The Best Partner for Your Success

This 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 as well as the best partner, we provide optimum technologies and supports for the users making a step toward the future. MITSUBISHI CNCs create new values in cooperation with the users.

Advanced Technologies for the Next Generation

With the sophisticated technologies we have developed as a total factory automation manufacturer, we attain advanced machining control and contribute to the highest accuracy and productivity of manufacturing worldwide. MITSUBISHI CNCs change machine tools, machining and manufacturing.

Solid Support for Day-to-day Comfort

Providing prompt responses, solid technologies and user-friendly supports, we continuously improve our after-sales service quality for users in the world so that they choose MITSUBISHI CNCs again.

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(Note) The contents of this catalog includes optional specifications. Refer to specification manuals for details.
Technologies for the Next Generation

With the sophisticated technologies we have developed as a total factory automation manufacturer, we attain advanced machining control and contribute to the highest accuracy and productivity of manufacturing worldwide. MITSUBISHI CNCs change machine tools, machining and manufacturing.

High-accuracy Machining with Complete Nano Control

The complete nano control enables all processing in nanometers, from NC operation to servo processing. This advanced machining control technology supports next-generation ultra-precision machining.

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

High-quality Machining with Balanced Accuracy and Speed

SSS control OFF

- SSS control ON

- At the same cutting rate of F1700.

- At the increased feed rate of F3400.

High-speed and High-accuracy Control

Machining speed attained with 0.1mm-pitch NC program

OMR-DD Control (Optimum Machine Response Direct Drive)

Servo drive unit

Directly compensates synchronization error

Spindle drive unit

Prevention of Interferences in Machine

When a possibility of interference is detected on a machine model, the motor decelerates to a stop before interfering. The part to interfere is displayed in a different color.

High-speed and High-accuracy Tapping

A high-speed error-compensation function is used for controlling the spindle and servo, enabling accurate tapping.

High-speed and High-accuracy Machining Time Reduced

Complete nano control enables high-speed and high-accuracy machining at a maximum fine-segment feed rate of 168kBPM (BPM: Block per Minute)

Motor decelerates to a stop before interfering. The part to interfere changes in color.
Well-developed screen design tools help bring out the uniqueness of CNCs. NC Designer, which helps create original screens easily, enables users to add unique customized screens that meet machine tool characteristics.

Two types of designing methods are available: a programming-free method in which automatic programming is carried out upon laying out switches, buttons and data display frames, etc. and a programming method that enables higher-level processing.

Original Screen Design Environment

Manufacturing Support Software

We provide optimal solutions for manufacturing sites by combining various software.

Energy Savings

Drive units
Application of the power regeneration system which allows energy generated during deceleration to be efficiently used as a power supply. Use of low-loss power devices enables reductions in loss of power.

Energy flow when motor is decelerating
When motor is decelerating, energy in the motor is fed back to the power supply.

Spindle motors/Servo motors
Energy loss of spindle motors during high-speed operation has been substantially reduced. Drive current of servo motors has also been reduced by downsizing the motors while increasing the torque.

Mitsubishi Factory Automation Solutions

Our cultivated Factory Automation technologies and experience contribute to offer the best suited systems for users. Our FA solutions support high and low hierarchy components, a network and even applications that control the components and network required for a manufacturing floor.

Production management
Facility maintenance
Quality control

Mitsubishi FA product groups

As a global CNC provider as well as the best partner, we provide optimum technologies and supports for the users making a step toward the future. MITSUBISHI CNCs create new values in cooperation with the users.
Support
for the Day-to-day Comfort

Providing prompt responses, solid technologies and user-friendly supports, we continuously improve our after-sales service quality for users in the world so that they choose MITSUBISHI CNCs again.

Global Service & Support Network

We provide satisfying after-sales services worldwide, aiming to be your best partner.

After-sales Service

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

- **Part supply**
  As each service center keeps maintenance parts in stock, the down time after a failure can be minimized. We are making our efforts to provide utmost services that allow users to use their CNC machine tools more securely.

- **One-year maintenance contract**
  We provide maintenance services after expiration of warranty period in one-year units. Should there be any faults, our engineer in the closest service center will be at your support immediately.

Training

We provide trainings on both basic and advanced operations using actual machines. Individually tailored training programs and on-site lessons are also available. Please contact us for details.

Displays in 17 Languages

Supports 17 languages.

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

High-quality

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

We have established FA Centers that manage service centers and service satellites in each area to enhance our service quality by providing trainings for engineers and enhancing service parts and repair facilities.
Advanced product lines take your machine to the next level

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

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

**Global Standard Mitsubishi CNC M70V Series, Pursuing High Speed and Accuracy**

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

**Simple CNC E70 Series, Offering Easy Operability and High Cost Performance**

- Simple operations free operators from burden
- With the latest hardware installed, this CNC realizes high cost performance

**IQ Platform Compatible CNC C70 Series Incorporated with Mitsubishi’s State-of-the-Art Technologies**

- Compatible with the Mitsubishi FA integrated solution, “IQ Platform”
- High-performance CNC integrated with high-speed PLC offers high-speed control to reduce cycle time
- A wide variety of FA products helps construct flexible lines

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**Drive Units**

**High-performance Servo/Spindle Drive Units**

**MDS-D2/DH2 Series**

- With the fastest current control cycle, basic performance is drastically enhanced (high-gain control). A combination of high-speed servo motor and high-accuracy detector helps enhance overall drive performance.
- A high-efficiency 4th and low-pass power module have enabled unit downsizing. A line of drive units driving a maximum of two spindles is available, contributing to a reduction in control panel size.
- STO (safe torque off) is now available.

**All-in-one compact drive units MDS-D Series**

- Ultra-compact drive units with built-in power supplies contribute to reducing control panel size. The 2-axis type is added for further downsizing.
- High-speed optical communication enables a shorter position interpolation cycle and direct communication between drives, promising further high-speed and high-accuracy machining.
- A high-efficiency 4th and low-pass power modules have enabled unit downsizing, which also leads to a reduction in control panel size.
- STO (safe torque off) is now available.

**Medium-inertia Motor HF Series**

- High-performance machine is achieved. Suitable for machine requiring quick acceleration.
- Range: 0.5 to 9[kW]
- Maximum speed: 4,000 or 5,000[r/min]
- Supports three types of detectors with a resolution of 260,000, 1 million or 16 million p/rev.

**Linear Servo Motor LM-F Series**

- Also in clean environments is possible drive no ball screws are used and therefore contamination from grease is not an issue.
- Elimination of transmission mechanisms which include backlash, enables smooth and quiet operation even at high speeds.
- Dimensions:
  - Length: 260 to 2,100 [mm]
  - Width: 120 to 240 [mm]

**Spindle Motors**

**Medium-inertia Motor HF-KP Series**

- Suitable for an auxiliary axis that requires high-speed positioning.
- Range: 0.1 to 0.75[kW]
- Maximum speed: 6,000[r/min]
- Supports a detector with a resolution of 260,000p/rev.

**Low-inertia Motor HF-SP Series**

- Suitable for an auxiliary axis that require high-speed positioning.
- Range: 0.1 to 0.75[kW]
- Maximum speed: 6,000[r/min]
- Supports a detector with a resolution of 260,000p/rev.

**Direct Drive Servo Motor TM-RB Series**

- High-speed direct drive, combining a high-gain control system provides quick acceleration and positioning, which makes rotation smoother.
- Suitable for a rotary axis that drives a table or spindle head.
- Range: Maximum torque: 36 x 1.240[N·m]

**Servo Motors**

**High-performance New Type Spindle Motor SJ-D Series**

- Motor energy loss has been significantly reduced by optimizing the magnetic circuit.
- Product line:
  - Normal SJ-D Series: 3.7 to 11[kW]
  - Compact & light SJ-DL Series: 0.5 to 15[kW]

**Low-inertia, High-speed New Type Spindle Motor SJ-DL Series**

- This motor dedicated to tapping machines requires faster drilling and tapping.
- The low-inertia reduces acceleration/deceleration time, resulting in higher productivity.
- Product line:
  - Low-inertia SJ-DL Series: 0.75 to 7[kW]

**Built-in Spindle Motor SJ-B Series**

- The coiled electrical design increases the continuous rated torque per unit volume compared to our conventional model, contributing to downsizing of the spindle unit.
- The unit with cooling jacket is available at an optional feature.

**High-performance Spindle Motor SJ-V Series**

- A vast range of spindle motors is available, all ready to support diversified machine tool needs.
- Product line:
  - Wide-range constant output SJ-V Series: 0.75 to 55[kW]
  - High-speed SJ-VZ Series: 5.5 to 16.5[kW]
  - Hollow-shaft SJ-VS Series: 5.5 to 16.5[kW]

**Low-inertia, High-speed Spindle Motor SJ-VL Series**

- The spindle dedicated to tapping machines requiring faster drilling and tapping.
- The low-inertia reduces acceleration/deceleration time, resulting in higher productivity.
- Product line:
  - Low-inertia normal SJ-VLS Series: 3.0 to 11[kW]
  - Low-inertia hollow-shaft SJ-VLS Series: 5.7 to 17[kW]

**SSD Spindle Motor HF-KP-SP Series**

- Taking advantage of the characteristics of high-speed motor, such as smallness and high-rigidity, this motor serves as a compact and high-rigidity spindle motor which is capable of high-speed rotation (10,000[r/min]). This motor contributes to downsizing of spindles, such as the rotary tool spindle.
- Product line:
  - Small capacity: HF-KP Series: 0.1 to 0.9[kW]
  - Medium capacity: HF-SP Series: 2.2 to 4.9[kW]
M700V Series

High-grade Mitsubishi CNC M700V Series, equipped with advanced complete nano control

Latest RISC-CPU achieves Advanced Complete Nano Control

- The latest RISC-CPU and high-speed optical servo networks are installed, achieving high-speed and high-accuracy control, nano control and 5-axis machining
- Functions can be easily expanded by adding an expansion unit
- Ultrahigh-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 servo control processing in nanometers, a state-of-the-art technology “SSS control” and “OMR control” makes it possible to achieve ultrahigh-quality machining
- High-speed and high-accuracy machining at 168 blocks per minute is possible

Easy Operability that Significantly Reduces Machining Setup Time

- NC screen design has been renewed to strongly support operations from machining setup to monitoring
- The NC screen displays machining program check and machining states visually by using 3D display

Windows®XP-based Model Added to the Product Line

- Since Windows®XPe is installed in M720VW, M730VS and M750VW, they facilitate developing such as MTB’s original CAM function and data managing function that can enhance the operability

Main Specifications

- Built-in PLC Basic Instruction Processing Performance
- User Macro Processing Performance (Note 1)
- BPM is the number of machining program blocks processed per minute.

User Macro Processing Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>M700V Series</th>
<th>M700V Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPM</td>
<td>135kBPM</td>
<td>168kBPM</td>
</tr>
</tbody>
</table>

M700V Series’ numerical processing performance and PLC processing performance have been significantly improved from those of our conventional M700 Series.

Machining Program Processing Speed

<table>
<thead>
<tr>
<th>Model</th>
<th>M700V Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>M700V Series</td>
<td>135kBPM</td>
</tr>
</tbody>
</table>

Drive unit

<table>
<thead>
<tr>
<th>Model</th>
<th>M700V Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPM</td>
<td>1200m/min</td>
</tr>
</tbody>
</table>

Table

<table>
<thead>
<tr>
<th>Model</th>
<th>M700V Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPM</td>
<td>16 million p/rev</td>
</tr>
</tbody>
</table>

OMR-FF Control

- 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 not the motor position, but the machine tool position to the commands.

Complete Nano Control

- All operations from program values to servo commands are done in nanometer units. Interpolation is at the nano-unit level even when program commands are in micrometer units.

Tool Center Point Control

- High-accuracy machining is realized by controlling each axis so that the tool center point moves linearly at a commanded feed rate even if the rotary axis moves in linear interpolation.

Guide Bushing Spindle Synchronization Control

- This function is for a machine with a spindle motor to rotate a guide bushing. This function allows the guide bushing spindle motor (G/B spindle) to synchronize with a reference spindle motor (Reference spindle).

Control Axis Superimposition

- This is effective when machining in multiple part systems is exécuted simultaneously. It allows for an axis to shift its coordinate system relative to the system using the axis.
Global standard Mitsubishi CNC pursuing high speed and accuracy

Enhanced Machining Accuracy and Reduced Tact Time

- The minimum command unit of 0.01µm and minimum internal interpolation unit of 1nm allow highly accurate and smooth machining.
- High-speed error compensation function is incorporated in spindle and servo controls, which enables high-speed and high-accuracy tapping, etc.
- The high-speed PLC engine enhances the operation speed, contributing to cycle time reduction.

Easy and Advanced Operation Contributing to Setup Time Reduction

- This CNC is equipped with pop-up screens that prevent operators from being bothered with screen hierarchy, and guiding function that displays guidance on operations, programs and alarms.
- Ethernet interface is installed as standard; thus, program management can be easily realized.
- A compact flash installed in front of the display allows storing of large-capacity NC programs and easy management of maintenance data.
- Simple programming functions NAVI MILL and NAVI LATHE are installed.

Compact Size Achieved

- Unit dimensions have been downsized by integrating a display with CNC control part, contributing to downsizing of control panel.
- High visibility TFT color LCD is used. 8.4-type and 10.4-type displays are available.
- The added 3D solid model check function allows more realistic cutting check.

Main Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Machining center system</th>
<th>Lathe system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum PLC program capacity</td>
<td>500KB [1,280m]</td>
<td>2,000KB [5,120m]</td>
</tr>
<tr>
<td>Least control increment</td>
<td>0.1µm</td>
<td>1nm</td>
</tr>
<tr>
<td>Least command increment</td>
<td>0.1µm</td>
<td>1nm</td>
</tr>
<tr>
<td>Maximum number of part systems</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Maximum number of control axes (NC axes + PLC axes + spindle)</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Maximum number of spindles</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Maximum number of PLC axes</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Maximum number of NC axes (in total for all the part systems)</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Maximum number of simultaneous contour control axes</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>

Mixed Control(cross axis control) (Lathe System)

- The control axes of each part system can be exchanged using a program command. This enables the axis defined as the axis of the 1st part system to be operated as the axis of the 2nd part system.

Polar Coordinate Interpolation (Lathe System)

- This function converts the commands programmed for the orthogonal coordinate axes into linear axis movements (tool movements) and rotary axis movements (workpiece rotation) to control the contours.
- It is useful for tasks such as cutting linear cutouts on the outside diameter of the workpiece and grinding camshafts.

SSS Control (Machining Center System)

- By judging shapes 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 our conventional system, especially more effective at a higher feed rate.

Path B

Without SSS control

Smooth command path

Rapid traverse constant inclination multi-step acceleration/deceleration

Path A

With SSS control

Smooth command path

Rapid traverse constant inclination multi-step acceleration/deceleration

Hobbing (Lathe System)

- G code format is available for hobbing.
- A spur gear can be machined by synchronously rotating the hob axis and the workpiece axis in a constant ratio. A helical gear can be machined by compensating the workpiece axis according to the gear torsion angle for the Z axis movement.

S3S Control (Machining Center System)

- High-speed and accuracy tapping, etc.
- As the motor’s characteristics can be utilized optimally, positioning time is reduced, and cycle time is improved.

Rapid Traverse Constant Inclination Multi-step Acceleration/Deceleration Function

(Machining Center System) 1st part system only
Simple CNC Offering Easy Operability and High Cost Performance

Simple operations free operators from burden

● This CNC has the same screen structure as M700V and M70V Series, allowing easy operations.
● Switching between milling and lathe systems is accomplished simply by changing the parameter.
● Various support tools help reduce initial setup time including the time for developing ladder programs and customized screens.

With the latest hardware installed, this CNC realizes high cost performance

● CNC control part integrated with a display provides compact size and high cost performance.
● Ethernet interface is installed as standard; thus, program management can be easily realized.
● Compatible with analog output, this CNC allows a spindle motor to be driven by an inverter.

Main Specifications

<table>
<thead>
<tr>
<th>Category</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of control axes</td>
<td>4</td>
</tr>
<tr>
<td>Maximum number of CNC axes</td>
<td>6</td>
</tr>
<tr>
<td>Maximum number of PLC axes</td>
<td>3</td>
</tr>
<tr>
<td>Maximum number of spindles</td>
<td>1</td>
</tr>
<tr>
<td>Maximum number of workpiece systems</td>
<td>2</td>
</tr>
<tr>
<td>Maximum number of stations per workpiece system</td>
<td>8</td>
</tr>
<tr>
<td>Maximum number of simultaneous contour control axes</td>
<td>4</td>
</tr>
<tr>
<td>Maximum program capacity</td>
<td>230KB</td>
</tr>
<tr>
<td>Maximum PLC program capacity</td>
<td>600m</td>
</tr>
<tr>
<td>Display</td>
<td>8,000 steps</td>
</tr>
<tr>
<td>Keyboard</td>
<td>Sheet keys</td>
</tr>
<tr>
<td>HMI customization function</td>
<td>Available</td>
</tr>
<tr>
<td>MITSUBISHI CNC Machine Operation Panel</td>
<td>NC Designer Compatible</td>
</tr>
<tr>
<td>* Maximum specifications including optional specifications are listed.</td>
<td></td>
</tr>
</tbody>
</table>

Example when combined with an 8.4-type display

Nano Control

- Interpolation calculation accuracy improved
  Even with one-micron-unit commands in the machining program, interpolation is in nanometer units. As the calculation accuracy of a block intersection is improved, lines on the surface is finer.

Memory Card/USB Memory Interface

A compact flash memory card (CF card) / USB memory interface is located on the front of the display. In using CF card, the card slot can be completely covered by a lid so as to prevent foreign materials from entering (IP67).

PLC Axis

- Indexing function
  By setting the number of stations required for the application, the drive automatically sets up equal intervals between each station. Positioning of the axis is only possible by commanding the station number.

Spindle/C-axis Control

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

Inclined Axis Control (Lathe System)

- Even when the control axes configuring a machine are mounted at an angle other than 90 degrees, this function enables it to be programmed and controlled in the same way as with an orthogonal axis.
- The inclination angle is set using a parameter, and axes are controlled using the movement amounts of the axes which are obtained through conversion and compensation using this angle.

Example when combined with an 8.4-type display
User-friendly

Human Machine Interface allowing easier and more visible use

HMI for Easier and More 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 touching a single button on the keyboard.

- Pop-up screens
  Tabs allow the user to select necessary operations from the operation menu, and pop-up screens allow the user to access desired information while the original screen remains displayed. For displays 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 on the bottom of the screen can be freely arranged. Frequently used menu keys can be put together on the first page.

Operation Support

- Manual/Automatic backup function
  - Batch backup of the NC data into the memory card/USB memory 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 the parameter.

- Program input error warning function
  - The added 3D solid model check function allows more realistic cutting check.1
  - This function helps an operator to input and check programs. Errors are indicated when a decimal point is omitted.2

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

- Menu list
  Menu list buttons are newly introduced. With these buttons, the screen desired for display can be called up directly. The selected screen’s function outline is also displayed.

Simple Programming Functions with Simple Machining Menu

- NAVI MILL (Machining center system) / NAVI LATHE (Lathe system)
  Programs are automatically created for each process when an operator selects machining process and inputs data on screen. A tool path can be graphically drawn for the program check.
  This function also supports inclined surface machining.

- Manual/Automatic backup function
  - Batch backup of the NC data into the memory card/USB memory 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 the parameter.

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- Menu list
  Menu list buttons are newly introduced. With these buttons, the screen desired for display can be called up directly. The selected screen’s function outline is also displayed.

1 Available with M700V Series, M70V TypeA (M System) only.
2 Available with M700V Series only.
C70 Series

iQ Platform-compatible CNC, providing the largest effect on TCO reduction

- A CNC structured in building block method on iQ Platform
- Compact and high-speed CNC CPU module “Q173NCCPU” equipped with the multi-axis and multi-part system control
- Ultra-high-speed connection between ultra-high-speed PLC CPU module MELSEC QnUD (H) CPU and CNC CPU
- Variants of optional power supply, input/output interface, network, and measurement are available
- Mitsubishi Graphic Operation Terminal GOT2000/GOT1000™, an easily customizable MMI with high-performance and multiple functions
- Compatible with MELSOFT, easy-to-use engineering tools with multiple functions

Main Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Model name</th>
<th>CNC CPU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of control axes</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Number of control part systems</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>PLC function</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Number of basic control axes (NC axes)</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Maximum number of spindles</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Maximum number of PLC axes</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Standard number of part systems</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Maximum number of part systems</td>
<td>124/252</td>
<td>124/252</td>
</tr>
<tr>
<td>Program capacity [K steps]</td>
<td>1,024,000</td>
<td>1,024,000</td>
</tr>
<tr>
<td>Maximum number of files to store</td>
<td>7,000</td>
<td>7,000</td>
</tr>
<tr>
<td>Number of input/output points</td>
<td>4,096</td>
<td>4,096</td>
</tr>
</tbody>
</table>

Building Block Type

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

Ultra-high-speed network between CNC CPUs and PLC CPUs

For data transfer between CNC CPUs and PLC CPUs, we have newly developed a dedicated high-speed bus. Data are transferred at a high-speed cycle (0.88ms) between the high-speed shared memories of each CPU, so each CPU speed can be fully utilized.

Q PLC

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

Safety Observation Function

This function enables safety signal comparison, speed observation and duplicated emergency stop. This function complies with the European safety standard EN ISO 13849-1 PL d.

GOT Displays

- Customized screens can easily be developed with the GOT Screen Design Software (GT Works3). It is possible to operate a machine via a touch panel instead of a conventional machine operation panel.
- NC Monitor is installed in SVGA and XGA models as standard, which enables saving of each NC data and editing of machining programs, etc.

One CNC CPU module up to 7 part systems and 16 axes. Up to two CNC CPU modules can be installed on iQ Platform.

Slot-in structure for quick attach/detachmen
User Support Tools/Development Tools

User Support Tools Provide an Improved CNC Environment
Rich Development Tools Help Bring out the Uniqueness of CNCs

**User Support Tools**

- **Remote Monitoring Tool**
  - NC Monitor (M700V, M70V, E70)
  - NC Explorer
  - Remote Monitoring Tool

- **Data Transfer Tool**
  - NC Trainer
  - NC Trainer plus
  - M700V/M70V/E70 Series
  - M700V Series
  - NG Designers

- **Parameter Setup Support Tool**
  - NC Maintainer
  - A software tool for a personal computer to carry out maintenance (such as parameter setting, NC diagnosis and PLC program diagnosis) of MITSUBISHI CNC on customer's display.

- **Servo Selection Tool**
  - NC Trainer
  - NC Trainer plus
  - M700V/M70V/E70 Series
  - M700V Series
  - NG Designers

- **Parameter Setup Tool**
  - NC Maintainer
  - A software tool for a personal computer to carry out maintenance (such as parameter setting, NC diagnosis and PLC program diagnosis) of MITSUBISHI CNC on customer's display.

- **Servo Adjustment Support Tool**
  - NC Trainer
  - NC Trainer plus
  - M700V/M70V/E70 Series
  - M700V Series
  - NG Designers

- **Sequence Programming Tool**
  - NC Trainer
  - NC Trainer plus
  - M700V/M70V/E70 Series
  - M700V Series
  - NG Designers

- **GX Developer**
  - By selecting the machine configuration model and inputting the machine specifications, the optimal servo motor meeting specifications can be selected. Other selection functions which fully support drive system selection are also available. This tool is free of charge. Please contact us.
  - N4, N5, N6
  - M70V
  - M700V
  - E70

- **Parameter Setup Support Tool**
  - NC Maintainer
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- **Screen Design Tool**
  - NC Trainer
  - NC Trainer plus
  - M700V/M70V/E70 Series
  - M700V Series
  - NG Designers

- **Remote Monitoring Tool**
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Please confirm the following product warranty details before using MITSUBISHI 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, we shall provide repair services at no cost through the distributor from which the product was purchased or through a Mitsubishi Electric service provider. Note, however, that this shall not apply if the customer was informed prior to purchase of 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 product to the end user provided the product purchased from us in Japan is installed in Japan (but in no event longer than thirty (30) months, including the distribution time after shipment from Mitsubishi Electric or its distributor).

Note that, for 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, please refer to “2. Service in overseas countries” as will be explained.

[Limitations]
(1) The customer is requested to conduct an initial failure diagnosis by himself/herself, as a general rule. It can also be carried out by us or our service provider upon the customer’s request and the actual cost will be charged.

(2) This warranty applies only when the conditions, method, environment, etc., of use are in compliance with the terms 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 shall 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 the customer’s hardware or software program
(b) a failure caused by any alteration, etc., to the product made by the customer without Mitsubishi Electric’s approval
(c) a failure which may be regarded as avoidable, if the customer’s equipment in which this product is incorporated is equipped with a safety device required by applicable laws or has any function or structure considered to be indispensable in the light of common sense in the industry
(d) a failure which may be regarded as avoidable if consumable parts designated in the instruction manual, etc. are due maintained and replaced
(e) any replacement of consumable parts (including a battery, relay and fuse)
(f) a failure caused by external factors such as inevitable accidents, including without limitation fires and abnormal fluctuation of voltage, and acts of God, including without limitation earthquake, lightning, and natural disasters

(4) a failure which is unforeseeable under technologies available at the time of shipment of this product from our company

(5) any other failure which we are not responsible for which the customer acknowledges we are not responsible for

2. Service in Overseas Countries

If the customer installs the product purchased from us in his/her machine or equipment, and export it to any other country over where the buyer purchased the product, the customer should contact the local FA center with their request in advance.

3. Exclusion of Responsibility for Consequential Losses or Injury, etc.

Whether during or after the term of warranty, we assume no responsibility for any damages arising from causes for which we are not responsible, any losses of opportunities and/or profit incurred by the customer due to a failure of this product, any damages, secondary damages or compensation for accidents arising under specific circumstances that either unforeseen or unforeseeable by Mitsubishi Electric, any damages to products other than this product, or compensation for any replacement work, readjustment and startup last of on-site machines or any other operations conducted by the customer.

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 the use of this product, its applications should be those that may not result in a serious damage even if any failure or malfunction occurs in the product, and a backup or fail-safe function should be specified on the external system to the product when any failure or malfunction occurs.

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

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Robot

**MELFA F Series**

High-speed, high precision and high reliability industrial robot

- Compact body and slim arm design, allowing operating area to be expanded and load capacity increased
- The fastest in its class using high performance motors and unique driver control technology
- Improved flexibility for robot layout design considerations
- Optimal motor control tuning set automatically based on operating position, posture, and load conditions

Product Specifications

<table>
<thead>
<tr>
<th>Degree of freedom</th>
<th>Vertical: 6 Horizontal: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation</td>
<td>Vertical: 2.2-20kg Horizontal: 2-30kg</td>
</tr>
<tr>
<td>Maximum load capacity</td>
<td>Vertical: 600-1,500mm Horizontal: 350-1,000mm</td>
</tr>
</tbody>
</table>

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PLC

**MELSEC-Q Series Universal Model**

Introducing the high-speed QCPU (QnUVCPU) for faster processing of large data volumes.

- Realize high-speed, high-accuracy machine control with various O2 Platform compatible controllers and multiple CPUs
- Easily connect to GOTs and Programming tools using built-in Ethernet port
- 25 models from 10K step small capacity to 1000K step large capacity, are available.
- Seamless communication and flexible integration at any network level.

Product Specifications

- Program capacity: 10K steps to 1000K steps
- Main board (number of memory capacity of program) 256 points, 4096 points/1992 points
- Main board (number of memory capacity of I/O) Basic: 120 nr. to 1,9 nr.
- External connection interface: USB (all models equipped), EtherCAT, RS-232, memory card, extended SIMM cassette
- Function modules: 1-V, analog, high-speed counter, positioning, pulse train, expansion, transient, remote control, remote I/O module
- Module expansion style: Building block type
- Network: EtherCAT, CC-Link IE field network, CC-Link, CC-Link-AIE

Magnetic Starter

**MS-T Series**

Exceed your expectations.

- 10A frame model is over 16% smaller with a width of just 36mm!
- New integrated terminal covers.
- Reduce your cost inventory by up to 50%.
- Be certified to the highest international levels while work is ongoing to gain other country.

Product Specifications

<table>
<thead>
<tr>
<th>Frame</th>
<th>10 A to 32 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable standards</td>
<td>Certification to various standards including IEC, JIS, CE, UL, TUV, CQC</td>
</tr>
<tr>
<td>Terminal cover</td>
<td>Standard terminal cover, improved safety, simplified ordering, and reduced inventory, etc.</td>
</tr>
<tr>
<td>Improved setting</td>
<td>Wiring and operability improved with streamlining wiring terminal block specifications, etc.</td>
</tr>
<tr>
<td>Operation safety rating</td>
<td>VDE rating (when special rating is required: other than 14T Series) (e) and coil spécifique service</td>
</tr>
<tr>
<td>Battery units</td>
<td>Diverse (include Auxiliary Contact Block, Operator Cell, Safe Stop Unit, Mechatronics Interface, etc.)</td>
</tr>
</tbody>
</table>
Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO 14001 (standards for environmental management systems) and ISO 9001 (standards for quality assurance management systems).

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

Eco Changes is the Mitsubishi Electric Group’s environmental statement, and expresses the Group’s stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.

Mitsubishi Electric Corporation
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