The Best Partner for Your Success
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.

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.

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.

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.
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 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.

High-accuracy 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 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.

Die/Mold Machining Time Reduced

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

High-speed and High-accuracy Control

Machining speed attained with 0.1mm-pitch NC program

OMR-DD Control (Optimum Machine Response Direct Drive)

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

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.
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**

- 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.

**Manufacturing Support Software**

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

**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.

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**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.

**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 their torque.

**Spindle motor**

Energy loss during continuous rated load operation:

- Our conventional series:
  - Energy loss: 22.4 kW
  - Reduced by 40%
- New series:
  - Energy loss: 13.4 kW

**Servo motor**

Current at stall torque:

- Our conventional series:
  - Current: 6.5 A
  - Reduced by 56%
- New series:
  - Current: 2.3 A

**Cut by 56%**

High-efficiency spindle motor

**Our conventional series**

- Rated output: 2.0 kW
- Energy loss: 1.7 kW

**New series**

- Rated output: 2.7 kW
- Energy loss: 0.9 kW

**Cut by 40%**

Reduced by 40%
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.

Displays in 17 Languages

We support 17 languages.

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

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 a 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 failure, 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.

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 M700V 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 iQCNC 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

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.
- High-efficiency 3rd and low-loss power modules 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-DJ 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, promoting further high-speed and high-accuracy machining.
- High-efficiency and low-loss 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-inertia motor accuracy is ensured. Suitable for machines requiring quick acceleration.
- High-speed rotation: 0.0 to 9 [r/min]
- 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
- Use in clean environments is possible since no ball screws are used and therefore contamination from grease is an issue.
- Elimination of transmission mechanisms which include backlash, enables smooth and quiet operation even at high speeds.
- Dimensions: Length: 290 to 1,010 [mm] Width: 50 to 240 [mm]

High-performance New Type Spindle Motor SJ-D Series
- Small capacity SJ-D series 0.75 to 7.5 [kW]
- Medium-inertia SJ-DL Series 7.5 to 15 [kW]

Low-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 260,000 p/rev.

Direct Drive Servo Motor TM-RB Series
- High-torque direct drive combined motor with 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 to 1,280 [N·m]

Spindle Motors

High-performance 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 5.5 to 15 [kW]

Low-inertia, High-speed New Type Spindle Motor SJ-DL Series
- Tapping machine dedicated spindle motors have been developed to meet the needs of spindle motors in an effort to speed up driling and tapping.
- The low-inertia reduces acceleration/deceleration time, resulting in higher productivity.
- Product line:
  - Low-inertia SJ-DL Series 0.75 to 7.5 [kW]

Built-in Spindle Motor SJ-BG Series
- The optimized electrical design increases the continuous rated torque per unit volume compared to our conventional models, contributing to downsizing of the spindle unit.
- The model with cooling jacket is available as an optional feature.

Drive Units

Multi-hybrid Drive Units MDS-DM2 Series
- A line of high-performance multi-hybrid drive units are available. The multi-hybrid drive unit drives a maximum of three servo axes and one spindle, supporting the downsizing of units and utilizing technical advantages.
- A power regeneration system that efficiently uses energy during deceleration as power contributes to highly frequent acceleration/deceleration and energy savings.
- STO (safe torque off) is now available.

Low-inertia, High-speed Spindle Motor SJ-V Series
- As wide a range of spindle motors is available, all ready to support diversified machine tool needs.
- Product line:
  - Normal SJ-V Series 0.75 to 55 [kW]
  - Wide-range constant output SJ-V Series 5.5 to 165 [kW]
  - High-speed SJ-VZ Series 2.3 to 23 [kW]
  - Hollow-shaft SJ-VJ Series 5.0 to 16.5 [kW]

Low-inertia, High-speed Spindle Motor SJ-VL Series
- The spindle dedicated to tapping machines requiring fast feed shifting and tapping.
- The low-inertia reduces acceleration/deceleration time, resulting in higher productivity.
- Product line:
  - Low-inertia normal SJ-VL Series 3.0 to 11 [kW]
  - Low-inertia hollow-shaft SJ-VLS Series 3.7 to 11 [kW]

Tool Spindle Motor HF-KHP/HF-SP Series
- Taking advantage of the characteristics of a servo motor such as small high and high-output, this motor serves as a compact and high-output spindle motor which is capable of high-speed rotation (90,000 rpm). This motor contributes to downsizing of spindles, such as the rotary tool spindle.
- Product line:
  - Small capacity HF-KHP Series 0.4 to 0.9 [kW]
  - Medium capacity HF-SP Series 2.0 to 4.0 [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 168k 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®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>Model</th>
<th>M720V</th>
<th>M720VS</th>
<th>M730V</th>
<th>M730VS</th>
<th>M750V</th>
<th>M750VS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model name</td>
<td>M720V</td>
<td>M720VS</td>
<td>M730V</td>
<td>M730VS</td>
<td>M750V</td>
<td>M750VS</td>
</tr>
<tr>
<td>Type</td>
<td>Lathe system</td>
<td>Lathe system</td>
<td>Machining center system</td>
<td>Machining center system</td>
<td>Lathe system</td>
<td>Lathe system</td>
</tr>
<tr>
<td>Number of control axes</td>
<td>4</td>
<td>8</td>
<td>4</td>
<td>8</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Maximum number of NC axes per part system</td>
<td>128,000 steps</td>
<td>128,000 steps</td>
<td>128,000 steps</td>
<td>128,000 steps</td>
<td>128,000 steps</td>
<td>128,000 steps</td>
</tr>
<tr>
<td>Control increment</td>
<td>0.1µm</td>
<td>0.1µm</td>
<td>0.1µm</td>
<td>0.1µm</td>
<td>0.1µm</td>
<td>0.1µm</td>
</tr>
<tr>
<td>Command increment</td>
<td>1nm</td>
<td>1nm</td>
<td>1nm</td>
<td>1nm</td>
<td>1nm</td>
<td>1nm</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

- M720V Series 100 steps/µs
- M700 Series 20 steps/µs

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 the motor position, but the machine tool position to the commands.

Guiding 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).

Position error compensation function reduces the spindle’s vibration due to the workpiece’s torsion, and the motor’s overload.

Control Axis Superimposition

- This function enables machining using a certain part system simultaneously with that of another part system by superimposing their movements.
- This is effective when machining in multiple part systems is ex-ecuted simultaneously. It allows for an axis to shift its control rate system relative to the system using the axis.

SSS Control

- SSS control is now available for the most basic function of five-axis simultaneous interpolation control, tool center point control. It compensates uneven paths output from CAM to smoothly join the tool center points’ path. In addition, rotary axis pre-filter is available to move the rotary axis smoothly, which achieves high-grade cutting in five-axis simultaneous machining.

High-speed architecture of high-speed high-accuracy mode that leaves scratches on the surface as a result of uneven paths is compensated.

Super Smooth Surface

- SSS control enables high-quality machining compared to the conventional high-speed high-accuracy mode that leaves scratches on the surface as a result of errors in CAM/CAM stages and paths.

High-speed high-accuracy mode (SSS)

- Universal paths on compensation

High-speed architecture of high-speed high-accuracy mode that leaves scratches on the surface as a result of uneven paths is compensated.

High-speed high-accuracy mode (SSS)

- Universal paths on compensation
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.

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></td>
</tr>
<tr>
<td>Maximum program capacity</td>
<td>2,000kB [5,120m]</td>
<td></td>
</tr>
<tr>
<td>Least control increment</td>
<td>0.1µm</td>
<td></td>
</tr>
<tr>
<td>Least command increment</td>
<td>1nm</td>
<td></td>
</tr>
<tr>
<td>Maximum number of part systems</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Maximum control axes</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Maximum number of spindles</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Maximum number of NC axes (in total for all the part systems)</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Maximum number of PLC axes</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Maximum number of NC axes (in total for all the part systems)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Maximum number of PLC axes + spindle</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Maximum number of NC axes + PLC axes + spindle</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>MITSUBISHI CNC operation panel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HMI customization function</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keyboard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High visibility TFT color LCD used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.4-type/10.4-type/10.4-type touch panel (selectable)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit dimensions have been downsized by integrating a display with CNC control part, contributing to downsizing of control panel.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The minimum command unit of 0.01µm and minimum internal interpolation unit of 1nm allow highly accurate and smooth machining.</td>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>The high-speed PLC engine enhances the operation speed, contributing to cycle time reduction.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3D solid program check (Machining Center System)

The added 3D solid model check function allows more realistic cutting check.

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.

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.

SSS Control (Machining Center System)

Super Smooth Surface

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.

SSS Control (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.
E70 Series

Simple CNC Offering Easy Operability and High Cost Performance

Simple operations free operators from burden
- This CNC has the same screen structure as of 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>Parameter</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of control axes</td>
<td>6</td>
</tr>
<tr>
<td>Maximum number of control axes (NC axes + PLC axes + spindle)</td>
<td>6</td>
</tr>
<tr>
<td>Maximum number of NC axes (in total for all the part systems)</td>
<td>6</td>
</tr>
<tr>
<td>Maximum number of spindles</td>
<td>3</td>
</tr>
<tr>
<td>Maximum number of PLC axes</td>
<td>3</td>
</tr>
<tr>
<td>Maximum number of simultaneous contour control axes</td>
<td>2</td>
</tr>
<tr>
<td>Number of part systems</td>
<td>6</td>
</tr>
<tr>
<td>Least command increment</td>
<td>0.1µm</td>
</tr>
<tr>
<td>Least control increment</td>
<td>1nm</td>
</tr>
<tr>
<td>Maximum program capacity</td>
<td>230kB [600m]</td>
</tr>
<tr>
<td>Maximum PLC program capacity</td>
<td>8,000 steps</td>
</tr>
<tr>
<td>Display</td>
<td>8.4-type</td>
</tr>
<tr>
<td>Keyboard</td>
<td>Sheet keys</td>
</tr>
<tr>
<td>HMI customization function</td>
<td>NC Designer</td>
</tr>
<tr>
<td>MITSUBISHI CNC machine operation panel</td>
<td></td>
</tr>
</tbody>
</table>

*Maximum specifications including optional specifications are listed.

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.

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.

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.

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.

Indexing position

Example when combined with an 8.4-type display...
Human Machine Interface allowing 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.

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.

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.

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.
  - This function helps an operator to input and check programs. Errors are indicated when a decimal point is omitted.

Guidance function

By pressing the help button, guidance (operation procedure/parameter descriptions/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

- 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.

* M700V Series, M70V Series only

*1 Available with M700V Series, M70V Type A (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 module “Q173NCCPU” equipped with the multi-axis and multi-part system control
- Ultrahigh-speed connection between ultrahigh-speed PLC CPU module MELSEC QnUD (H) and CNC CPU
- Variety of modules for power supply, input/output interface, network and measurement are available
- Mitsubishi Graphic Operation Terminal®, an easy customizable HMI 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>Number of control axes</th>
<th>Number of control part systems</th>
<th>PLC function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of basic control axes (NC axes)</td>
<td>C70</td>
<td>3</td>
<td>16</td>
<td>16</td>
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<tr>
<td>Maximum number of spindles</td>
<td>C70</td>
<td>7</td>
<td>8</td>
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<tr>
<td>Maximum number of PLC axes</td>
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<tr>
<td>Standard number of part systems</td>
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<td>8</td>
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<tr>
<td>Maximum number of part systems</td>
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<td>8</td>
<td></td>
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<tr>
<td>Program capacity [k steps]</td>
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<td>124/252</td>
<td>4,096</td>
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<td>Maximum number of files to store</td>
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<td></td>
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<tr>
<td>Number of input/output points</td>
<td>C70</td>
<td>Select from among 30/40/60/100/130/260</td>
<td></td>
<td></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.

Multi-axis, Multi-part System Control

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

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 1000 Series Displays

- Customized screens can be easily developed with the GOT screen creation tool (GT Designer). 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 setting of each NC data and editing of machining programs, etc.
User Support Tools/Development Tools

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

NC Designer
MITSUBISHI CNC Training Tool
- NC Trainer is an application for operating the screens of MITSUBISHI CNC M700V/M70V/E70 Series and machining programs. This application can be used for learning operating CNC and checking the operations of the machining programs.
- NC Trainer Plus can also be used for checking the PLC program and custom screens.

NC Trainer/NC Trainer plus
M700V/M70V/E70

NC Explorer
Data Transfer Tool
BY connecting the NC and host personal computer via Ethernet, data such as machining programs can easily be shared. This tool is free ofcharge. Please contact us.

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.

NC Monitor
Remote Monitoring Tool
An identical NC display screen can be displayed on a personal computer. By connecting a personal computer to the NC unit when necessary, various data can be checked and used using the same HMI as the standard NC screen.

NC Analyzer
Servo Adjustment Support Tool
- Servo parameters can be automatically adjusted by activating the motor using machining programs for adjustment or vibration signals, and measuring/analyzing the machine characteristics.
- Main functions:
  - Bode diagram measurement display, speed loop gain adjustment, position loop gain adjustment, reset filter setting, acceleration/deceleration time constant adjustment, circularity adjustment and servo waveform measurement.

NC Configurator2
Parameter Setup Support Tool
- By laying out ready-made standard parts, you can easily create original screens without programming.
- Using the C language source generation function of NC Designer, customized functions can be added by programming in C language. (Dedicated development environment necessary)

NC Trainer
NC Trainer plus
M700V/M70V/E70

NC Trainer is an application for operating the screens of MITSUBISHI CNC M700V/M70V/E70 Series and machining programs. This application can be used for learning operating CNC and checking the operations of the machining programs.
- NC Trainer Plus can also be used for checking the PLC program and custom screens.

NC Trainer
M700V/M70V/E70

NC Explorer
Data Transfer Tool
By connecting the NC and host personal computer via Ethernet, data such as machining programs can easily be shared. This tool is free of charge. Please contact us.

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.

NC Monitor
Remote Monitoring Tool
An identical NC display screen can be displayed on a personal computer. By connecting a personal computer to the NC unit when necessary, various data can be checked and set using the same HMI as the standard NC screen.

Remote Monitor Tool (C70) is free of charge. Please contact us.

NC Analyzer
Servo Adjustment Support Tool
- Servo parameters can be automatically adjusted by activating the motor using machining programs for adjustment or vibration signals, and measuring/analyzing the machine characteristics.
- Main functions:
  - Bode diagram measurement display, speed loop gain adjustment, position loop gain adjustment, reset filter setting, acceleration/deceleration time constant adjustment, circularity adjustment and servo waveform measurement.

NC Configurator2
Parameter Setup Support Tool
- By laying out ready-made standard parts, you can easily create original screens without programming.
- Using the C language source generation function of NC Designer, customized functions can be added by programming in C language. (Dedicated development environment necessary)

* An operation check is required in combination with software installed on the display.
WARRANTY

Please confirm the following product warranty details before using MITSUBISHI CNCK.

1. Warranty Period and Coverage

Should any fault or defect (hereinafter called "failure") for which we are liable occur in this product during the warranty period, we shall provide repair service at no cost through the distributor from which the product was purchased or through a Mitsubishi Electric service provider. Note, however, that this warranty 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.

2. Warranty Term

The term of warranty for this product shall be twenty-four (24) months from the date of delivery 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 problem

(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 is incapable of being equipped with a safety device required by applicable law or if there is any malfunction or condition that is set forth in the instruction manual, user's manual, and the caution label affixed to the product, etc.

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

(4) Mitsubishi Electric is not responsible, any losses of opportunity 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 foresee or unforeseen by Mitsubishi Electric, any damages to products other than this product, or compensation for any replacement work, readjustment and startup test run 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 operate on an external system to the product when any failure or malfunction occurs.

(2) Mitsubishi CNCK 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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**Notes**

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

**Robot**

- 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 mechanics and unique driver control technology.
- Improved flexibility for robot layout design considerations.
- Optional motor control tuning set automatically based on operating position, posture, and load conditions.

**PLC**

- MELSEC-Q Series Universal Model
- Introducing the high-speed CPUQ (QnUDVCPU) for faster processing of large data volumes.
- Realize high-speed, high-accuracy control with various Q Platform compatible controllers and multi CPUs.
- Easily connect to GTs and Programming tools using built-in Ethernet port.
- 25 models from 10 k step small capacity to 10 000 k step large capacity, are available.
- Seamless communication and flexible integration at any network level.

**Magnetic motors**

- MG-T Series
- Collection large excellence in a small body.
- The industry-leading smallest dimension* is achieved in a general purpose Magnetic. Contact.
- *In general Magnetic Contacts of 10A frame class (our survey in September, 2012)
- Standard terminal cover improves safety.
- Wide range of operation coil ratings available. Reducing inventory types and supporting selections.
- Supporting your overseas business with compliance to various International Standards.

**Warranty**

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1. Warranty Period and Coverage

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

(4) Mitsubishi Electric is not responsible, any losses of opportunity 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 foresee or unforeseen by Mitsubishi Electric, any damages to products other than this product, or compensation for any replacement work, readjustment and startup test run of on-site machines or any other operations conducted by the customer.

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