personal computer via Ethernet, NC data such as machining programs, variables, parameters, etc. can be transferred mutually.

**MS Configurator** (Supported by: M700V, M70, C70)

- Parameter Setting Support Tool

- Servo parameters can be automatically adjusted by activating the motor with machining programs for adjustment or vibration signals, and measuring/analyzing the machine characteristics.

**Parameter Setting Support Tool**

- Servo adjustment can be performed even in the setup mode.

**GX Developer** (Supported by: M700V, M70, C70)

- PLC Programming Tool

- The MELSEC programming tool, offering a wide array of functions and easy use, allows for convenient program design and debugging. Linking with a simulator or other utility allows for the efficient creation of desired programs.

**PLC Programming Tool**

- External CF card (USB memory) is available with M700VW Series only.