MITSUBISHI
ELECTRIC
Changes for the Better

MITSUBISHI CNC IN INDIA

The Best Partner for Your Success

THE BEST PARTNER FOR YOUR SUCCESS

This is the MITSUBISHI CNC business philosophy. All the staff 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 of 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 support for users taking a step toward the future.
MITSUBISHI CNCs create new values in cooperation with the users.

Solutions
for the Future

Contents

Technologies
for the Next Generation

Support
for the day-to-day Comfort

Advanced Technologies for the Next Generation

With sophisticated technologies, we have developed ourselves 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 support, we continuously improve our after-sales service quality for users across the world so that they choose MITSUBISHI CNCs again.

Mitsubishi CNC Business Category

Standard CNC

Further progress to the new MITSUBISHI standard CNC, MITSUBISHI offers Cost effective performance for realizing higher grade machining with E70, M80, M800.

M80

M800

iQ Platform CNC

MITSUBISHI iQ Platform - compatible CNC C70/C80 offers the maximum-scale TCO reduction effects to manufacturing sites by taking advantage of MELSEC's great onvenience. High-performance controllers enable optimization of diverse production process on shop floors.

C70 / C80

Customized CNC

Mitsubishi Electric also manufactures customized CNCs for different machine tool builders. We understand the requirements of the MTBs and then design CNC controllers to suit their need.

CINCOM (CITIZEN)

MAZATROL MATRIX 2 (Yamazaki Mazak)

Learn more at www.MitsubishiElectric.in

NETWORK IN INDIA

📞 **Service Support Toll Free Number: 1800 102 1168**

Peenya Office

Bengaluru

Regional Office

Pune   Gurgaon   Ahmedabad

Ludhiana

Pantnagar (Rudrapur)

Gurgaon

Delhi

Bangladesh

Ahmedabad

Jamshedpur

Rajkot

Aurangabad

Mumbai

Pune

Kolhapur

Hyderabad

Bengaluru

Chennai

Coimbatore

Sri Lanka

🏢 CNC Head office

🏢 Regional Office

● Service Satellite Office

North Zone

South Zone

West & Central Zone

⚙ CNC Manufacturing

Overseas Service Support from India

🏠 Warehouse:
Delhi, Ahmedabad, Pune, Kolhapur
Bangalore, Jamshedpur, Coimbatore

For further details, write to us on the below mentioned mail IDs

👤 SERVICE	⚙ TECHNICAL TRAINING/ SUPPORT	🏷 SALES
NC_Service_India@asia.meap.com	NC_Technical_India@asia.meap.com	NC_Sales_India@asia.meap.com

GLOBAL SERVICE AND SUPPORT NETWORK

Due to the globally spread service network of Mitsubishi Electric, customers have started using more Mitsubishi CNC, and we continue to provide service support as per their expectations.
As our service parts and CNC engineers are available at service centers around the world, we can offer reliable support to customers.

We provide satisfactory after-sales services worldwide, aiming to be your most trusted partner.

Nagoya Works (Japan)

FA Development Center (Japan)

Korean FA Center

Shanghai FA Center

Taiwan FA Center

Thailand FA Center

India CNC Center

ASEAN FA Center

European FA Center

North American FA Center

Warranty Registration

1. It is necessary to register your machine with Mitsubishi Electric India for warranty certificate for domestic users.
2. For import machine, machine should be registered with Machine Tool Builder & Mitsubishi Electric India.
3. For export machine, Machine Tool Builders should have overseas warranty contract with Mitsubishi Electric India.

For further details, visit http://www.mitsubishielectric.in/fa/fa-cnc.php

SERVICE SUPPORT

Front and Field Support

- Service support provided across India, Sri Lanka and Bangladesh
- Support provided within **24 hours**
- Prompt and precise online support through dedicated front engineers
- Front Engineers as single contact window, to assist customers on all queries from technical to commercial
- Highly experienced field engineers provide high quality customer service
- Field engineers handle trouble shooting, diagnosing, problem fixing and root cause analysis (RCA)

Parts Support

- Spare Parts supports across India, Sri Lanka and Bangladesh
- Part delivery within **24 hours** to Pan India Customers
- Maintaining required quantities of Spare Parts at Parts Centres as per "Machine Installation data"
- Maintaining sufficient stock of around 2400 varieties of genuine Parts manufactured at Mitsubishi Electric, Japan
- Lifetime Part support for all type of Controllers from M300 Series to M80/M800 Series CNC

Mitsubishi CNC Lifec

Technical Support

CNC
Lifecycle Management

Part Repair

- Quick and efficient support for Mean Time to Repair (MTTR) Reduction
- Component level repairs
- **24 hours** testing facility with average turn-around-time of **2 days**
- Highly skilled repair engineers
- Repairs with aid of sophisticated test jigs procured from Mitsubishi Japan

Before repair   After repair

Part Exchange

- New or reconditioned parts provided against old faulty parts with **30%** benefit
- Facility available to only selected parts and subject to condition of the faulty part under exchange
- Faulty part will be taken back by MEI and will be MEI's asset

CNC Parts Center

Before Exchange   After exchange

Extended Warranty Contract (EWC)

- Extended warranty for your machine ensuring **low running cost** & quick response time
- **Lower breakdown time** resulting in high productivity
- **Reasonable** contract price that covers all products including **Spindle and Servo Motor**
- Free inspection visits

Service Support 24 hours (CNC SS 24)

- **Round the clock** Customer Support by qualified and trained engineers via phone and email
- Dedicated Toll Free number with a password to facilitate priority service to customers registered under this service
- Parts / Engineers dispatched on next working day as per MEI's standard service policy

24 Hrs

cycle Management

Training

Whenever Wherever Forever

Service parts/ Repair

Option Sales

- Activation of Super Smooth Surface (SSS) function for Die & Mould application
- Supply of Mitsubishi CF Card for data transfer and loading
- Activation of software options for machines as per their cutting requirements such as special features in Pecking cycle, Tapping cycle, HOB machining, Spline, Ethernet running etc.

CF Card

SSS Card

Preventive Maintenance

- Machine downtime is decreased and the number of major surprise repairs are reduced
- Enhances the efficiency of machine, keeping them running more efficiently and lowering power expenses
- Complete data back including NC data & Hard Disk ghost back-up and latest software up gradation
- Includes replacement of consumables, overhauling of parts and complete health check up

TRAINING

Mitsubishi CNC Training Center

Ludhiyana ●
Gurgaon ★
Manesar ●
● Alwar
Ahmedabad ★
Kolkatha ●
★ **Pune**
Bengaluru ★
★ **Chennai**

★ | In house Training Centers
● | Partner Training Institutes

Training Programmes

Training Programmes	Course Details
Operation Training	• Introduction of M7/M8 series Basic Controller features & function • Basic Operation Programs & G-code Cycle • Data Transmission Procedure • Basic Macro Programming • Research Procedure • Work Measurement Procedure
Maintenance Training	• Basic connecting of M7/M8 series • Basic connecting of MDS-D/E Drives all backup & individual backup procedure, back lash and orientation setting procedure • Reference point establishment procedure • Axis removal setting procedure, Ethernet/RS-232 setting procedure • On board ladder monitoring & editing procedure • Alarm (how to read, identity remade)
CNC Interfacing Training	• CNC interfacing among devices • Drive unit connections & parameterization • Basic Parameter Setting • Basic Ladder Training • NC Explorer Training
Customized CNC Training (MAZAK, DMG MORI SEIKI, CITIZEN)	• NC system configuration, Basics connections • Detail explanation of diagnosis screens • Procedure to take backup/ restore • On board ladder monitoring

Note: On special request we can arrange on-site training
For training calendar and enrolment, please visit http://www.mitsubishielectric.in/fa/cnc-training-calendar.php

TRAINING COLLABORATION

With emphasis to Make in India and as industry is moving towards increasingly sophisticated CNC machines, there is a need to develop capabilities of resources. Hence In addition to our training wing, we have started associating with training Institutes across India.

TRAINING PARTNERS IN INDIA

KIKI CENTRE FOR TECHNOLOGY
MANESAR - HARYANA

www.kikicentre.com

DON BOSCO TECHNICAL INSTITUTE
KOLKATA – WEST BENGAL
www.dbtipc.org

HONDA VOCATIONAL TRAINING INST.
TAPUKHARA, RAJASTHAN

www.hondacarindia.com

SAM'S TECHNO SCHOOL
MOHALI, PUNJAB
www.samstechnoschool.com

MITSUBISHI'S TRAINING PACKAGE

NC Trainer 2 – software with licenses   M80 Trainer – Demo Kit

PRODUCT LINEUP

Advanced product lines take your machine to the next level

Simple CNC E70 Series - Offering Easy Operability and Cost Effectiveness

- Simple operations free operators from burden
- With the latest hardware installed, this CNC realizes Cost Effectiveness
- High speed USB, Ethernet, CF card interface

E70 Series

Standard CNC M70V Series - Pursuing High Speed and Accuracy

- Enhanced machining accuracy and reduced Cycle Time
- Easy and advanced operation contributing to setup time reduction and compact size
- Various function (SSS, OMR-DD) for better surface finish and high speed

M70V Series

iQ Platform CNC C70/C80 Series - Incorporated with state-of-the-art Technologies

- Compatible with the Mitsubishi FA integrated solution, "iQ Platform"
- High-performance CNC integrated with high-speed PLC offers
- A wide variety of FA products helps construct flexible lines

C70/C80 Series

Standard CNC M80 Series provides high productivity and easy operability

- Panel-in type, a control unit with integrated display
- Provided in package (TypeA/TypeB) for easier selection
- Windows-less display provides easy operability

M80 Series

Standard CNC M80W Series with Expandability and flexibility

- Separated type, a control unit separated from display
- Packaged type for selecting a machine type easily
- Windows-based display offers excellent expandability
- Two expansion slots are provided as standard speci cations, allowing for expansion using option cards

M80W Series

High-grade CNC M800S Series well suited to high-speed, high-accuracy machining & multi-axis control

- Panel-in type, a control unit with integrated display
- Multi-CPU architecture allows for high performance and high functional graphics
- Windows-less display provides easy operability

M800S Series

Premium CNC M800W Series- Windows based display provides expandability and flexibility

- Separated type, a control unit separated from display
- Windows-based display with the latest PC and OS offers excellent expandability
- Four expansion slots are provided as standard specifi-cations, allowing for expansion using option cards

M800W Series

DRIVE SYSTEM FOR MITSUBISHI CNC

Drive Units

High-performance Servo/Spindle Drive Units MDS-E/EH Series

- The servo control-dedicated core processor realizes an increase in control speed, leading to improved basic performance. When combined with a higher resolution motor sensor and enhanced high-speed optical communication, this drive contributes to high-speed, high-accuracy control.
- Motor power connector comprises an anti-misinsertion mechanism. This helps to eliminate connection errors.
- Improved diagnostic and preventive-maintenance features.
- Safe Torque Off (STO) and Safe Brake Control (SBC) are supported in effort to enhance safety features.

All-in-one compact drive units MDS-EJ/EJH Series

- Ultra-compact drive units with built-in power supplies contribute to reduced control panel size.
- The servo control-dedicated core processor realizes an increase in control speed, leading to improved basic performance. When combined with a higher resolution motor sensor and enhanced high-speed optical communication, this drive contributes to high-speed, high-accuracy control.
- Safe Torque Off (STO) and Safe Brake Control (SBC) are supported in effort to enhance safety features.
- MDS-EJH 400V system drive unit is available (For Servo Motors only)

Multi-hybrid Drive Units MDS-EM Series

- The multi-hybrid drive unit is capable of driving a maximum of three servo axes and one spindle. This contributes to the downsizing of machines and offers technical advantages.
- Motor power connector comprises an anti-misinsertion mechanism. This helps to eliminate connection errors.
- Safe Torque Off (STO) and Safe Brake Control (SBC) are supported in effort to enhance safety features.

(Note) Please contact us for availability of STO as a whole system.

Servo Motors

Medium-inertia, high-accuracy and high-speed motors HG Series

- Sensor resolution has been signi¬ficantly improved. The servo motors, which boast smooth rotation and outstanding acceleration capabilities, are well-suited to serve as feed axes of machine tools.
- Range   0.5 to 9 [kW]
- Maximum speed: 4,000 or 5,000 [r/min]
- Safety support sensors are included as standard speciation. Sensor connectors are screw-locked and have enhanced vibration resistance. Three sensor resolutions (i.e., 1, 4 and 67 million pulses/rev) are available.

Linear Servo Motor LM-F Series

- Use in clean environments is possible since no ball screws are used, eliminating possible contamination from grease.
- Elimination of transmission mechanisms, including backlash, enables smooth and quiet operation even at high speeds.
- Dimensions:
  Length: 170 to 1,010 [mm]
  Width: 120 to 240 [mm]

Direct Drive Servo Motor TM-RB Series

- High-torque, direct-drive motor combined with high-gain control provides quick acceleration and positioning, which makes rotation smoother.
- Suitable for rotary axes that drive tables or spindle heads.
- Range:
  Maximum torque: 36 to 1,280 [N•m]

Spindle Motors

High-performance Spindle Motor SJ-D Series

- Motor energy loss has been signifi¬cantly reduced by optimizing the magnetic circuit.
- High-speed bearing incorporated as a standard feature helps to achieve higher speed, lower vibration and improved durability.
- Range:
  Normal SJ-D Series 3.7 to 11 [kW]
  Compact & light SJ-DJ Series 5.5 to 15 [kW]
- Maximum speed 10,000 or 12,000 [r/min]

Low-inertia, High-speed Spindle Motor SJ-DL Series

- The spindle motors are dedicated to tapping machines requiring faster drilling and tapping.
- The latest design technologies have made it possible to attain lower vibration and greater rigidity even with the lighter weight.
- Range   0.75〜7.5 [kW]

Built-in Spindle Motor SJ-BG Serie

- The electrical design has been optimized to increase the continuous rated torque per unit volume, contributing to the downsizing of spindle units.
- A mold with cooling jacket is available as an optional feature.

High-output, High-torque Spindle Motor SJ-DG Series

- Addition of S3 rating (%ED rating) has improved output and torque acceleration/deceleration characteristics.
- Balance adjustment ring has been added to the counter-load side for -ne tuning.
- Range   S3 rating: 5.5 to 15 [kW]
- Maximum speed 10,000 or 12,000 [r/min]

Tool Spindle Motor HF-KP/HF-SP or HG Series

- Taking 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 (6,000r/min). This motor contributes to downsizing of spindles, such as the rotary tool spindle
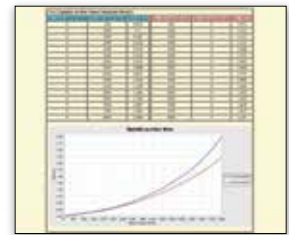 Product line:
- Capacity: 0.4 to 9 kW

SOFTWARE TOOLS

Machine Design

NC Servo Selection

Input the machine constants for selection of the optimum servo motor. This function automatically calculates spindle acceleration/deceleration times and selects the optimum power supply unit.
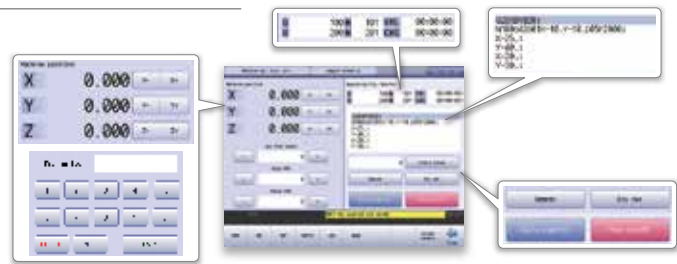
Servo motor selection

NC Designer 2

We provide a developmental environment where the MTB can customize screens easily. Two types of screen development methods are available; the interpreter system (programming without C++) for simple screen development, and the compiler system with a complex controller (programming with C++).

GX Works 3

GX Works3 is the programming and maintenance software designed for the MELSEC iQ-R Series control system. To meet today's global production needs, the GX Works3 supports multi-language features at various levels, such as a multi-language software menu system and language-switching for device comment functions.
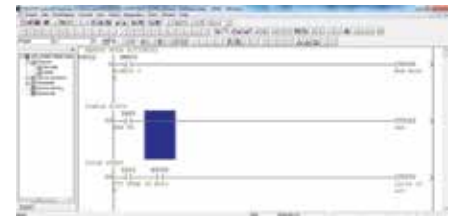
Setup

NC Configurator 2

NC parameters required for NC control or machine operation can be edited on a computer. Also possible to create initial parameters simply by inputting the machine configuration.

NC Configurator2

NC Analyzer 2

Servo parameters can be adjusted automatically by measuring and analyzing the machine's characteristics. Measurement and analysis can be done by running a servo motor using the machining program for adjustment, or using the vibration signal. This function can sample various types of data.

Operation and Support

NC Explorer

CNC machining data les can be manipulated using Windows® Explorer on a computer when the computer is connected to multiple CNCs via Ethernet.
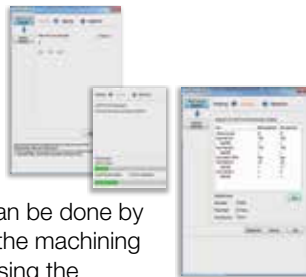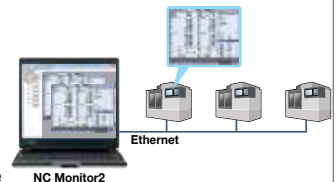
NC Explorer — Ethernet — Machining data file

NC Monitor 2

Taking advantage of the network in a plant, CNC operation status can be monitored from remote locations. Several CNCs can be connected and monitored simultaneously.

NC Monitor2 — Ethernet

Training

NC Trainer2 / NC Trainer 2 plus

NC Trainer2 plus supports customization development; it helps to program the ladder programming of the user PLC to be developed by machine tool builders and debug it and check the operations of customized screens.

SPECIFICATIONS

Lathe System

Specification / Model		M80B	M80A	M80W	M830S	M850S	M830W	M850W	E70	C70	C80
Number of control axis	Maximum number of control axis	9	12	12	●16 Δ32	●16 Δ32	●16 Δ32	●16 Δ32	7	16	16
	Maximum number of NC axis	7	10	10	●16 Δ32	●16 Δ32	●16 Δ32	●16 Δ32	4	16	16
	Maximum number of spindle	3	4+Guide Bush	4+Guide Bush	8	8	8	8	2	4	4
Maximum number of parts system		2	4	4	●4 Δ8	●4 Δ8	●4 Δ8	●4 Δ8	1	Δ3	Δ3
High-Speed Program Server Mode	Control Unit-side	-	-	●	-	-	Δ	Δ	-	Δ	Δ
	Display Unit-side	●	●	●	Δ	Δ	Δ	Δ	-	Δ	Δ
Display	8.4 Inch	□	□	□	-	-	-	-	●	-	-
	10.4 Inch	□	□	□	□	□	□	□	-	-	-
	15 Inch	□	□	□	□	□	□	□	-	-	-
	19 Inch	-	-	□	-	-	□	□	-	-	-
	GOT (8.4"/10.4"/12.1"/25")	-	-	-	-	-	-	-	-	●	●
	Hard Disk Mode	-	-	●	-	-	●	●	-	-	-
Least command increment		0.1µm			1nm				0.1µm	0.1µm	0.1µm
Smart Gesture (2)		●	●	●	●	●	●	●	-	●	●
SD Card I/F		32GB							-	●	●
Data Server Mode (SD-card)		32GB							-	●	●
USB I/F		32GB							4GB	●	●
Front CF Card I/F (2GB)		-	-	-	-	-	-	-	●	-	-
Single-NC and multi-display unit switch		-	-	-	-	-	-	-	-	●	●
Multi-NC and common-display unit		-	-	-	-	-	-	-	-	●	●
No. of safety functions		3	3	3	9	9	9	9	3	9	9
Maximum program capacity		500KB (1280m)	500KB (1280m)	500KB (1280m)	2000KB Δ (5120m)	2000KB Δ (5120m)	2000KB Δ (5120m)	2000KB Δ (5120m)	230KB (600m)	2000KB Δ (5120m)	500KB (1280m)
Maximum PLC program storage capacity		32K Step	64K Step	64K Step	512K Step	512K Step	512K Step	512K Step	8K Step	260K Step	1200K Step □
High Speed High Accuracy machining mode I		-	33.7 KBPM	33.7 KBPM	67.5 KBPM Δ	67.5 KBPM Δ	67.5 KBPM Δ	67.5 KBPM Δ	-	-	Δ
High Speed High Accuracy machining mode II		-	67.5 KBPM	67.5 KBPM	168 KBPM Δ	168 KBPM Δ	168 KBPM Δ	168 KBPM Δ	-	-	Δ
High-accuracy Control (G61.1/G08)		-	●	●	Δ	Δ	Δ	Δ	-	Δ	Δ
SSS Control		-	●	●	Δ	Δ	Δ	Δ	-	-	-
Tolerance Control		-	●	●	Δ	Δ	Δ	Δ	-	-	-
Navi Lathe (simple programming tool)		●	●	●	Δ	Δ	Δ	Δ	●	-	-
Powerful Multi-part system Functions		●	●	●	Δ	Δ	Δ	Δ	-	●	●
Gear Hobbing Function		-	●	●	Δ	Δ	Δ	Δ	-	-	Δ
Direct Command Mode (Cam Machining)		-	-	-	Δ	Δ	Δ	Δ	-	-	-
Spindle mode Servo motor Control		●	●	●	Δ	Δ	Δ	Δ	-	-	Δ
Multiple spindle synchronization control I		●	●	●	●	●	●	●	-	●	●
Multiple spindle synchronization control II		●	●	●	●	●	●	●	-	-	●
Spindle Superimposition control		-	●	●	Δ	Δ	Δ	Δ	-	-	Δ
Interactive cycle insertion		●	●	●	Δ	Δ	Δ	Δ	-	-	-
Real Time Tuning 1 & 2		-	●	●	Δ	Δ	Δ	Δ	-	-	Δ
Simple Inclined surface machining		-	●	●	Δ	Δ	Δ	Δ	-	-	-
Milling Interpolation		-	●	●	Δ	Δ	Δ	Δ	●	-	Δ
Cylindrical Interpolation		●	●	●	Δ	Δ	Δ	Δ	●	Δ	Δ
Polygon Turning		●	●	●	Δ	Δ	Δ	Δ	●	-	Δ
Spindle Synchronization		●	●	●	Δ	Δ	Δ	Δ	●	Δ	Δ
Control System Network		CC-Link, Profibus, Ethernet-IP, CC-Link- IE, MES I/F, Eco Monitor Light Δ			CC-Link, Device Net, Profibus, Ethernet FL Net, CC-Link IE, MES I/F Eco Monitor Light Δ		CC-Link, Device Net Profibus, Ethernet FL Net, CC-Link IE MES I/F, Eco Monitor Light Δ		CC-Link Ethernet	CC-Link, Device Net, Profibus, Ethernet FL Net, CC-Link IE, MES I/F Δ	CC-Link, Device Net, Profibus, Ethernet FL Net, CC-Link IE, MES I/F Δ

Maximum Specification/CPU   ● Standard   Δ Optional   □ Selection

Machining Center System

Specification / Model		M80B	M80A	M80W	M830S	M850S	M830W	M850W	E70	C70	C80
Number of control axis	Maximum number of control axis	9	11	11	●16 △32	●16 △32	●16 △32	●16 △32	6	16	16
	Maximum number of NC axis	5	8	8	▲16 △32	▲16 △32	▲16 △32	▲16 △32	3	16	16
	Maximum number of spindle	2	2	2	4	4	4	4	1	7	7
Maximum number of parts system		1	2	2	2	2	2	2	1	△7	△7
High-Speed Program Server Mode	Control Unit-side	-	-	●	-	-	△	△	-	△	△
	Display Unit-side	●	●	●	△	△	△	△	-	△	△
Display	8.4 Inch	□	□	□	-	-	-	-	●	-	-
	10.4 Inch	□	□	□	□	□	□	□	-	-	-
	15 Inch	□	□	□	□	□	□	□	-	-	-
	19 Inch	-	-	□	-	-	□	□	-	-	-
	GOT (8.4"/10.4"/12.1"/25")	-	-	-	-	-	-	-	-	●	●
	Hard Disk Mode	-	-	●	-	-	●	●	-	-	-
Least command increment		0.1μm			1nm				0.1μm	0.1μm	0.1μm
Smart Gesture (2)		●	●	●	●	●	●	●	-	●	●
SD Card I/F		32GB							-	●	●
Data Server Mode (SD-Card)		32GB							-	●	●
USB I/F		32GB							4GB	●	●
Front CF Card I/F (2GB)		-	-	-	-	-	-	-	●	-	-
Single-NC and multi-display unit switch		-	-	-	-	-	-	-	-	●	●
Multi-NC and common-display unit		-	-	-	-	-	-	-	-	●	●
No. of safety functions		3	3	3	9	9	9	9	3	9	9
Maximum program capacity		500KB (1280m)	500KB (1280m)	500KB (1280m)	2000KB △ (5120m)	2000KB △ (5120m)	2000KB △ (5120m)	2000KB △ (5120m)	230KB (600m)	2000KB △ (5120m)	500KB (1280m)
Maximum PLC program storage capacity		32K Step	64K Step	64K Step	512K Step	512K Step	512K Step	512K Step	8K Step	260K Step	1200K Step □
High Speed High Accuracy machining mode I		16.8KBPM	33.7 KBPM	33.7 KBPM	67.5 KBPM △	67.5 KBPM △	67.5 KBPM △	67.5 KBPM △	-	-	△
High Speed High Accuracy machining mode II		-	67.5 KBPM	67.5 KBPM	168 KBPM△	168 KBPM △	168 KBPM △	168 KBPM △	-	-	△
High Speed High Accuracy machining mode III		-	135 KBPM	135 KBPM	270 KBPM △	270 KBPM △	270 KBPM △	270 KBPM △	-	-	△
High-accuracy Control (G61.1/G08)		●	●	●	△	△	△	△	-	△	△
Super Surface Smooth Control (SSS)		●	●	●	△	△	△	△	-	-	△
Tolerance Control		●	●	●	△	△	△	△	-	-	△
Rapid Traverse block overlap		●	●	●	△	△	△	△	-	-	△
Navi Mill (simple programming tool)		●	●	●	△	△	△	△	●	-	-
3D Solid program check		●	●	●	●	●	●	●	-	-	-
Inclind Surface Machining (5 Face machining)		-	●	●	△	△	△	△	-	-	-
Spindle mode rotary axis control		-	●	●	△	△	△	△	-	-	-
Tool Center Point Control		-	●(for 4 axis)	●(for 4 axis)	△ (for 4 axis)	△(for 5 axis)	△(for 4 axis)	△ (for 4 axis)	-	-	-
Real Time Tuning 1 & 2		-	●	●	△	△	△	△	-	-	△
R Navi (5 face machining programming tool)		-	●	●	△	△	△	△	-	-	-
Control System Network		CC-Link, Profibus EthernetIP, CC-Link IE, MES I/F Eco MonitorLight △			CC-Link, Device Net, Profibus, Ethernet, FL Net, CC-Link IE, MES I/F, Eco MonitorLight △		CC-Link, Device Net, Profibus, Ethernet, FL Net,CC-Link IE,ES I/F, Eco MonitorLight △		CC-Link Ethernet	CC-Link, Device Net, Profibus, Ethernet FL Net, CC-Link IE, MES I/F △	CC-Link, Device Net, Profibus, Ethernet FL Net, CC-Link IE, MES I/F △

Maximum Specification/CPU　　●Standard　　△Optional　　□Selection

SOLUTIONS FOR MILLING MACHINE

Compact Milling

- Simple & easy CNC E70
- Small sized amplifiers MDJ-DJ Series
- Compact and high power
- SJ-DJ Series Spindal Motor

Simple Operability

In this series, screen design results in simple operability. Also, switching between lathe and milling systems is accomplished simply by changing a parameter. Multiple display languages are available for global use, which can be selected by parameter setting. Additionally, a pop-up window shows your desired information without closing the original window.

Complete Nano Control

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.

Taper machining: X:Y=2:1
Machining program
G1 X2. Y1. F9. 43
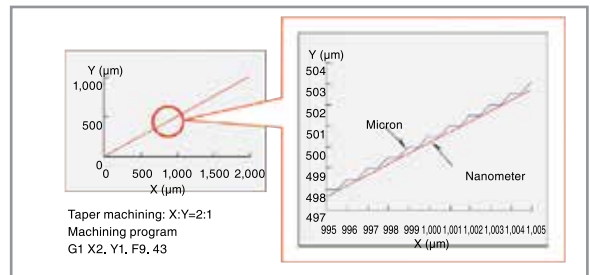
High Speed Drill Tap

- Standard CNC M80B
- High-speed tapping function OMR-DD
- Low inertia & high-speed spindle motor
- Faster fixed cycles
- Rapid traverse overlap function

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.

Servo drive unit   Spindle drive unit

Directly compensates synchronization error

Servo motor   Spindle motor
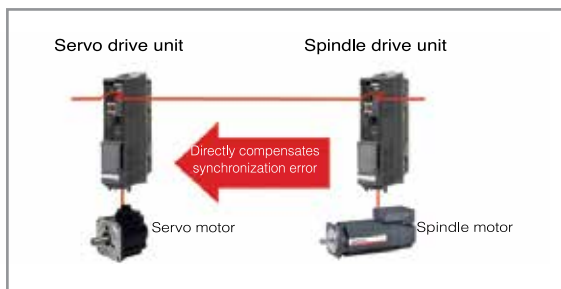
Reduced Orientation Time

Declaration is performed with the maximum torque to minimize the spindle orientation time.

Speed   Speed   Reduced by 20%

Time   Time

1   0.8

<Our conventional series>   <MDS-D2/DH2 Series>
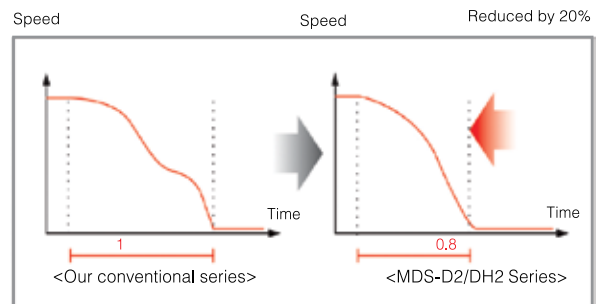
High Precision Vertical Milling

- High accuracy control with M80A / M830

- SSS-4G control for high precision control

- Light weight spindle motor SJ-D Series

- Tolerance control

- OMR - FF Control

SSS 4G Control-Super Smooth Surface

High-speed, high-accuracy, high-quality cutting through SSS-4G control

M800/M80 Series offers SSS 4th-generation (SSS-4G) control, enabling high-speed, high-accuracy, high-quality machining. SSS-4G control reduces tact time, including optimal acceleration/deceleration suited to each axis' features. It also reduces machine vibration during high-speed cutting.
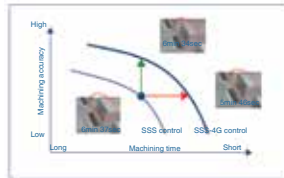
SSS-4G control allows for greater cutting accuracy in the same length of time, or shorter cutting time with the same degree of accuracy when compared to our previous models.

High-speed Machining Mode

By reading ahead some blocks in a program that contains successive fine travel distances, the program can be rapidly executed at up to a maximum of 270K blocks/minute.

Model	Speed
M80B	16.8 KBPM
M80W/M80A	135 KBPM
M830S/M830W	270 KBPM

Multi Axis Milling

- Multi–axis control with M80/ M800

- Easy tool management

- Various function for 5-face milling

- Pallet program registration
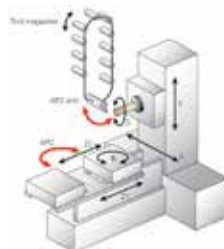
Inclined Surface Machining

This function enables defining of a feature coordinate system by rotating and parallel-displacing of the origin of the original coordinate system. Using this function, it is possible to command normal program commands to an arbitrary plane (inclined surface) during machining.

R-Navi
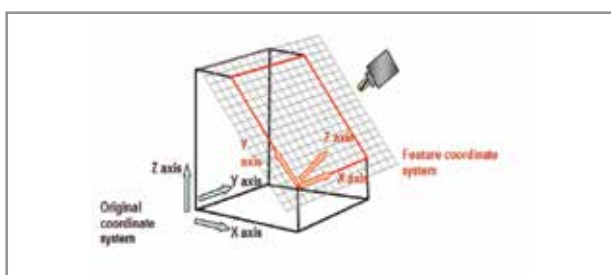
To use this function, an operator registers a feature coordinate system along a machining surface in advance, and then selects one of the registered surfaces on the operation screen and moves the tool along the coordinate system of the selected surface to carry out indexing.
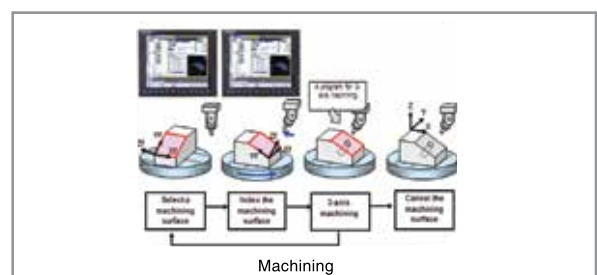
Machining

SOLUTIONS FOR TURNING MACHINE

Compact Turning

- Simple & easy CNC E70
- Compact Drive MDS-DJ Series
- SJ-DJ Spindle Motor with Legmount

Navi Lathe
Simple programming function

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 in-clined surface machining.

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.

Operation guidance   Parameter guidance

Alarm guidance   G-code guidance
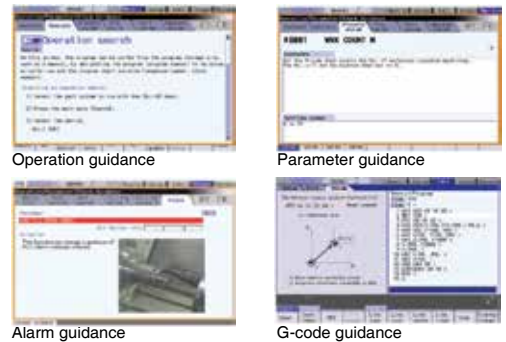
Standard Turning

- Standard CNC E70
- All in 1 regenerative drive MDS-EM
- Compact & high-power SJ-DJ series
- Supports, Milling, Interpolation, Polygon Turning & Polar Co-ordinated Interpolation
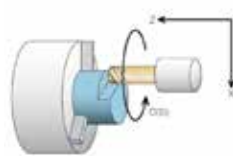
Simple Operators Screen

Simple operator screen that helps the operator to run the machine easily.

Shortcut icons to each screen

Outline of the selected function appears
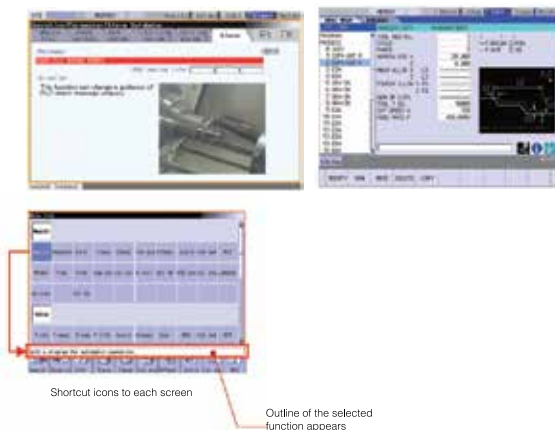
Polar Coordinate Interpolation

- This function converts the commands programmed for the orthogonal coordinate axis 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
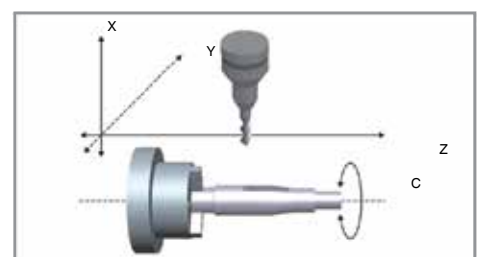
Multi Part System Turning

- Multi axis control with M80A / M830
- Regenerative drive system MDS-E Series
- Direct C-axis control for spindle
- Spindle super imposition control
- Control axis super imposition control
- Sub-part system control
- Control Axis Synchronization Across Part Systems
- Balance Cut
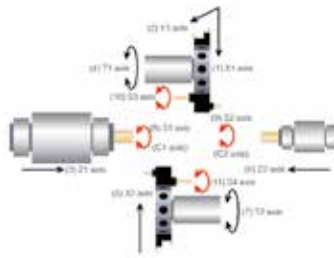
Multiple spindle synchronization set control

Tool spindle can be synchronized with the long workpiece held by the front and back spindles. The spindles can implement C axis indexing while holding the workpiece.
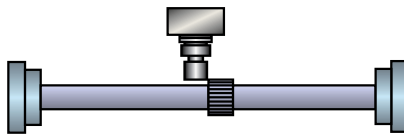
Spindle superimposition (differential speed tap)

Lathe turning and center tapping can be implemented simultaneously.
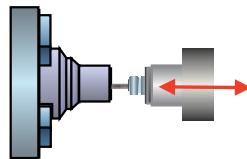
Significantly easier programming

Programming has been made much easier. The screen allows you to create a program while viewing the finish work shape. You can also insert machining cycles in an interactive manner. The created program can be checked through 3D work simulation before actual cutting.

| M800W | M800S | M80W | M80 |

Interactive cycle insertion

【Cycle list window】
①Select the shape to be machined.

【Cycle edit window】
②Input the shape data.

【Edit window】
③Output the machining program.

Finish shape view programming

Input the machining program.

The input machining program will be reflected in the shape.
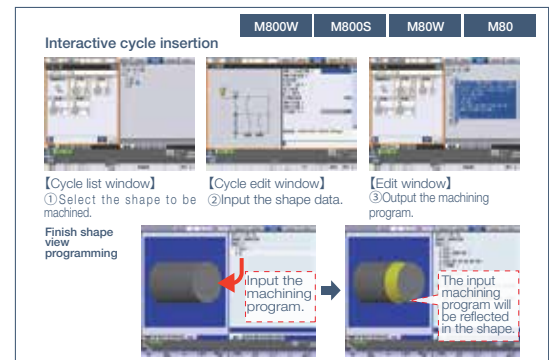
High Grade & High Accuracy Turning

- High Accuracy Turning with M800 Series
- Regenerative Drive MDS-E Series
- High end features required for High Grade Turning machine
- SSS Control

SSS Control

High-speed high accuracy control and SSS control available for milling using lathe system.
A servo motor driven by a servo drive unit can be controlled as a tool spindle.

Milling Interpolation

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. This enables milling operations using a lathe without a Y axis.
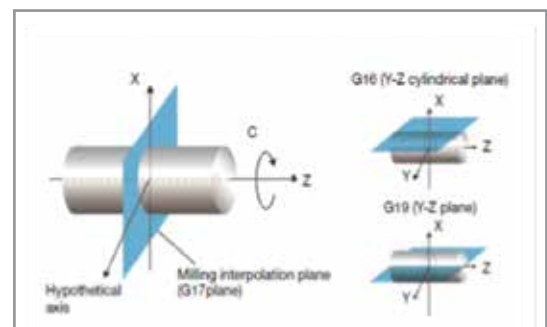
THE NEW M80/ M800 SERIES Debuted with innovative features

Infinite Possibilities

High productivity, usability and flexibility delivered by breakthrough performance.
The next-generation CNC M800/M80 Series empowers the manufacturing industry with unlimited possibilities
and the capability to create innovative value.

The Best Partner for Your Success

Revolutionary High Speed Processing

Fine segment processing capacity

M800 270 — 1.6 times higher than M700V
M700V 168

High capability in program processing enables a shorter cycle time.

PLC process capability (PCMIX value)

M800 26.0 — 1.6 times higher than M700V
M700V 16.2

High processing capability of the PLC enables large-scale ladder logic to be processed at high speed.

CNC-to-drive communication capability

M800 3 times — 3 times higher than M700V
M700V 1 times

Optical communication speed between CNC and drive has been increased. This improves the system responsiveness, leading to more accurate machining.

CNC-dedicated CPU

Mitsubishi Electric's first CNC-dedicated CPU, the sum of our industry-leading technologies.

High Productivity with Easy Operability

Drag

Program edit (flick)
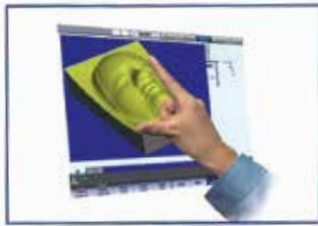
Pinch-in/Pinch-out

Menu scroll (flick)

Smartphone like touch operation

The M800/M80 Series is characterized by its ease of use, featuring icon-based navigation for smartphone-like operation.

In 3D graphic check, you can view a 3D model at any desired size, in any desired position.

Customization of screen by operator

Standard screens can be customized using the selective display and rearranging menus.

Screens matching operators' preferences and needs enable even greater ease of use.

Advanced universal design with a focus on ease of use

In the new universal design, the iconized features and operation menus are easy to recognize, and readily available for anyone to use. Tool icons tell you the tool type, left- or right-hand, lifetime and other information at a glance

Tools displayed by icons

15-type/19-type

8.4-type/10.4-type
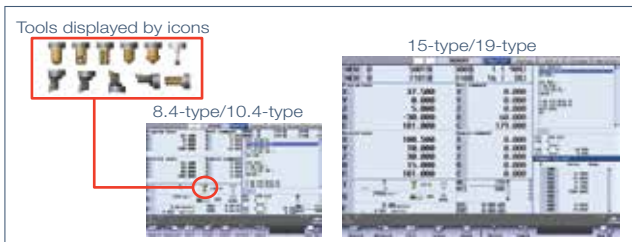
The Simple Monitor screen displays the information required for lathes and machining centers respectively in an enlarged view. The icons on the screen tell you the status of tools and spindles.
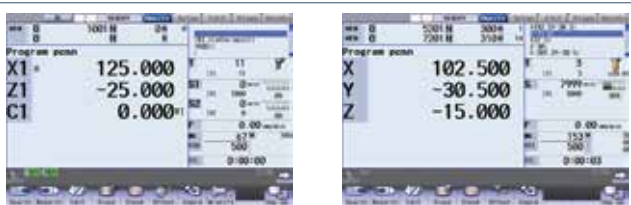
Usability in lathe improved through tool icons, 3D work simulation for turning and other dedicated features

One of the highlights in M800/M80 Series is improved usability in a lathe. The tool icons indicate the tool shape and bit direction in an easy manner, which can satisfy both inexperienced and experienced operators. The 3D graphic check supports for both turning and milling, so even a complex program can easily be checked through the 3D simulation.

Lathe system   Machining center system
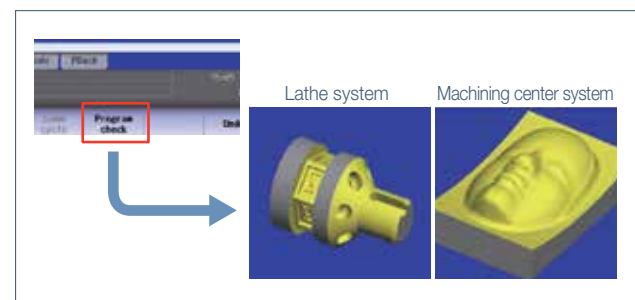
A click of the menu button navigates you to 3D graphic check of the currently edited program. For lathe system, the 3D check supports for both milling and turning.

FEATURES OF MITSUBISHI CNC

User Friendly

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.

Tab selection

Large amount of information aggregated into one screen

Machining conditions are displayed visually

Icon menu displays screen images

Counter display is automatically enlarged in manual mode

Pop-up window to avoid screen switching

Visible hierarchy with two-layer menu display

Keyboard is displayed in the pop-up window (for touch-panel displays)

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.

Shortcut icons to each screen

Outline of the selected function appears
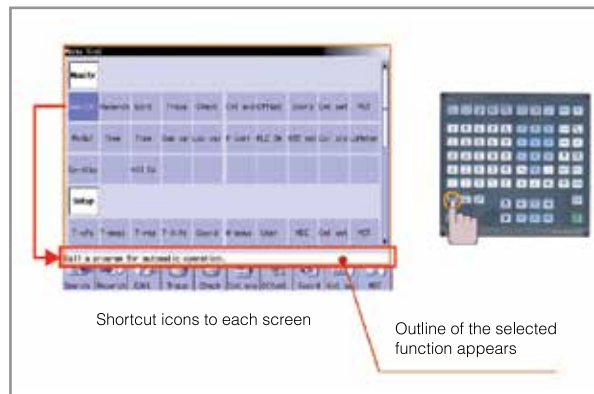
Simple Programming Functions
NAVI MILL (Machining center system) / NAVI LATHE (Lathe system)

- 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

NAVI MILL (Machining center system)

NAVI LATHE (Lathe system)

An operator sets the shape of the inclined surface to machine

Guidance image area

Machining surface view
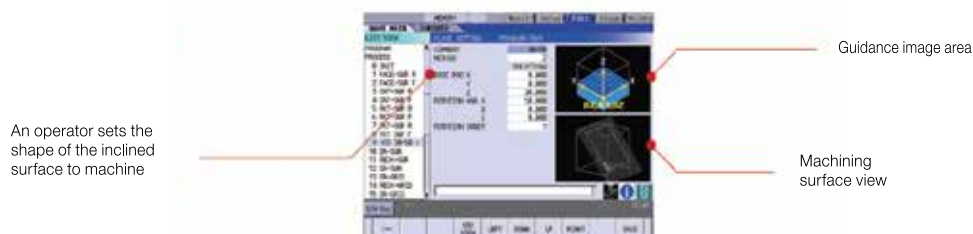
High Quality Cutting

Super Smooth Surface (SSS-4G Control)

SSS Control ensures high machining stability and quality with virtually no effects resulting from cutting shape or speed by judging part program paths, unnecessary deceleration is reduced, even when fine steps in the program exist. Machining time can be shorter by 5 to 30% relative to our conventional system, especially more effective at a higher feed rate.
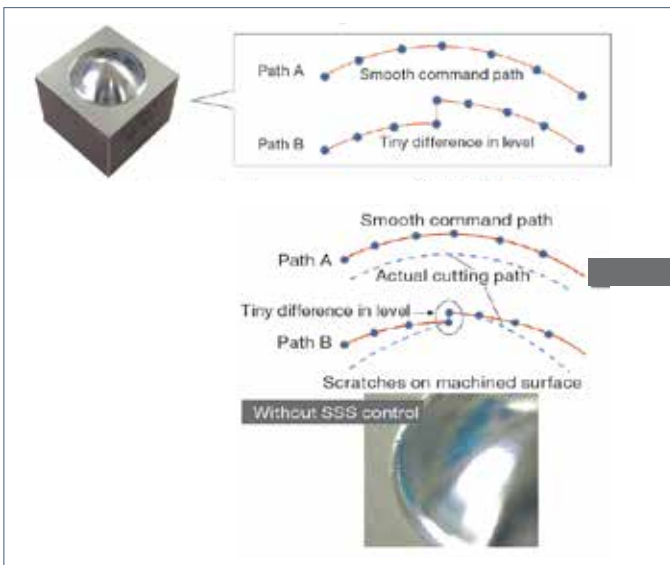
Tolerance Control

Tolerance control function provides a smooth motion within specified error tolerances.
Desired machining results can be achieved using simple parameter adjustment.

M800W	M800S	M80W	M80

Large tolerance 5min 15sec

Medium tolerance 5min 46sec

Small tolerance 6min 34sec
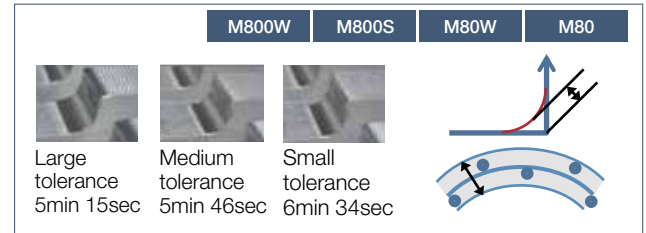
Safety Function

Power Failure Backup Function

MDS-D-PFU can prevent the damage on the drive due to over voltage when magnetic motors such as DD Motor, Servo Motor, and IPM Motor are in use.

This function decelerates and stops the axes & Spindle as in a normal condition even at power failure to prevent damage on the machine due to a coast or overrun.
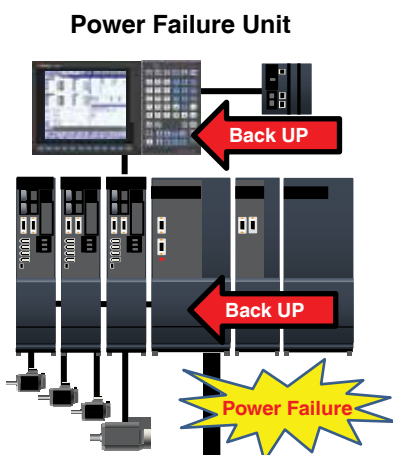
Power Failure Unit

Vertical Axis Drop Prevention Function at Power Failure

The drive system instantly detects a power failure, and the gravity axis is retracted so as to prevent a crash with a workpiece.
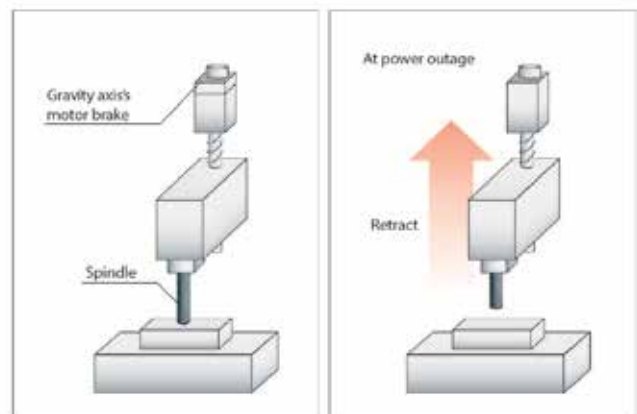
e-F@ctory

e-F@ctory Supports Factory-wide Optimization

Our FA integrated solution "e-F@ctory" supports to reduce the total cost across the entire supply chain and engineering chain by utilizing our FA and IT technologies and collaborating with e-F@ctory Alliance partners.Mitsubishi CNC enables visualization and analysis that lead to improvements and increase availability at production sites by utilizing the information at production sites where the machine tools are used.

FA integrated solutions
Reduce total cost
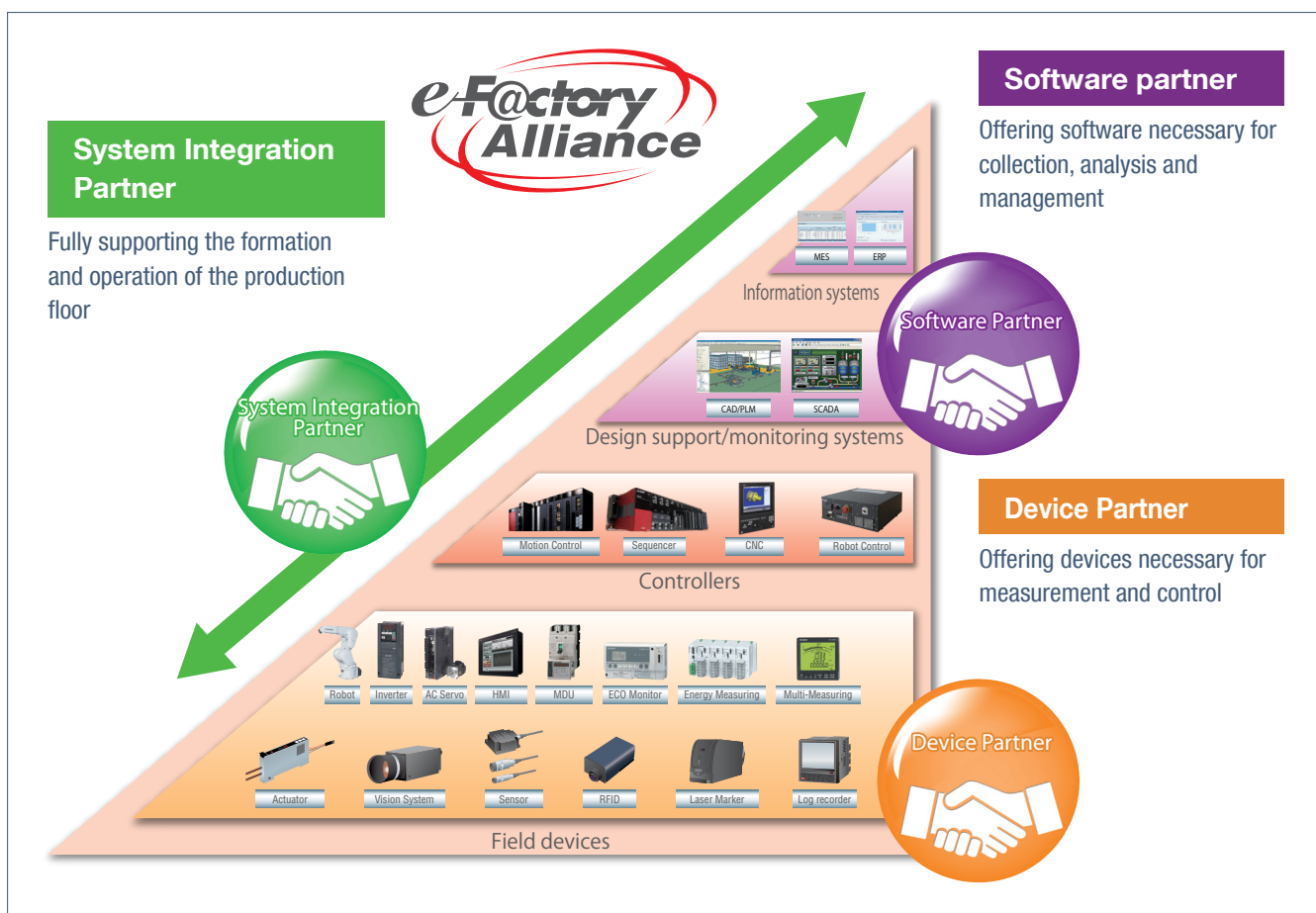
Overall production information is captured in addition to energy information,
enabling the realization of efficient production and energy use (energy savings).

e-F@ctory Alliance

e-F@ctory Alliance is an FA partner program which aims to offers our customers the optimal solution across the entire supply and engineering chains through strong alliances with partners who provide software and devices highly compatible with Mitsubishi FA products and system integration partners who build systems using such products.

Participating companies:
Approx. 320

(In total of domestic and overseas, as of Apr. 2016)

| M800W | M800S | M80W | M80 |

Production control system

Possible to monitor production results based on the basic unit specific to each workpiece, as well as the alarm history

When cutting is complete
Work ID, Cutting start/end time, Maximum spindle load, Power consumption, Tool number, Tool offset, etc.

During alarm
Work ID, Time of alarm occurrence, Details of alarm, Tool number, Tool offset, etc.

Machining information

LAN

MES interface function

ModbusRTU

EcoMonitor Light

Power consumption

Temperature information

Thermistor input unit

Upon completion of cutting or occurrence of alarm, CNC sends the data collected to the database.

Needs for automation are increasing, which can be realized more easily and with lower cost.

| M800W | M800S | M80W | M80 |

Ethernet

The application such as CAD and CAM in the office can be projected on the machine, and operated through the touchscreen.

| M800W | M800S | M80W | M80 |

LAN

<Machine operation status>
Alarm occurrence
Number of finished works
Arbitrary PLC device..., etc.

Auto-send email to predetermined device

Mail server

Operator implements measures in the most timely manner

| M800W | M800S | M80W | M80 |

CC-Link

Compatible with CC-Link (master/slave), PROFIBUS-DP (master) .
Possible to connect to peripheral equipment and devices conforming to a range of field networks.

Improved traceability helps to visualize factory-wide operation

M800/M80 Series CNCs are equipped with the MES interface function, through which the CNC automatically sends SQL statements to the production control system database upon completion of cutting or occurrence of an alarm. This can significantly increase traceability throughout the factory. This transparency helps optimize production planning and management. Quality control can also be easier through visualization of alarm history and the production results based on the basic unit specific to each workpiece.

Moreover, when control is combined with the EcoMonitorLight power consumption monitor and the thermal sensor unit, operators can monitor not only CNC status, but also the energy consumed by the machines.

Remote desktop function enables a machine operator to monitor and operate a computer in the office

If a need arises to check drawings or CAD/CAM, you do not need to return to the office anymore. This function allows you to remotely access a PC in the office through the machine touchscreen. This helps improve operation efficiency. The function is enabled on a Windows-less based NC display. No external computer is needed.

Operator mail notification lets you know the machine status at anytime and anywhere

This sends you an e-mail about machine condition automatically at the specified timing to a computer, tablet or smartphone. No dedicated line is needed, so you can set up easily.
Machine condition can be monitored at anytime, anywhere. This helps you to deal with emergent situations timely, leading to shorter downtime and higher productivity.
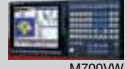
Compatible with a range of field networks that facilitate connection to peripherals

With the aim of configuring factory automation systems, compatibility with a range of field networks has been implemented, enabling connection to peripherals.

Insert the option card into the standard expansion slot of the M800W/M80W Series CNC or on the back of the display for the M800S/M80 Series.

HISTORY OF MITSUBISHI CNC

Almost 60 years ago, in 1956, Mitsubishi Electric embarked on research and development of numerical control device (CNC).

Since then, we have continued to develop products that lead the NC industry. Our CNCs have been utilized in the cutting of metal and plastic at manufacturing sites throughout the world.

All 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 to develop the world leading quality of CNCs to customers.

Year	Description	Image
1956	Started Automation Workshop Launched research and development of NC	Optical Tape Reader Unit / Operation Unit
1960	Exhibited the first NCs MELDAS 3212 and MELDAS 3213 (using parametron) at Machine Tool Fair	MELDAS-M3212
1961	Developed and exhibited MELDAS 5230 and MELDAS 4200 using transistor with interpolation function at an international fair	MELDAS–5230
1972	Developed thyrister servo amplifier (3-phase halfwave type)	MELDAS–2000 / MELDAS–6000 / MELDAS–5100A ll
1982	Developed 16-bit CPU CNC MELDAS M2/L2 Series, Introduced color CRTs for the first time	M2 Operation board
1986	Developed the world's first 32 –bit CPU CNC MELDAS 300 Series Awarded with "New product award of '87"	M300 Operation board
1992	Developed downsized high-speed high-accuracy MELDAS 500 Series with enhanced HMI function and low heat generation	M500 Operation board
1996	Launched MELDAS 600 Series NC equipped with PC Developed intelligent servo motor HS Series equipped with servo drive unit	M600 Operation board
2000	Launched MELDAS C6 and C64 for assembly line, network service	C6/C64
2001	Launched standard type NC 60S Series	60S
2002	Started selling high cost performance NC E60 in China	E60
2004	Launched full-nano control MITSUBISHI CNC M700 Series	M700
2006	Launched standartd type MITSUBISHI CNC M70 Series	M70
2007	Launched iQ Platform compatible MITSUBISHI CNC C70 Series	C70
2009	Launched High-grade MITSUBISHI CNC M700V Series, equipped with Advanced Complete Nano Control	M700VW / M700VS
2010	Launched global standard model MITSUBISHI CNC M70V Series	M70V
2013	Launched simple model MITSUBISHI CNC E70 Series	E70
2014	Launched MITSUBISHI CNC M800W Series	M800W
2015	Launched MITSUBISHI CNC M800S/M80 Series	M800S / M80
2016	Launched MITSUBISHI CNC M80W Series	M80W
	Launched iQ Platform compatible MITSUBISHI CNC C80 Series	C80

YOUR SOLUTION PARTNER
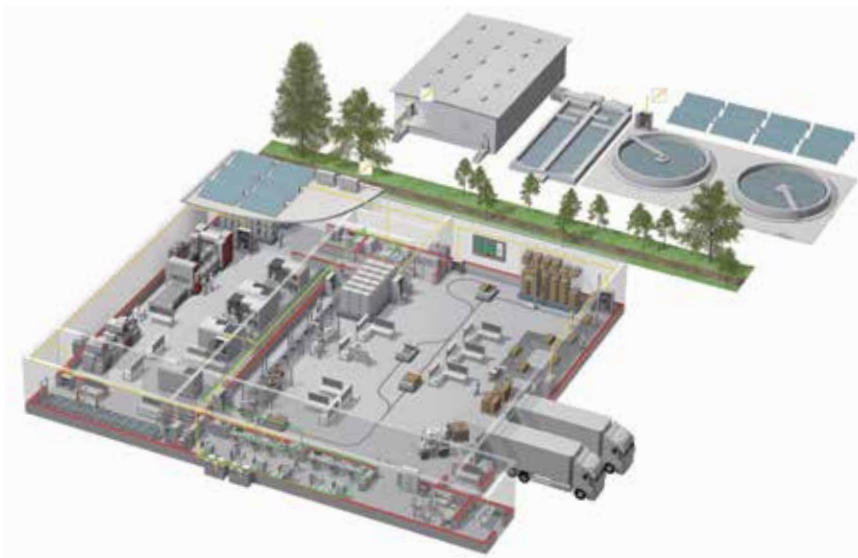
Mitsubishi Electric offers a wide range of automation equipment from PLCs and HMIs to CNC and EDM machines.

A Name to Trust - Mitsubishi Electric

Since its beginnings in 1870, some 45 companies use the Mitsubishi name, covering a spectrum of finance, commerce and industry.

The Mitsubishi brand name is recognized around the world as a symbol of premium quality.

Mitsubishi Electric Corporation is active in space development, transportation, semi-conductors, energy systems, communications and information processing, audio visual equipment and home electronics, building and energy management and automation systems, and has 237 factories and laboratories worldwide in over 121 countries.

This is why you can rely on Mitsubishi Electric automation solution - because we know first hand about the need for reliable, efficient, easy-to-use automation and control in our own factories.

As one of the world's leading companies with a global turnover of over 4 trillion Yen (over $40 billion), employing over 100,000 people, Mitsubishi Electric has the resource and the commitment to deliver the ultimate in service and support as well as the best products.

Mitsubishi Electric in India has grown to become a company offering a wide range of innovative and high-quality products for the Indian market. This includes products and solutions for Factory Automation, Air Conditioners, Visual & Imaging, Power Semiconductor & Devices, Photovoltaic solutions and Transportation Systems.

For more information visit:
http://www.MitsubishiElectric.in

Low voltage: MCCB, MCB, ACB

Medium voltage: VCB, VCC

Power monitoring, energy management

Compact and Modular Controllers

Inverters, Servos and Motors

Visualisation: HMIs

Numerical Control (NC)

Robots: SCARA, Articulated arm

Processing machines: EDM, Lasers, IDS

Transformers, Air conditioning, Photovoltaic systems

Enquiry

Service Support Toll Free Number: 1800 102 1168

SERVICE: NC_Service_India@asia.meap.com

TECHNICAL TRAINING/ SUPPORT: NC_Technical_India@asia.meap.com

SALES: NC_Sales_India@asia.meap.com

⚠️ **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

for a greener tomorrow

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 India Private Limited

Bengaluru CNC Head Office
CNC Technical Center, Plot No. 56, 4th Main Road, Peenya Phase 3, Peenya Industrial Area, Bengaluru – 560 058, Karnataka
Tel.: +91-80-4655 2121, Fax: +91-80-4655 2147

Gurgaon Corporate Office
2nd Floor, Tower A&B, DLF Cyber Greens, DLF Cyber City, DLF Phase III, Gurgaon – 122002, Haryana
Tel.: +91-124-4630 300/01, Fax: +91-124-4630 399

Pune FAID Head Office
Emerald House, EL-3, J Block, M.I.D.C. Bhosari, Pune – 411 026, Maharashtra
Tel.: +91-20-2710 2000, Fax: +91-20-2710 2100

Ahmedabad Office
B/4, 3rd Floor, Safal Profitaire, Corporate Road, Prahaladnagar, Satellite, Ahmedabad - 380015, Gujarat
Tel.: +91-079-67777888

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