WARRANTY

Opportunity, Secondary Loss, etc.

3. Exclusion of Responsibility for Compensation against Loss of

1. Warranty Period and Coverage

mation, test run of on-site machines or any other operations conducted by the customer.

product to the end user, provided the product purchased from us in Japan is installed in Japan (but

the product was purchased or through a Mitsubishi Electric service provider. Note, however that

during the warranty period, we shall provide repair services at no cost through the distributor from

Should any fault or defect (hereafter called "failure") for which we are liable occur in this product

countries" as will be explained.

installed in any country other than where it was purchased; please refer to "2. Service in overseas

Mitsubishi Electric or its distributor).

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

(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

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

(c) a failure which may be regarded as avoidable, if the customer's equipment in which this

(d) a failure which may be regarded as avoidable if consumable parts designated in the instruction

(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

earthquake, lightning, and natural disasters

(2) This warranty applies only when the conditions, method, environment, etc., of use are in

compliance with the terms and conditions and instructions that are set forth in the instruction

manual, user's manual, and the caution label affixed to the product, etc.

(1) The customer is requested to conduct an initial failure diagnosis by him/herself, as a general rule.

Limitations

Warranty Term

trial run that may be required after a defective unit is replaced.

not covered under warranty. Also note that we are not responsible for any on-site readjustment and/or

this shall not apply if the customer was informed prior to purchase of the product that the product is

(a) a failure caused by improper storage or handling, carelessness or negligence, etc., or a failure

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

(c) a failure which may be regarded as avoidable, if the customer's equipment in which this

(d) a failure which may be regarded as avoidable if consumable parts designated in the instruction

(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

(earthquake, lightning, and natural disasters

(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

influence on human lives or properties.

which are substantially influential on the public interest or which are expected to have significant

damage even if any failure or malfunction occurs in the product, and a backup or fail-safe function

damage even if any failure or malfunction occurs in the product, and a backup or fail-safe function

in compliance with the terms and conditions and instructions that are set forth in the instruction

manual, user's manual, and the caution label affixed to the product, etc.

(1) For the use of this product, its applications should be those that may not result in a serious

influence on human lives or properties.

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

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

If the customer installs the product purchased from us in his/her machine or equipment, and export it

to any country other than where he/she bought it, the customer may sign a paid warranty contract with

our local FA center.

This falls under the case where the product purchased from us in or outside Japan is exported and

If the customer installs the product purchased from us in his/her machine or equipment, and export it

to any country other than where he/she bought it, the customer may sign a paid warranty contract with

our local FA center.
New CNC best suited to simple lathes/milling machines

Seeking easier usability and higher cost efficiency, we have brought out the E70 Series, a new standard CNC series that succeeds the high performance and high operability of the M70V Series. While employing the screen configuration of the M700V and M70V Series, the E70 Series offers even more compact dimensions and less wiring.

With the latest hardware installed, the E70 Series is best suited to simple lathes and milling machines.

Simple Operability
- Screen design equivalent to M700V/M70V Series, offering simple operability.
- Switching between lathe and milling systems is accomplished simply by changing a parameter.
- Multiple display languages available for global use, which can be selected by parameter setting.
- A pop-up window shows your desired information without closing the original window.

High Cost Effectiveness
- Very smooth cutting surface achieved with one-nanometer position interpolation.*
- Up to 20 sequence programs can be registered with the built-in PLC function.
- A wide array of development support tools such as NC Designer is available.
- Ultra-compact drive units with built-in power supplies contribute to reducing control panel size.

Compact Size and Less Wiring
- The control unit is integrated into the back side of the display to realize compact size.
- Ethernet* is available as standard specification, enabling input/output of machining programs and parameters by connecting the NC to a personal computer.
- Front CF card/USB memory interface in the display as standard specification.
- Analog output offered as standard specification to enable the use of a spindle drive with an inverter.

MITSUBISHI CNC Machine Operation Panel
- The display and keyboard are the same color, providing consistency in design.
- The key layout can be customized according to machine specifications.
- The sequence program samples have been prepared for the basic key layout.
- Wiring has been reduced by connecting the panel with the NC via a remote I/O link.

*Refer to the product brochure for details.

*Ethernet is a registered trademark of Irix Corporation in the United States and/or other countries.
*CompactFlash and CF are either trademarks or registered trademarks of SanDisk Corporation in the United States and/or other countries.
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.

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.

*Add-on guidance data is required.

System Lock Function

This function allows machine tool builders to set the expiration date for machine use. If the cancel code is not entered by the specified deadline, the system forcibly turns OFF the Servo ready completion signal, placing the machine in an inoperable status.

*We will pay no compensation for any detriment that may arise from an illegal unlock.

Main Specifications

- Maximum number of control axes (NC axes + PLC axes + spindle)
- Maximum number of NC axes (in total for all the part systems)
- Maximum number of spindles
- Maximum number of PLC axes
- Maximum number of simultaneous contour control axes
- Maximum number of part systems
- Least command increment
- Least control increment
- Maximum program capacity
- Maximum PLC program capacity
- Display
- Keyboard
- HMI customization function
- Preselectable operation panel
- MTB operation panel
- MTB operation panel

Refer to the specifications manuals.
**Simple & Easy**

**NC Units & Drive Units**

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### Control Unit, Display & Keyboards

- **FCU-KB02S**
  - 8.4-type sheet keys
  - Integrated on the back side of the display

- **FCU-KB024**
  - Sheet keys
  - Back of display

The control unit is integrated into the back side of the display.

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### MITSUBISHI CNC Machine Operation Panel

- **FCU-KB021**
  - Key switch 10 points, LED 10 points
  - Mitsubishi standard key layout

- **FCU-KB020**
  - Rotary switches (arabic, reversion, cutting override)
  - Select switch (memory protection)
  - Emergency stop push-button

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### Simple & Easy Support Tools

#### NC Trainer

**NC Trainer is an application for operating the screens of M700V/M70V/E70 Series CNCs and machining programs.**

- Available for M700V/M70V/E70 Series CNCs and machining programs.
- Version 1.0, 1.01, 1.02, 1.03, 1.04 are available free of charge.
- Version 1.05 is also available free of charge.
- Please contact us to purchase a full function version.

**Tool Spindle Motor HF-KP Series**

- Sizing advantage of the characteristics of a servo motor such as smallness and high-output, this motor serves as a compact and high-output spindle motor which is capable of high-speed rotation (6,000 r/min). This motor contributes to downsizing of spindles, such as the rotary tool spindles.
- Product line: HF-KP Series
  - Small capacity: 0.4 to 2.5 [kW]

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### Servo Motors

- **Medium-inertia Motor HF Series**
  - Suitable for machines requiring quick acceleration.
  - Range: 0.5 to 9 [kW]
  - Maximum speed: 4,000 or 5,000 [r/min]

- **Low-inertia Motor HF-KP Series**
  - Suitable for auxiliary units that require high-speed positioning.
  - Range: 0.1 to 0.75 [kW]
  - Maximum speed: 6,000 [r/min]

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### Spindle 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, Compact & Light
    - SJ-D Series: 3.7 to 11 [kW]
    - SJ-DJ Series: 5.5 to 11 [kW]
    - Low-inertia: 0.75 to 7.5 [kW]

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**Spindle Motor HF-KP Series**

- Using the C language source generation function of NC Designer, customized functions can be added by programming in C language.

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**NC Designer**

**Screen Design 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.

**Parts displayed on an NC screen can be edited on a personal computer.**

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**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.

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**NC Monitor**

**Remote Monitoring Tool**

- An identical NC display screen can be displayed on a personal computer.

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**NC Explorer**

**Data Transfer Tool**

- By connecting the NC and host personal computer via Ethernet, data such as machining programs can easily be shared.

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**NC Trainer**

**MITSUBISHI CNC Training Tool**

- NC Trainer is an application for operating the screens of MT00V/MT10V/E70 Series CNCs and machining programs.
- This application can be used for learning how to operate CNCs and checking the operations of machining programs.
- NC Trainer plus can also be used for checking PLC programs and custom screens.

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* Ethernet is a registered trademark of Xerox Corporation in the United States and/or other countries.
* CompactFlash and CF are either trademarks or registered trademarks of SanDisk Corporation in the United States and/or other countries.
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 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. Warranty Period and Coverage

- (1) The customer is requested to conduct an initial failure diagnosis by him/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 conditions and instructions that are set forth in the instruction manual, user’s manual, and the caution label affixed to the product, etc.
- (3) Even during the term of warranty, repair costs 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 in which this product is incorporated is equipped with a safety device required by applicable laws or has any functionality 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 designed in the instruction manual, etc. are duly 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 fire and abnormal fluctuation of voltage, and acts of God, including without limitation earthquake, lightning, and natural disasters
  - (g) a failure which is unforeseeable under technologies available at the time of shipment of this product from our company
  - (h) any other failures which we are not responsible for or 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 country other than where he/she bought it, the customer may sign a paid warranty contract with our local FA center.

This falls under the case where the product purchased from us in or outside Japan is exported and installed in any country other than where it was purchased.

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

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