Basic Vertical Milling Machine for a Broad Range of Manufacturing

CMX V Series

CMX 600 V
CMX 800 V
CMX 1100 V
DMG MORI has developed the CMX V Series, with the aspiration to provide robust machines that can serve for many years to a greater number of customers. The CMX V models can handle a wide range of workpieces for all kinds of fields thanks to their great versatility. The models achieve high reliability with the meticulous design to the details, realizing the new machines that serve as the foundation for vertical machining centers.

Varieties of standard options and custom-design specifications available
CMX

Compact…Space-saving design
Competitive…High-productivity
Customized…Varieties of standard options

Automobiles
1. Pump body
2. Pump housing

Electrical & Communication equipment
3. Scroll

Industrial machinery
4. Adapter plate
5. Connector plate

*Figures in inches were converted from metric measurements.*
CMX V Series

Flexible Combinations to Build Up Best Machine

The CMX V Series offers some 290 types of options to respond to a wide range of customer needs. Various combinations of options streamline each process to reduce operators’ work time and drastically improve productivity. The CMX V Series with flexible combinations of options and high capability delivers machining performance one level higher.

- APC
- Manual pallet changer
- Robot system (module unit)
  - Workstocker
  - In-machine measuring system
  - Air blow
  - Deburring unit
  - Workpiece turnover unit
- SmartTilt (rotary table)
- External chip scraping chute (rear disposal)
- Through-spindle coolant system 7 MPa (1,015 psi)
- Chip conveyor
- W setter
- Geometry + Tool length measurement (RENISHAW)
- Tool length measurement (Magnescale)
- DMG MORI Messenger
- Multi-counter display
- Progress line
- Workpiece holding detection

* The options above are examples. For the details, please consult our sales representative.
The CMX V Series has a wide work envelope despite its compact body, offering three types of table sizes for different workpieces. The CMX 600 V achieves a machine width of 1,868 mm (73.5 in.) in pursuit of compactness. The largest of the series models, the CMX 1100 V has a table size of 1,400 × 560 mm (55.1 × 22.0 in.) to handle wide workpieces. You can choose the best machine from three different types according to the workpiece of your shop floor.

* Rear discharge type chip conveyor (option) <for machines with the FANUC NC unit>
CMX V Series

High-rigidity Structure and Largest Y-axis Travel in its Class of 560 mm (22.0 in.)

The CMX V Series achieves a sophisticated, lean and high-rigidity machine structure by using FEM analysis from the fundamental design stage for analysis of various operating conditions and environmental changes. Many other features to maximize the machine’s performance, such as a large work envelope in a compact body, are incorporated into the CMX V design.

1. **Largest Y-axis travel in its class of 560 mm (22.0 in.)**
   - Y-axis stroke 30 mm (1.2 in.) longer than existing model to handle wide workpieces
   - Space-saving design & wide work envelope
   - Travel <X- / Y- / Z-axis>:
     - CMX 600 V // 600 / 560 / 510 mm (23.6 / 22.0 / 20.1 in.)
     - CMX 800 V // 800 / 560 / 510 mm (31.5 / 22.0 / 20.1 in.)
     - CMX 1100 V // 1,100 / 560 / 510 mm (43.3 / 22.0 / 20.1 in.)

2. **FEM analysis determines rigid body design**
   - Simulation of structural deformation at the time of load application
   - Fine adjustment to every part, including the thickness of the bed, the shape and layout of the ribs, to achieve a high level of flexural rigidity
   - FEM: Finite Element Method

3. **Roller guides <Y- / Z-axis>**
   - Roller guides with little elastic deformation against load
   - A large number of rollers are incorporated inside the slide unit, achieving high rigidity
High-quality Machining Supported by High-performance Spindle

The CMX V Series machines are equipped with a high-performance spindle with a maximum speed of 12,000 min⁻¹, whose design is optimized through structural analysis to cover a wide range of machining, as standard. The high durability and high speed of the spindle allow high quality machining.
**Sophisticated spindle labyrinth structure**
+ The labyrinth structure has been enhanced, taking into account frequent use of high-pressure coolant
+ Prevent coolant entry and improve spindle durability

**Stable & lasting clamp force**
+ Extended disk spring life allows the spindle to maintain long period consistent clamp force on the tool

**No. 40 taper spindle**
+ Type of tool shank: BT40 [CAT40] [DIN40] <FANUC>
    DIN40 [BT40] [CAT40] <SIEMENS, HEIDENHAIN>
+ Max. spindle speed: 12,000 min⁻¹ <FANUC> <SIEMENS, HEIDENHAIN>
    [15,000 min⁻¹ <high speed>] <FANUC>
    [20,000 min⁻¹ <high speed, high output>] <FANUC>
+ Output: 15 / 11 kW (20 / 15 HP) <25%ED / cont> <FANUC>
    [15 / 11 kW (20 / 15 HP) <25%ED / cont> <high speed>] <FANUC>
    [37 / 18.5 kW (50 / 24.7 HP) <15%ED / cont> <high speed, high output>] <FANUC>
+ Max. spindle torque: 119 N•m (87.8 ft•lbf) <25%ED> <FANUC>
    [119 N•m (87.8 ft•lbf) <25%ED> <high speed>] <FANUC>
    [221 N•m (163.0 ft•lbf) <10%ED> <high speed, high output>] <FANUC>
    83 N•m (61.2 ft•lbf) <40%ED> <SIEMENS, HEIDENHAIN>
CMX V Series

Easy Process Integration by High-efficiency Machining with Additional Axis

The CMX V Series equipped with the rotary table (option) enables process integration through high-efficiency machining and high-speed / high-accuracy indexing, while saving the capital investment cost. The DDRT Series with the DDM (Direct Drive Motor) and the smartTilt for the CMX V Series are available.

DDM: Direct Drive Motor

+ Rotary table for the CMX V Series
+ 5-axis, indexing machining
+ Process integration with less capital investment cost

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<table>
<thead>
<tr>
<th>smartTilt</th>
<th>Tilt angle range</th>
<th>Table diameter</th>
<th>Center hole diameter</th>
<th>Clamp system</th>
<th>Unit mass</th>
<th>Table loading capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-30° to +110°</td>
<td>160 (6.3)</td>
<td>50 (2.0) H7 / 40 (1.6)</td>
<td>Pneumatic</td>
<td>130 (286)</td>
<td>40 (88)</td>
</tr>
</tbody>
</table>

---
**DDRT Series**

The machine can be equipped with the high-speed, high-accuracy DDRT Series rotary table which incorporates a DDM (Direct Drive Motor). High-efficiency machining using optional axes and high-speed and high-precision indexing realize process integration.

- Equipped with DDM
- Zero backlash
- Achieves high-precision indexing
- Offers stable machining through powerful clamping
- Allows high-efficiency machining using optional axes

**Direct Drive Motor**

Gears have been used to transmit the drive power to the rotary axes until now. With the DDM, the drive power is directly transmitted to the rotary axes, so it ensures outstanding transmission efficiency and high-speed feed. DDM also achieves zero backlash for highest accuracy.

### DDRT Series

| Table diameter (mm) (in.) | 200 (7.9) | 260 (10.2) | 300 (11.8) |
| Center height (mm) (in.) | 140 (5.5) | 160 (6.3) | 180 (7.1) |
| Nose hole diameter (mm) (in.) | 65 (2.6) H7 | 75 (3.0) H7 | 95 (3.7) H7 |
| Through hole diameter (mm) (in.) | 50 (2.0) |
| Clamp system | Air-hydro unit | Pneumatic |
| Rotational speed of the table (min⁻¹) | 150 | 120 |
| Repeatability | Unclamped sec. | 3 |
| Positioning accuracy | Clamped sec. | 5 |
| | Unclamped sec. | 5 |
| Mass of machine (kg) (lbs.) | 0.678 |
| Maximum work inertia (kg·m²) | 115 (253) | 160 (352) | 200 (440) |
| Table loading capacity (kg) (lbs.) | 100 (220) | 150 (330) | 175 (385) |
| Maximum thrust load (N·m) (ft·lbf) | 800 (590.0) | 1,000 (737.6) |
| Moment load (N·m) (ft·lbf) | 1,500 (1,106.3) | 3,000 (2,212.7) | 4,000 (2,950.2) |

*DDRT Series only

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- The cover protecting the DDRT cable/pipe joints is placed in the interference area on the table.
- So, when machining is performed without DDRT, extra care should be taken to prevent interference between fixtures and the cover.
- For details on the machining ranges, please consult our sales representative.
- For machines with the FANUC NC unit only.
CMX V Series

Accommodating Tools up to 125 mm (4.9 in.) in Diameter and 300 mm (11.8 in.) in Length

The high-performance magazine and ATC achieve quick tool change to minimize non-cutting time. The highly reliable magazine and ATC that cover a wide range of tools ensure solid tool changes and flexible machining.

+ Tool storage capacity: 30 tools (60 tools**)  
+ Max. tool diameter <without adjacent tools / with adjacent tools>: 125 mm / 80 mm (4.9 in. / 3.1 in.) <FANUC>  
130 mm / 80 mm (5.1 in. / 3.1 in.) <SIEMENS, HEIDENHAIN>  
+ Max. tool mass: 8 kg (17.6 lb.)

** 1 For machines with the FANUC NC unit only. Magazine door (option) is essential.

Reliable tool change

The ATC arm equipped with a holding lever for securing a tool tightly holds a long and heavy tool, offering reliable tool change. The ATC shutter is provided as standard to prevent chips from entering the magazine (for machines with the FANUC NC unit only).

+ Cut-to-cut (chip-to-chip): 3.76 sec.*2 (adjacent <DIN>) / 3.76 sec.*2 (farthest <DIN>) <FANUC>  
6.70 sec. (adjacent <DIN>) / 6.70 sec. (farthest <DIN>) <SIEMENS, HEIDENHAIN>  
3.74 sec.*2 <MAS> <FANUC>

* 2 ATC standby mode: ON  
* The time differences are caused by the different conditions (travel distances, etc) for each standard.  
* Depending on the arrangement of tools in the magazine, the cut-to-cut (chip-to-chip) time may be longer.  
* ATC standby mode: open the ATC shutter using M code commands beforehand.

+ Tool-to-tool: 1.32 sec. <max. tool mass: less than 4 kg (8.8 lb.>> /  
1.46 sec. <max. tool mass: 4~8 kg (8.8~17.6 lb.) > <FANUC>  
2.40 sec. <SIEMENS, HEIDENHAIN>
The photo shows the magazine for machines with the FANUC NC unit.
We offer a variety of high-performance peripheral equipment according to customer needs and workpieces. The combination of the CMX V machine and high-performance peripheral equipment delivers high-precision machining and excellent durability. We also provide DMG MORI Qualified Products (DMQP) that satisfy DMG MORI standards in quality, performance and maintainability.

### Chip conveyor (external) / scraper type (inner pan type) <option>
+ Reduced chip accumulation inside the machine
+ Operator spends less time removing chips

#### Workpiece material and chip size

<table>
<thead>
<tr>
<th>Workpiece material and chip size</th>
<th>Steel</th>
<th>Cast iron</th>
<th>Aluminum / non-ferrous metal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Long</td>
<td>Short</td>
<td>Needle</td>
</tr>
<tr>
<td>Scraper type (inner pan type)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scraper type (inner pan type) +</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>drum filter type*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* For machines with the FANUC NC unit only.

- ( chip size guidelines: Short: chips 50 mm (2.0 in.) or less in length
  Long: bigger than the above

- The options table shows the general options when using coolant. Changes may be necessary if you are not using coolant, or depending on the amount of coolant, compatibility with machines, or the specifications required.

- Please select a chip conveyor to suit the shape of your chips. When using special or difficult-to-cut material (chip hardness HRC45 or higher), please consult our sales representative.

- Chip conveyors are available in various types for handling chips of different shape and material. For details, please consult our sales representative.

### Through-spindle coolant system (unit on coolant tank) <option>
+ Coolant to be supplied to the tip through the holes of the spindle and tool
+ Effective for chip removal, cooling of machining points and extension of tool life

* For machines with the FANUC NC unit only.

⚠️ Flammable coolant such as oil-based coolant has a high risk of ignition, and will cause fire or machine breakage if ignited.

If you have to use a flammable coolant for any reason, please be sure to consult our sales representative.
Coolant chiller (separate type)*<option>

Increased coolant temperature causes thermal displacement in the fixtures and workpiece, affecting the machining accuracy of the workpiece. Use this unit to prevent the cutting coolant from heating up. When using oil-based coolant, the coolant temperature can become extremely high even with the standard coolant pump, so please be sure to select this unit.

When using oil-based coolant or a high-pressure coolant system, please be sure to consult our sales representative.

- We cannot guarantee that this unit will completely control the coolant temperature. It is designed to help prevent oil temperature increases.

Shower coolant*<option>

As well as preventing chips from scattering during machining, this allows them to fall smoothly.

* For machines with the FANUC NC unit only.

DMQP (option)*

The DMQP program is designed to certify peripherals that meet DMG MORI standards in quality, performance and maintainability. DMQP provides customers with greater peace of mind. We provide total service from proposal to delivery and maintenance of peripheral equipment with outstanding quality, performance and maintainability.

Comprehensive support with machine + peripherals

- Qualified peripherals are arranged by DMG MORI
- Toll-free phone support is available 24 hours a day, 365 days a year (Japan only)

* For machines with the FANUC NC unit only.

DMQP: DMG MORI Qualified Products
CMX V Series

Cutting-edge Design — Pursuit of Usability

The CMX V Series employs a sophisticated cover design and is designed taking into account the accessibility to the table and workpiece handling with a crane. Other features for better workability are also incorporated throughout the machine. The lubrication unit and other peripherals requiring periodic maintenance are placed in an easily accessible location to improve maintainability.
1. **Accessibility**
   With excellent access to the table and a wide door opening, setup operations such as fixture adjustment can be done smoothly. The position of the lower end of the front door has been lowered to offer better access to the spindle and table.

- Distance from table: 323 mm (12.7 in.)
- Height of table top surface:
  - 850 / 885 / 920 mm (33.5 / 34.8 / 36.2 in.)
- The position of the lower end of the front door: 748 mm (29.4 in.)
- Door opening:
  - 804 / 763 mm (31.7 / 30.0 in.) <CMX 600 V>
  - 794 / 763 mm (31.3 / 30.0 in.) <CMX 800 V>
  - 1,151 / 1,119 mm (45.3 / 44.1 in.) <CMX 1100 V>

2. **Loading and unloading with a crane**
   The ceiling part also opens, allowing easy loading and unloading of workpieces using a crane. The ceiling shutter* can be opened / closed automatically.

3. **Swivel-type operation panel**
   The operation panel which can swivel from 0 degree to 100 degrees improves operability and visibility.

   + Swivel range (operation panel): 100°
   + Swivel range (arm): 119°

4. **Easier magazine maintenance**
   A magazine door that facilitates maintenance work on the magazine is available as an option.

5. **Centralized layout of devices**
   Devices which need to be inspected every day are gathered together at the side of the machine.

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* For machines with the FANUC NC unit, it is available as standard features. For machines with the SIEMENS or HEIDENHAIN NC unit, it is available as options.
CMX V Series

Varieties of Systems to Respond to Diverse Needs

Optimal systems for customers depend on the machining type and shop floor environment. The CMX V Series are flexibly compatible with varieties of systems and offers an optimal system for each customer. The series offers a broad range of options from automatic systems to the manual pallet changer that drastically reduces operators’ setup burdens. The CMX V Series, with the out-of-the-box concept, contributes to boosting your shop floor productivity.

Robot system*

System consisting of modularized units such as a workstocker and in-machine measuring system ensures higher productivity.

+ Compatible with various robot systems to improve productivity
+ Easy system expansion and layout change possible in the future

Manual pallet changer*

Workpieces can be set up on the pallet stocker, so setup time is significantly reduced. As the pallet transfer vehicle is moved manually, the arrangement of pallet stockers can be changed flexibly.

+ Drastically reduced setup time by the simple structure
+ Pallet change using the manual pallet transfer vehicle
+ Expansion of pallet stockers possible

* For machines with the FANUC NC unit only.
Automatic measurement (option)

In-machine measuring system (spindle)*1
+ Automatic centering and automatic measurement are possible
+ Automatic measurement applications are included

Automatic measurement applications

<table>
<thead>
<tr>
<th>Centering</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatically sets the workpiece zero point.</td>
<td>Measures the workpiece dimensions.</td>
</tr>
</tbody>
</table>

+ Automatic tool length measurement and automatic breakage detection are possible
+ Automatic measurement applications are included

Automatic measurement applications

<table>
<thead>
<tr>
<th>Tool length measurement</th>
<th>Tool breakage detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measures tool length automatically.</td>
<td>Prevent further damage with the automatic tool breakage detection.</td>
</tr>
</tbody>
</table>

Automatic measurement + Manual measurement functions (option)

Manual measurement applications can be added to the automatic measurement function.

Workpiece measurement function (option)

<table>
<thead>
<tr>
<th>In-machine measuring system (spindle)*1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Touch sensor (optical signal transmission type)</td>
</tr>
</tbody>
</table>

Work setter function (manual measurement application)

Reference plane measurement:
The machining reference point can be calculated simply by applying the sensor from the Z, X and Y-axis directions.

Reference hole measurement:
Centering a boss, hole, groove or width can be done at any two or three points, simply by applying the sensor.

Coordinate rotation measurement:
Machining can be done without changing the program even if the workpiece is attached crookedly, simply by performing this operation within the X-axis and Y-axis plane.

Tool measurement function (option)

<table>
<thead>
<tr>
<th>In-machine measuring system (table)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Touch sensor (tool length)</td>
</tr>
<tr>
<td>Touch sensor (optical signal transmission type)*2</td>
</tr>
</tbody>
</table>

Tool setter function (manual measurement application)

Tool length measurement:
The tool length value can be registered automatically to the designated tool offset number.

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*1 Equipped with the high-speed spindle for which the spindle bearing uses a ceramic ball. So the energization type touch sensor cannot be used.
*2 The RENISHAW-made only
DMG MORI SLIMline
for Highest Efficiency and Reliability

15-inch MAPPS IV on FANUC
+ 3D machining simulation for easy contour verification
+ Conversational automatic programming function with process menu
+ Import and export of programs over MORI-SERVER using external PCs
+ File display and note function for accessing operating instructions, drawings and texts
+ Vertical soft keys can be set as menu or direct access buttons for quickly displaying the data selected by the user

MAPPS: Mori Advanced Programming Production System

19-inch Operate on SIEMENS
+ Expanded memory capacity to 4 GB
+ Improved overview thanks to 19-inch screen with maximized resolution and innovative comfort of intuitive use with a unique range of functions
+ 3D machining simulation for easy contour verification
+ Flexible software keyboard integrated into multi-touch display
+ Optimized ergonomics with 45° swivel range

15-inch HEIDENHAIN TNC 620
+ 15-inch TFT display with a clear screen design
+ Convenient programming with the new full ASCII keyboard
+ Workshop-oriented programming with graphics support
+ Rapid data interface for externally generated programs
+ Workpiece and tool measurement cycles in combination with the HEIDENHAIN single-touch system
DMG MORI Technology Cycles (option)

Technology Cycles are total solutions that achieve complex machining easily in a short time. They enable every operator to easily perform high-quality machining, setups and measurement with general-purpose machine tools and standard tools / fixtures, which used to be done with specialized machines, programs and tools.

High-speed canned cycle

+ Easy input of various patternized machining

ATC (Application Tuning Cycle)

+ Easy setting of optimal feed according to machining

W setter

+ Easy and manual tool measurement and workpiece centering

Easy tool monitoring

+ Load monitoring for the spindle and traveling axes

For machines equipped with the SIEMENS or HEIDENHAIN NC unit, please consult our sales representative.

Technology Cycles shown above are examples. For details, please consult our sales representative.

The above is an image picture.
CMX V Series

Reduction in Environmental Burden

To conserve limited resources and protect global environment. The CMX V Series pursues a high "environmental performance" that is required of machine tools.

When the latest DMG MORI vertical machining center "CMX V Series" and the "DURAVERTICAL Series" manufactured in 2006 are compared, the annual power consumption can be reduced by approximately 30% *.  

* The effect indicated above may not be achieved depending on the machines, cutting conditions, environmental conditions at measurement.

Power-saving Functions
+ If the screen is not touched for a certain amount of time and NC operation is not being performed, power is cut off to the servo motor, the spindle, the coolant pump and the chip conveyor, thereby saving energy
+ The latest, energy-efficient components with low power consumption and LED lighting are employed
+ The positioning speed is automatically adjusted in accordance with the spindle acceleration / deceleration time to achieve optimal acceleration / deceleration control

Reduced Cycle Times
+ The number of pecking operations in a deep hole drilling cycle is automatically controlled according to the cutting load, shortening the machining time
+ The Smart Rigid Tapping using the maximum output power of the spindle motor allows for high-speed tapping, which significantly reduces cycle times
CMX V Series

General View

Standard

Front view

Side view

Machine type

<table>
<thead>
<tr>
<th>Width (W)</th>
<th>Depth (D)</th>
<th>Height (H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMX 600 V</td>
<td>2,163 / 1,990 (85.2 / 78.3)</td>
<td>2,742 / 2,747 (108.0 / 108.1)</td>
</tr>
<tr>
<td>CMX 800 V</td>
<td>2,559 / 2,426 (100.7 / 95.5)</td>
<td>2,742 / 2,770 (108.0 / 109.1)</td>
</tr>
<tr>
<td>CMX 1100 V</td>
<td>3,190 / 3,058 (125.6 / 120.4)</td>
<td>2,937 (115.6)</td>
</tr>
</tbody>
</table>

Raised column is available for machines with the FANUC NC unit only.

Left discharge type chip conveyor (option)

Front view

Side view

Machine type

<table>
<thead>
<tr>
<th>Width (W)</th>
<th>Depth (D)</th>
<th>Height (H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMX 600 V</td>
<td>3,006 / 2,954 (118.3 / 116.3)</td>
<td>2,742 / 2,747 (108.0 / 108.1)</td>
</tr>
<tr>
<td>CMX 800 V</td>
<td>3,378 / 3,395 (133.0 / 133.7)</td>
<td>2,742 / 2,770 (108.0 / 109.1)</td>
</tr>
<tr>
<td>CMX 1100 V</td>
<td>4,010 / 4,028 (157.9 / 158.6)</td>
<td>2,937 (115.6)</td>
</tr>
</tbody>
</table>

Raised column is available for machines with the FANUC NC unit only.
### CMX V Series

#### General View

Rear discharge type chip conveyor (option)

![Front view](image1)

![Side view](image2)

#### Machine Specifications

- **General View**
- **Main Machine Specifications**

### Applications and Parts

- **Highlights**
- **Machine and Technology**
- **Others**

### Rear discharge type chip conveyor (option)

<table>
<thead>
<tr>
<th>Machine type</th>
<th>Width (W)</th>
<th>Depth (D)</th>
<th>Height (H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMX 600 V</td>
<td>1,868 / 1,864 (73.5 / 73.4)</td>
<td>3,578 / 3,576 (140.9 / 140.9)</td>
<td>2,972 (117.0)</td>
</tr>
<tr>
<td>CMX 800 V</td>
<td>2,118 (83.4)</td>
<td>3,578 (140.9)</td>
<td>2,972 (117.0)</td>
</tr>
<tr>
<td>CMX 1100 V**</td>
<td>2,750 (108.3) / —</td>
<td>3,578 (140.9) / —</td>
<td>2,972 (117.0) (3,172 (124.9) ***) / —</td>
</tr>
</tbody>
</table>

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**Note:**
- **Option:** 1 For machines with the FANUC NC unit only.
- **Raised column:** Available for machines with the FANUC NC unit only.

### External chip scraping chute (rear discharge) specification (option)**

<table>
<thead>
<tr>
<th>Machine type</th>
<th>Width (W)</th>
<th>Depth (D)</th>
<th>Height (H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMX 600 V</td>
<td>1,868 (73.5)</td>
<td>2,742 (108.0)</td>
<td>3,007 (118.4)</td>
</tr>
<tr>
<td>CMX 800 V</td>
<td>2,118 (83.4)</td>
<td>2,742 (108.0)</td>
<td>3,007 (118.4)</td>
</tr>
<tr>
<td>CMX 1100 V**</td>
<td>2,750 (108.3)</td>
<td>2,742 (108.0)</td>
<td>3,173 (126.3) ***)</td>
</tr>
</tbody>
</table>

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**Note:**
- **Option:** 2 Raised column
- **Raised column:** Available for machines with the FANUC NC unit only.
### CMX V Series

#### Main Machine Specifications

<table>
<thead>
<tr>
<th>Travel</th>
<th>CMX 600 V</th>
<th>CMX 800 V</th>
<th>CMX 1100 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-axis travel</td>
<td>600 (23.6)</td>
<td>800 (31.5)</td>
<td>1,100 (43.3)</td>
</tr>
<tr>
<td>Y-axis travel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z-axis travel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance from table surface to</td>
<td>120—630 (4.7—24.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>spindle gauge plane</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Table                          |           |           |            |
| Working surface                | 900 × 560 (35.4 × 22.0) | 1,100 × 560 (43.3 × 22.0) | 1,400 × 560 (55.1 × 22.0) |
| Table loading capacity         | 600 (1,320) | 800 (1,760) | 1,000 (2,200) |

| Spindle                        |           |           |            |
| Max. spindle speed             | 12,000 (15,000 <high speed>) | 12,000 (15,000 <high speed, high output>) | 12,000 (15,000 <high speed>) |
| Feedrate                       |           |           |            |
| Rapid traverse rate            | X / Y / Z: 36,000 / 36,000 / 30,000 (1,417.3 / 1,417.3 / 1,181.1) | X, Y, Z: 30,000 (1,181.1) | X, Y, Z: 30,000 (1,181.1) |
| Cutting feedrate               | X, Y, Z: 30,000 (1,181.1) | X, Y, Z: 30,000 (1,181.1) | X, Y, Z: 30,000 (1,181.1) |

| ATC                            |           |           |            |
| Type of tool shank             | FANUC     | SIEMENS, HEIDENHAIN |           |
| Tool storage capacity          | 30 (60°)  | 80 (90) |            |
| Max. tool diameter             | 125 (4.9) | (FANUC) | 130 (5.1) | (FANUC) |
| Without adjacent tools         |           | (FANUC) | SIEMENS, HEIDENHAIN | |
| Max. tool length               | 300 (11.8) |           | 8 (17.6)  |           |
| Max. tool mass                 |           | 1.32 <max. tool mass: less than 4 kg (8.8 lb) | 1.46 <max. tool mass: 4—9 kg (8.8—17.6 lb) | (FANUC) |
| Tool changing time<sup>1,2</sup> | Tool-to-tool | s    |            | 2.40 <SIEMENS, HEIDENHAIN> |
| (chip-to-chip)                 |            |       |            | Adjacent: 3.76<sup>1,3</sup> / Farthest: 3.76<sup>1,3</sup> |
| Motor                          |           |           |            |
| Spindle drive motor            | 15 / 11 (20 / 15) | 15 / 11 (20 / 15) | 15 / 11 (20 / 15) |
| <25%ED / cont                  |            |           |            |
| kW (HP)                        |            |           |            |

<sup>1</sup> Option
<sup>2</sup> For machines with the FANUC NC unit only. Magazine door (option) is essential.
<sup>3</sup> Depending on the arrangement of tools in the magazine, the Cut-to-cut (chip-to-chip) time may be longer.
<sup>4</sup> ATC standby mode ON. (ATC standby mode: open the ATC shutter using M code commands beforehand.)
<sup>5</sup> Max. spindle speed: depending on restrictions imposed by the workpiece clamping device, fixture and tool used, it may not be possible to rotate at the maximum spindle speed.
<sup>6</sup> When the two-face contact specification is selected, a two-face contact tool and other tools cannot be used together.
<sup>7</sup> Tool changing time: the time differences are caused by the different conditions (travel distances, etc.) for each standard.

The information in this catalog is valid as of March 2017.
Main Machine Specifications

<table>
<thead>
<tr>
<th>Machine size</th>
<th>Machine height (mm)</th>
<th>Mass of machine (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FANUC</td>
<td>2,163 × 2,742 (85.2 × 108.0)</td>
<td>4,700 (10,340)</td>
</tr>
<tr>
<td>Siemens, Heidenhain</td>
<td>1,990 × 2,747 (78.3 × 108.1)</td>
<td>5,000 (11,000)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control unit</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>FANUC</td>
<td>#4 Rear discharge type chip conveyor</td>
</tr>
<tr>
<td>Siemens</td>
<td>#5 External chip scraping chute (rear discharge) specification</td>
</tr>
<tr>
<td>Heidenhain</td>
<td>#6 Left discharge type chip conveyor</td>
</tr>
</tbody>
</table>

*The height is increased by 200 mm (7.9 in.) for the raised column specification.*

The information in this catalog is valid as of March 2017.
### CMX V Series

#### Main Standard & Optional Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>FANUC</th>
<th>SIEMENS or HEIDENHAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spindle</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of tool shank</td>
<td>BT40</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>CAT40</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>DIN40</td>
<td>○</td>
</tr>
<tr>
<td><strong>Magazine</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tool storage capacity</td>
<td>30 tools</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td>60 tools a i</td>
<td>●</td>
</tr>
<tr>
<td><strong>Coolant</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coolant gun</td>
<td></td>
<td>○</td>
</tr>
<tr>
<td>Through-spindle coolant system (unit on coolant tank) center through</td>
<td>1.2 MPa (174 psi)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>1.5 MPa (217.5 psi)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>2.0 MPa (290 psi)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>4.0 MPa (580 psi)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>7.0 MPa (1,015 psi)</td>
<td>○</td>
</tr>
<tr>
<td>Through-spindle coolant system (unit on coolant tank) side through</td>
<td>1.5 MPa (217.5 psi)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>7.0 MPa (1,015 psi)</td>
<td>○</td>
</tr>
<tr>
<td><strong>Coolant chiller (separate type)</strong></td>
<td></td>
<td>○</td>
</tr>
<tr>
<td><strong>Mist collector (separate type)</strong></td>
<td>AFS-600</td>
<td>○</td>
</tr>
<tr>
<td><strong>Chip disposal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chip conveyor</td>
<td></td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>Left discharge, scraper type (inner pan type)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>Left discharge, scraper type (inner pan type) + drum filter type</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>Rear discharge, scraper type (inner pan type)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>Rear discharge, scraper type (inner pan type) + drum filter type</td>
<td>○</td>
</tr>
<tr>
<td><strong>External chip scraping chute</strong></td>
<td></td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>Rear discharge</td>
<td>○</td>
</tr>
<tr>
<td><strong>Measurement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-machine measuring system (table) a i</td>
<td></td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>Touch sensor (M)</td>
<td>○</td>
</tr>
<tr>
<td>In-machine measuring system (spindle + table) a i b c d</td>
<td></td>
<td>○</td>
</tr>
<tr>
<td>Automation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automatic door</td>
<td></td>
<td>○</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signal light</td>
<td></td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>4 layers (LED type: red, yellow, green, blue)</td>
<td>○</td>
</tr>
<tr>
<td>Manual pulse generator (separate type)</td>
<td></td>
<td>○</td>
</tr>
<tr>
<td>Progress line</td>
<td></td>
<td>○</td>
</tr>
</tbody>
</table>

*a Magazines door option is essential.
*b DMQP (DMG MORI Qualified Products)
*c It is not available for CMX 1100 V.
*d The specifications vary depending on the manufacturers. (M: made by Magnescale R: made by RENISHAW)
*e Equipped with the high-speed spindle for which the spindle bearing uses a ceramic ball. So the energization type touch sensor cannot be used.

**Standard features**
**Options**
**Not applicable**

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*Flammable coolant such as oil-based coolant has a high risk of ignition, and will cause fire or machine breakage if ignited. If you have to use a flammable coolant for any reason, please be sure to consult our sales representative.*
<Precautions for Machine Relocation>

**EXPORTATION:**

All contracts are subject to export permit by the Government of Japan. The Equipment is subject to export restrictions imposed by Japan and other exporting countries and the Customer will not export or permit the export of the Equipment anywhere outside the exporting country without proper government authorization.

To prevent the illegal diversion of the Equipment to individuals or nations that threaten international security, it may include a "Relocation Machine Security Function" that automatically disables the Equipment if it is moved following installation.

If the Equipment is so-disabled, it can only be re-enabled by contacting DMG MORI or its distributor representative. DMG MORI and its distributor representative may refuse to re-enable the Equipment if it determines that doing so would be an unauthorized export of technology or otherwise violates applicable export restrictions.

DMG MORI and its distributor representative shall have no liability to re-enable such Equipment.

DMG MORI and its distributor representative shall have no liability (including for lost profits or business interruption or under the limited service warranty included herein) as a result of the Equipment being disabled.

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+ DMG MORI is not responsible for differences between the information in the catalog and the actual machine.