CMX V Series

Basic Vertical Milling Machine for a Broad Range of Manufacturing

CMX 600 V
CMX 800 V
CMX 1100 V
Solution-based Machine for Every Shop Floor

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.*
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)
- Magazine door
- SmartTilt (rotary table)
- Chip conveyor
- Through-spindle coolant system 7 MPa (1,015 psi)
- Front pullout chip bucket
- W setter
- Geometry + Tool length measurement (RENISHAW)
- Tool length measurement (Magnescale)
- Geometry + Tool length measurement (BLUM)
- DMG MORI Messenger
- Multi-counter display
- Progress line
- Workpiece holding detection

*The options above are examples. For the details, please consult our sales representative.*
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.)

[Image of CMX V Series machine with technical specifications]
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

FEM: Finite Element Method

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
CMX V Series

Overwhelming High Speed and Cutting Capability
High-performance Spindle speedMASTER

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-speed, high-output specification (option) employs the high-performance spindle speedMASTER. Developed based on the technological know-how DMG MORI has cultivated over the years, speedMASTER achieves overwhelmingly high speed machining. With the maximum spindle speed of 20,000 min⁻¹, it brings about greater productivity.
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] [HSK-A63*]
+ Max. spindle speed: 12,000 min⁻¹
  [15,000 min⁻¹ <high speed>]
  [20,000 min⁻¹ <high speed, high output>]
+ Output: 15 / 11 kW [20 / 15 HP] <25%ED / cont>
  [15 / 11 kW [20 / 15 HP] <25%ED / cont> <high speed>]
  [37 / 18.5 kW [50 / 24.7 HP] <15%ED / cont> <high speed, high output>]
+ Max. spindle torque: 119 N·m (87.8 ft·lbf) <25%ED>
  [119 N·m (87.8 ft·lbf) <25%ED> <high speed>]
  [221 N·m (163.0 ft·lbf) <10%ED> <high speed, high output>]

( ) Option
* Selectable only for the high-speed / high-output specification

World’s Best Spindle Technology

speedMASTER
+ No. 40 taper spindle achieves overwhelming high-speed machining
+ Stable high-accuracy machining made possible by drastically improved spindle run-out accuracy
+ Unique construction achieves stable machining over the entire rotational range
+ Advanced spindle labyrinth structure prevents coolant from entering the spindle
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
- Simultaneous 4-axis + 1-axis, indexing machining
- Process integration with less capital investment cost

**CMX V Series**

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

#### 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.

#### 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.

#### Table Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>DDRT-200X</th>
<th>DDRT-260X</th>
<th>DDRT-300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table diameter mm [in.]</td>
<td>200 [7.9]</td>
<td>260 [10.2]</td>
<td>300 [11.8]</td>
</tr>
<tr>
<td>Center height mm [in.]</td>
<td>140 [5.5]</td>
<td>160 [6.3]</td>
<td>180 [7.1]</td>
</tr>
<tr>
<td>Nose hole diameter mm [in.]</td>
<td>65 [2.6]</td>
<td>H7</td>
<td>H7</td>
</tr>
<tr>
<td>Through hole diameter mm [in.]</td>
<td>75 [3.0]</td>
<td>H7</td>
<td>H7</td>
</tr>
<tr>
<td>Through hole diameter mm [in.]</td>
<td>95 [3.7]</td>
<td>H7</td>
<td>H7</td>
</tr>
<tr>
<td>Through hole diameter mm [in.]</td>
<td>50 [2.0]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clamp system</td>
<td>Air-hydro unit</td>
<td>Pneumatic</td>
<td></td>
</tr>
<tr>
<td>Rotational speed of the table</td>
<td>150</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Repeatability</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Positioning accuracy</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Maximum work inertia vertical</td>
<td>0.678</td>
<td></td>
<td>1.6</td>
</tr>
<tr>
<td>Table loading capacity</td>
<td>100 [220]</td>
<td>150 [330]</td>
<td>175 [385]</td>
</tr>
<tr>
<td>Maximum thrust load applicable</td>
<td>800 [590.0]</td>
<td>1,000 [737.6]</td>
<td>3,000 [2,212.7]</td>
</tr>
</tbody>
</table>

#### Notes

- 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.

#### DDRT Series only

- Equipped with DDM
- Zero backlash
- Achieves high-precision indexing
- Offers stable machining through powerful clamping
- Allows high-efficiency machining using optional axes
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*1]
+ Max. tool diameter <without adjacent tools / with adjacent tools>: 125 mm / 80 mm (4.9 in. / 3.1 in.)
+ Max. tool mass: 8 kg (17.6 lb.)

*1 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.

+ Cut-to-cut (chip-to-chip): 3.76 sec.**2 [adjacent <DIN>] / 3.76 sec.**2 [farthest <DIN>]
  3.74 sec.**2 <MAS>

*2 ATC standby mode (DIN).
- 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.)>
Cutting-edge Chip Disposal Solution

Chips can be one of the main causes leading to machining failure and machine stop. DMG MORI group conducted an in-depth study on them by carrying out various experiments and analyses, and achieved outstanding chip disposal performance. We offer optimal chip disposal solutions according to a machining condition of each customer.

Chip conveyor (external) / scraper type (inner pan type) <option>

+ Reduced chip accumulation inside the machine
+ Operator spends less time removing chips

Workpiece material

<table>
<thead>
<tr>
<th>Chip size</th>
<th>Steel</th>
<th>Cast iron</th>
<th>Aluminum / non-ferrous metal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scraper type (inner pan type)</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Scraper type (inner pan type) + drum filter type</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

- [chip size guidelines] Short: chips 50 mm (2.0 in.) or less in length
- Long: longer 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 HRC50 or higher), please consult our sales representative.
- When machining aluminum materials, please select the chip conveyor with a drum filter.
- Chip conveyors are available in various types for handling chips of different shape and material. For details, please consult our sales representative.
Chip conveyor structure for efficient chip collection

The two-tiered inner pan minimizes the opening above the scraper to prevent chips from remaining on the conveyor. This is particularly effective in collecting fine aluminum chips. The bucket-type slit scraper facilitates efficient chip transfer.

+ The two-tiered inner pan prevents chips from remaining on the conveyor
+ Enhanced chip transfer capability with the bucket-type scraper
+ Our original function that disperses accumulated chips with a scraper ensures no trouble during chip conveyance

The two-tiered inner pan minimizes the opening above the scraper to prevent chips from remaining on the conveyor. This is particularly effective in collecting fine aluminum chips. The bucket-type slit scraper facilitates efficient chip transfer.

Internal cover with an inclined angle of 30°

+ The 30° inclination of the internal cover prevents chip accumulation in the machine
+ It also helps operators save the time needed for chip cleaning and reduce their work burden

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

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.

Front pullout chip bucket <option>

+ The chip bucket can be pulled out at the machine front
+ Minimize the space needed for cleaning and maintenance

External chip scraping chute specification <option>

Chips are carried by the coolant flowing from the machine front and collected in the rear box. The collected chips are then moved to the dedicated disposal box so that they can be disposed of together with the box.

+ Space-saving design: the coolant tank can be stored inside the machine cover
+ The pump dedicated for chip flushing facilitates smooth chip transfer
+ The simple, T-shaped rear disposal tank offers higher reliability
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.
Swivel-type operation panel
The operation panel which can swivel from 0 degree to 90 degrees improves operability and visibility. The short arm specification is available as standard. The swivel range is minimized to enable smooth operation in a limited space.

Accessibility
Thanks to a wide door opening and excellent access to the spindle and the table, setup operations such as fixture adjustments 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* / 950** mm
  (33.5 / 34.8* / 36.2* / 37.4** 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>
  893 / 861* mm (35.2 / 33.9* in.) <CMX 800 V>
  1,110.5 / 1,068.5* mm (43.7 / 42.1* in.) <CMX 1100 V>

1 Rear discharge type chip conveyor (option)
2 External chip scraping chute (rear discharge) specification (option)
3 Front pullout chip bucket (option)
4 Automatic door specification (option)

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.

Long arm (option)

+ Swivel angle (operation panel): 90°
+ Swivel angle (arm): 119°

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

System consisting of modularized units such as a workpiece stocker and an on-machine measuring system ensures higher productivity.

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

* Raised column (option) is required.

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
AWC (option)
+ Automatic long-term operation is possible to allow for unmanned operation at night
+ Fixtures can be mounted on several pallets, reducing setup burden for repeat orders

APC*1 (option)
+ Setup work can be done in parallel with machining, maximizing machine operating efficiency
+ Accessible to the machine and the APC from the machine front, achieving smooth setups

Automatic measurement (option)

In-machine measuring system (spindle)*2
+ Automatic centering and automatic measurement are possible
+ Automatic measurement applications are included

In-machine measuring system (table)
+ Automatic tool length measurement and automatic breakage detection are possible
+ Automatic measurement applications are included

*1 Raised column (option) is required.
*2 Equipped with the high-speed spindle for which the spindle bearing uses a ceramic ball. So the energization type touch sensor cannot be used.

MAPPSconnected – Perfect solution for Automation Systems

MAPPSconnected is a system that enables machine monitoring, scheduling and production management to be done on one machine by connecting machines, robots and various peripherals over a network. The effective use of MAPPSconnected helps solve various problems at the time of automation system installation, such as connection with peripheral equipment, system management and cost-related issues.

+ Allow for operation status monitoring of the entire system with simple operation
+ Easy-to-see screen layout enables operators to view all necessary information at a time
+ Compact design contributes to space saving
+ Setup information in the past can be called up as needed, requiring no re-setup operation
+ Employ the MAPPS operation panel to offer the same long-term maintenance support as the machine
+ Can be connected to the customer’s production system via a network, delivering much greater productivity

* For details such as implementation schedule, please consult our sales representative.

CELOS: Control Efficiency Lead Operation System  MAPPS: Mori Advanced Programming Production System
The DMG MORI Qualified Products (DMQP) program is designed to certify peripherals that meet DMG MORI standards in quality, performance and maintainability. DMG MORI collaborates with our partners in the world and provides customers with peripherals required for their machining. We take care of the arrangement from selection to installation to support best-quality machining. DMG MORI helps customers improve productivity by offering the total solutions including quality peripherals as well as machine tools.

- Offer peripheral equipment optimal for each customer at one stop
- Provide support including connection and setup of machines and peripheral equipment
- Achieve efficient connections with optimal interfaces

<table>
<thead>
<tr>
<th>Handling</th>
<th>Machining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robot system</td>
<td>Oil skimmer</td>
</tr>
<tr>
<td>External chip conveyor</td>
<td>Coolant chiller</td>
</tr>
<tr>
<td></td>
<td>High-pressure coolant system</td>
</tr>
<tr>
<td></td>
<td>Rotary table</td>
</tr>
<tr>
<td></td>
<td>Mist collector</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measuring</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-machine measuring</td>
<td>Electrical cabinet chiller</td>
</tr>
<tr>
<td>system (tool)</td>
<td>Rotary window</td>
</tr>
<tr>
<td></td>
<td>Coolant float switch</td>
</tr>
<tr>
<td></td>
<td>Signal lamp</td>
</tr>
<tr>
<td>In-machine measuring</td>
<td></td>
</tr>
<tr>
<td>system (workpiece)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The options above are examples. For details, please consult our sales representative.

DMQP: DMG MORI Qualified Products
CMX V Series

DMG MORI Technology Cycles

Technology Cycles (option) 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.

- The availability of the functions differ depending on the machine. For details, please consult our sales representative.
- The above is an image picture.
Efficient Production Package
(High-speed canned cycle)

Easy inputting of various machining patterns

Solved by “High-speed canned cycle”
+ Tool path appropriate for high speed machining can be created automatically
+ Guidance input supports programming that is troublesome and makes manuals unnecessary

W setter

Manual tool measurement and workpiece centering in simple steps

Solved by “W setter”
+ Measurement can be made simply by turning ON the manual measurement mode, which saves time for setup
+ Operation along guidance screen enables even beginner to perform trouble-free, safe and accurate setups

ATC (Application Tuning Cycle)

Easy setting of optimum feed according to the machining operation

Solved by “ATC”
+ Only by selecting either the time priority mode or accuracy priority mode, smoothness of look-ahead interpolation can be changed
+ Feedrate can be changed freely while programs are running, and optimum machining method can be set according to surfaces to be machined

Easy tool monitoring

Monitoring load of spindle and feed axes

Solved by “Easy tool monitoring”
+ Load during machining can always be monitored
+ Spindle and feed axes can be stopped automatically
CMX V Series

DMG MORI SLIMline for Highest Efficiency and Reliability

- 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
CMX V Series

DMG MORI’s Unique Energy-saving Function GREENmode

DMG MORI developed the new energy-saving function GREENmode to achieve sustainable development.

The function reduces power consumption by approximately 40%* compared to the conventional machine by using efficient machining programs to minimize unnecessary stand-by power.

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

+ Improve cutting conditions to reduce machining time by bringing the best out of machine tools and tools
+ Reduce unnecessary power consumption during stand-by time by shutting off power of the spindle, chip conveyor and coolant pump at a time of machine stop

GREENmode

GREEN device
+ High-brightness LED light
+ Accumulator pressure-keeping hydraulic pump*

* Only for the high-speed / high-output specification

GREEN idle reduction
+ Shut off the power of the servo motor, spindle and coolant pump at a time of machine stop
+ Turn off the operation panel screen when a machine is not in operation for a certain time

GREEN control
+ Reduce machining power by energy-saving pecking cycles
+ Quicken standard M codes
+ Simultaneous acceleration / deceleration of the spindle and feed axes
CMX V Series

Machine Size

<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>2,150 (84.6)</td>
<td>2,752 (108.3)</td>
<td>2,937 (115.6)</td>
</tr>
<tr>
<td>CMX 800 V</td>
<td>2,559 (100.7)</td>
<td>2,752 (108.3)</td>
<td>2,937 (115.6)</td>
</tr>
<tr>
<td>CMX 1100 V</td>
<td>3,190 (125.6)</td>
<td>2,752 (108.3)</td>
<td>2,937 (115.6)</td>
</tr>
</tbody>
</table>

Option 1: Raised column
Option 2: Short arm
Option 3: Long arm (option)

The diagrams show CMX 1100 V

Left 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>2,952 (116.2)</td>
<td>2,752 (108.3)</td>
<td>2,937 (115.6)</td>
</tr>
<tr>
<td>CMX 800 V</td>
<td>3,188 (125.5)</td>
<td>2,752 (108.3)</td>
<td>2,937 (115.6)</td>
</tr>
<tr>
<td>CMX 1100 V</td>
<td>3,818 (150.3)</td>
<td>2,752 (108.3)</td>
<td>2,937 (115.6)</td>
</tr>
</tbody>
</table>

Option 1: Raised column
Option 2: Short arm
Option 3: Long arm (option)

The diagrams show CMX 1100 V
**Rear discharge type chip conveyor (option)**

- **Machine type**: CMX 600 V, CMX 800 V, CMX 1100 V
- **Width (W)**: 1,868 [73.5], 2,118 [83.4], 2,750 [108.3] mm
- **Depth (D)**: 3,573 [140.7] mm
- **Height (H)**: 2,972 [117.0], [3,172 [124.9]]* mm

*Options: 1) Raised column, 2) Short arm, 3) Long arm (option)

- The diagrams show CMX 1100 V

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

- **Machine type**: CMX 600 V, CMX 800 V, CMX 1100 V
- **Width (W)**: 1,868 [73.5], 2,118 [83.4], 2,750 [108.3] mm
- **Depth (D)**: 2,752 [108.3] mm
- **Height (H)**: 3,087 [121.4], [3,207 [126.3]]* mm

*Options: 1) Raised column, 2) Short arm, 3) Long arm (option)

- The diagrams show CMX 1100 V
# Machine Size

## Front pullout chip bucket (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>2,150 (84.6)</td>
<td>2,752 (108.3)</td>
<td>3,037 (119.6)</td>
</tr>
<tr>
<td>CMX 800 V</td>
<td>2,559 (100.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMX 1100 V</td>
<td>3,190 (125.6)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Option
2. Raised column
3. Short arm
4. Long arm (option)
5. The diagrams show CMX 1100 V
# Machine Specifications

<table>
<thead>
<tr>
<th>Travel</th>
<th>CMX 600 V (mm)</th>
<th>CMX 800 V (mm)</th>
<th>CMX 1100 V (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-axis travel</td>
<td>600</td>
<td>800</td>
<td>1,100</td>
</tr>
<tr>
<td>Y-axis travel</td>
<td>560</td>
<td>760</td>
<td>1,100</td>
</tr>
<tr>
<td>Z-axis travel</td>
<td>510</td>
<td>760</td>
<td>1,100</td>
</tr>
</tbody>
</table>

Distance from table surface to spindle gauge plane mm (in.)

<table>
<thead>
<tr>
<th>Table</th>
<th>CMX 600 V</th>
<th>CMX 800 V</th>
<th>CMX 1100 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table loading capacity kg (lb.)</td>
<td>600 (1,320)</td>
<td>800 (1,760)</td>
<td>1,000 (2,200)</td>
</tr>
<tr>
<td>Spindle</td>
<td>Max. spindle speed min⁻¹</td>
<td>12,000 [15,000 &lt;high speed&gt;] [20,000 &lt;high speed, high output&gt;]</td>
<td></td>
</tr>
<tr>
<td>Feedrate</td>
<td>Rapid traverse rate mm/min (ipm)</td>
<td>X / Y / Z: 36,000 / 36,000 / 30,000 [1,417.3 / 1,417.3 / 1,181.1]</td>
<td></td>
</tr>
<tr>
<td>Cutting feedrate mm/min (ipm)</td>
<td>X, Y, Z: 1 – 20,000 [0.04 – 787.4] &lt;when using look-ahead control&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATC</td>
<td>Type of tool shank</td>
<td>BT40 [CAT40] [DIN40] [HSK-A63*]</td>
<td></td>
</tr>
<tr>
<td>Tool storage capacity</td>
<td>30 [60]**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. tool diameter</td>
<td>With adjacent tools mm (in.)</td>
<td>80 (3.1)</td>
<td></td>
</tr>
<tr>
<td>Without adjacent tools mm (in.)</td>
<td>125 (4.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. tool length mm (in.)</td>
<td>300 (11.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. tool mass kg (lb.)</td>
<td>8 (17.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tool changing time** Tool-to-tool s</td>
<td>1.32 &gt; max. tool mass: less than 4 kg [8.8 lb.] / 1.46 &gt; max. tool mass: 4 – 8 kg [8.8 – 17.6 lb.]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cut-to-cut chip-to-chip s</td>
<td>&lt;DIN&gt; s</td>
<td>Adjacent: 3.76** / Farthest: 3.76**</td>
<td></td>
</tr>
<tr>
<td>Motor</td>
<td>Spindle drive motor &lt;25%ED / cont&gt; kW (HP)</td>
<td>15 / 11 [20 / 15] [15 / 11 &lt;high speed&gt;] [37 / 18.5 &lt;high speed, high output&gt;]</td>
<td></td>
</tr>
<tr>
<td>Machine size</td>
<td>Machine height mm (in.)</td>
<td>2,937 (115.6) [2,972 (117.0)<em><strong>] [3,007 (118.4)</strong></em>] [2,937 (115.6)***]</td>
<td></td>
</tr>
<tr>
<td>Floor space width X depth mm (in.)</td>
<td>2,150 X 2,752 (84.6 X 108.3)</td>
<td>2,559 X 2,752 (100.7 X 108.3)</td>
<td>3,190 X 2,752 (125.6 X 108.3)</td>
</tr>
<tr>
<td>Mass of machine kg (lb.)</td>
<td>4,700 [10,340] [5,200 [11,440]***]</td>
<td>5,000 [11,000] [5,500 (12,100)***]</td>
<td>5,500 [12,100] [6,090 (13,200)***]</td>
</tr>
</tbody>
</table>

Control unit

| FANUC |
| F0iMF |
## Standard & Optional Features

### Spindle

<table>
<thead>
<tr>
<th>Type of tool shank</th>
<th>BT40</th>
<th>CAT40</th>
<th>DIN40</th>
<th>HSK-A63*1</th>
</tr>
</thead>
</table>

### Magazine

<table>
<thead>
<tr>
<th>Tool storage capacity</th>
<th>30 tools</th>
<th>60 tools*2</th>
</tr>
</thead>
</table>

### Coolant

<table>
<thead>
<tr>
<th>Coolant gun</th>
<th>1.5 MPa (217.5 psi)</th>
<th>7.0 MPa (1,015 psi)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Through-spindle coolant system</th>
<th>1.5 MPa (217.5 psi)</th>
<th>7.0 MPa (1,015 psi)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Coolant chiller (separate type)</th>
<th>AFS-600*4</th>
<th>HVS-150</th>
<th>SMG-100</th>
</tr>
</thead>
</table>

### Chip disposal

<table>
<thead>
<tr>
<th>Chip conveyor</th>
<th>Left discharge, scraper type (inner pan type)</th>
<th>Left discharge, scraper type (inner pan type) + drum filter type</th>
<th>Rear discharge, scraper type (inner pan type) + drum filter type</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>External chip scraping chute</th>
<th>Rear discharge</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Front pullout chip bucket</th>
<th></th>
</tr>
</thead>
</table>

### Measurement

<table>
<thead>
<tr>
<th>In-machine measuring system (table)*5</th>
<th>Touch sensor (M)</th>
<th>In-machine measuring system (spindle + table)<em>6</em>6</th>
<th>Touch sensor (R)</th>
</tr>
</thead>
</table>

### Automation

<table>
<thead>
<tr>
<th>Automatic door</th>
<th></th>
</tr>
</thead>
</table>

### Other

<table>
<thead>
<tr>
<th>Signal lamp</th>
<th>4 colors (LED type: red, yellow, green, blue)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Manual pulse generator (separate type)</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Progress Line</th>
<th></th>
</tr>
</thead>
</table>

---

*1 Selectable only for the high-speed / high-output specification
*2 Magazine door (option) is essential.
*3 DMQP (DMG MORI Qualified Products)
*4 Not compatible with oil-based coolant. If using oil-based coolant, select the HVS-150 or SMG-100.
*5 The specifications vary depending on the manufacturers. [M] made by Magnescale [R] made by RENISHAW
*6 Equipped with the high-speed spindle for which the spindle bearing uses a ceramic ball. So the energization type touch sensor cannot be used.

### Notes

- DMQP: Please see Page 20 for details.
- For details, please check the Detailed Specifications.
- The information in this catalog is valid as of May 2018.
- Specifications, accessories, safety device and function are available upon request. For details, please consult our sales representative.

**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. Customer shall comply with the laws and regulations of the exporting country governing the exportation or re-exportation of the Equipment, including but not limited to the Export Administration Regulations. 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 representatives shall have no obligation 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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