MCH-630

MCV-720

VERTICAL MACHINING CENTER

MCV-1020A

# MCV-1200
# MCV-1200BA

MCV-1020BA

MCV-1250

MCV-1450

MCV-1700

MCV-2100

MCV-2600

DCM-2213


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The Latest and Best Quality Machinery.

DAHLIH®

MCV-1200BA

# Newly designed for increased stability

MCV-1200



## An all-round product
### A perfect combination of quality and efficiency

- Built with Dah Lih's tradition of high reputation and fine craftsmanship.
- The major casting parts are designed and analyzed by "Finite Element Analysis" for optimum structural rigidity and accuracy.
- The entire machine is ruggedly constructed throughout for lifetime accuracy and rigidity.
- Coolant jets around the spindle provide excellent cooling effect on the cutting tool and workpiece.
- Three axes are mounted with linear guide ways (Standard equipment on MCV-1200).
- The machine can be directly loaded into a container. The compactly constructed machine is designed to fully utilize its internal space for maximum working range, allowing more functions to challenge the competition.
- The ram type head design offers the highest stability and cutting accuracy (Standard design on MCV-1200).
- 10,000 rpm direct-drive spindle is standard (For model MCV-1200 only).

## MCV-1200
## MCV-1200BA

# MCV-1200 Vertical machining center

## High rigidity. High precision. Minimum vibration. Minimum noise. Easy to install and maintain.

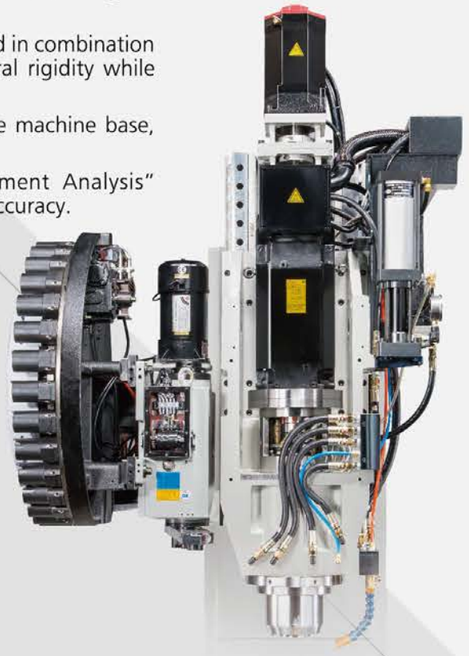
### Optimal stability, rigidity and accuracy

» All structural parts are manufactured from high quality cast iron, assuring the best possible stability of the structure.

» The box type column and base are symmetrically constructed in combination with reinforced cross ribs. This results in greater structural rigidity while reducing thermal deformation to a minimum.

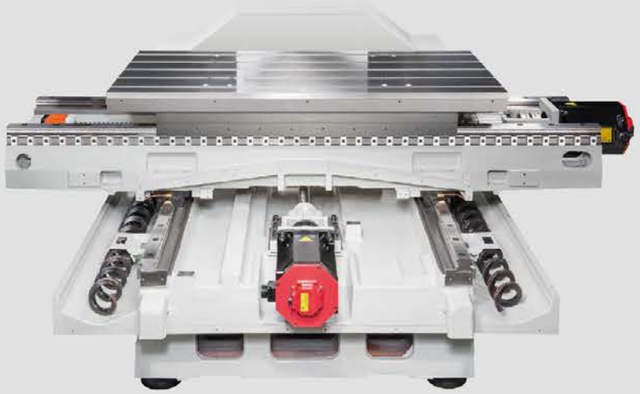
» Extra wide column bottom allows a rigid fastening to the machine base, providing a solid foundation for precision machining.

» All major castings are analyzed through "Finite Element Analysis" software to ensure excellent machine rigidity and cutting accuracy.



» The ram type head design effectively reduces the thermal growth of the spindle head and eliminates overhang problem. Z-axis slide ways are designed on the column to avoid unstable machining due to the variation of rigidity caused by the difference of spindle head position.

» The machine is equipped with a 10,000 rpm direct-drive spindle. 15,000 rpm is available (Optional) to suit high speed machining. Upon request, a 15,000 rpm built-in type spindle can be installed.



» Extra large span between Y-axis slide ways maintains gravity point in machine base when table travels on X axis. This feature prevents overhang problem on saddle and increases machining stability.

» Machine base is equipped with chip augers on both sides for quick chip removal. With these chip augers, the heat from chips is effectively removed to avoid structural deformation.

» Two-step structure design on the column allows customer to increase column height when required.

» Three-axis slide ways are mounted with ball/roller type linear ways.



### The best choice for precision machining

» Precision parts machining

» Molds and dies

# MCV-1200BA Vertical machining center

## High speed, high precision machining Designed from advanced concepts that provide unrivalled machining efficiency.

### Perfect machine structure design Stable! Rigid! Precise!

» All structural parts are manufactured from high quality cast iron, assuring the best possible stability of the structure.

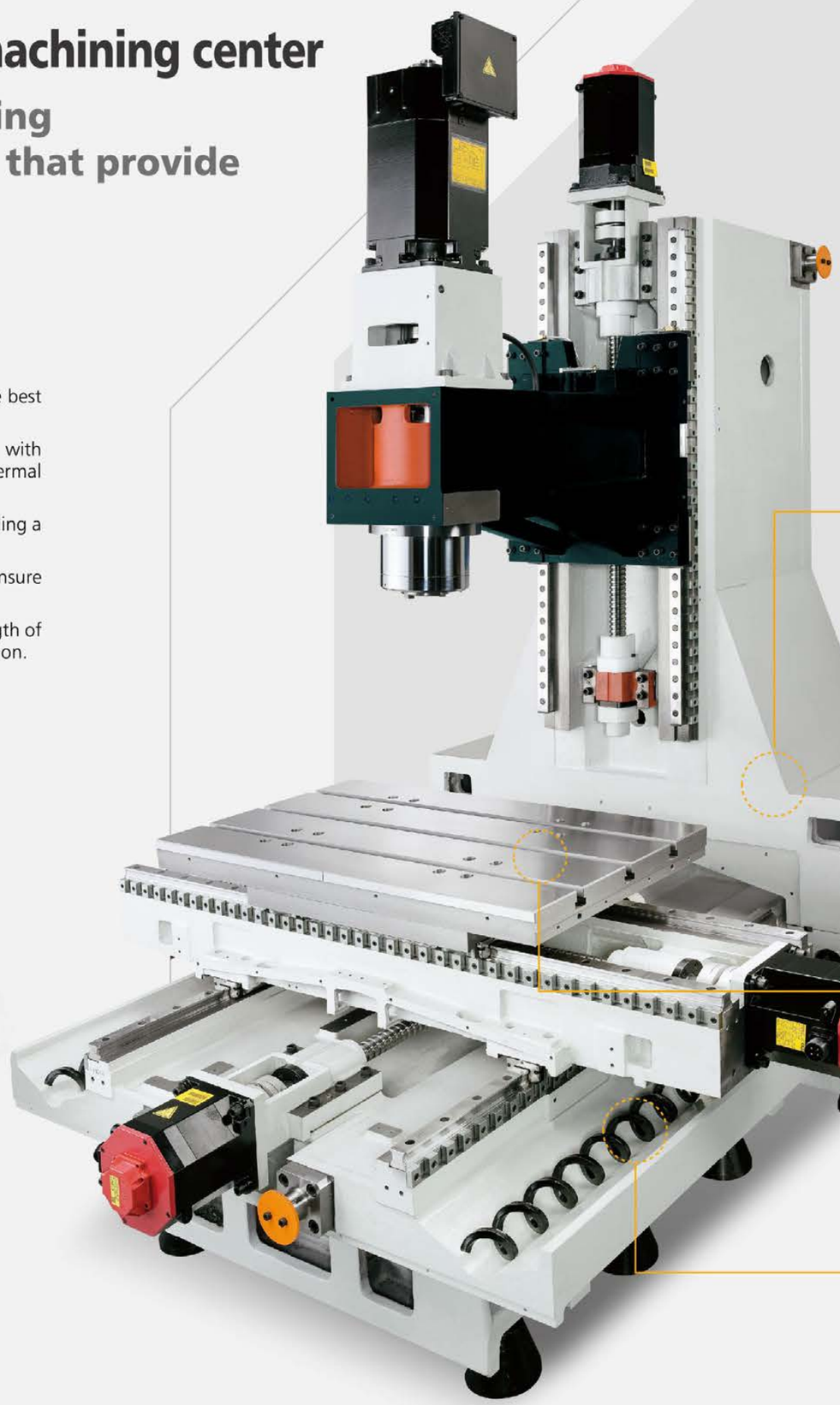
» The box type column and base are symmetrically constructed in combination with reinforced ribs. This results in greater structural rigidity while reducing thermal deformation to a minimum.

» Extra wide column bottom allows a rigid fastening to the machine base, providing a solid foundation for precision machining.

» All major castings are analyzed through "Finite Element Analysis" software to ensure excellent machine rigidity and cutting accuracy.

» The feed systems on three axes are separately constructed for reducing the length of ball screws, while ensuring excellent rotational inertia during high speed rotation.

» Extra large span between Y-axis slide ways maintains gravity point in machine base when table travels on X axis. This feature prevents overhang problem on saddle and increases machining stability.



**The best choice for precision machining**

» Automotive and motorcycle parts machining.

» General parts machining

**STABLE COLUMN**

» The column is a reversed "Y" shape symmetrically constructed with superior balanced design for high machining accuracy.

**CONVENIENT TABLE DISMANTLING AND MOUNTING**

» The table is fastened downward, making table dismantling and mounting easier. It is also convenient for maintenance and adjustment.

**CHIP AUGERS**

» Machine base is equipped with chip augers on both sides for quick chip removal. With these chip augers, the heat from chips is effectively removed to avoid structural deformation.

# A new generation of vertical machining center

Designed for precision machining in various industries

- Automotive and motorcycle industry.
- Precision parts machining.
- General machining.
- Molds and dies.

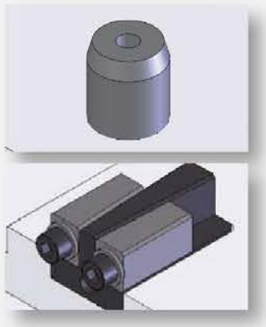
## CAM type tool magazine

It provides fast tool change with dependable performance. The CAM type tool magazine rotation is driven by a cylindrical CAM for fast and dependable tool change. Tool loading capacity is 24 tools. Random tool selection allows for efficient tool change.

● CAM type ATC (24 tools)

| | | |
|---|---|---|
| Max. tool Dia. x Length | Ø x mm | Ø 76 x 300 |
| Max. tool weight | kg | 7 |
| Max. tool dia. (Adjacent empty tool) | Ø mm | Ø 150 |





### Column support

» The column is fully supported through the full width of the base. Combined with positioning keys and tapered gibs, it achieves complete support, resulting in greater rigidity.

### Y-axis telescopic guard

» The telescopic guard provided at the rear side of Y axis increases chip prevention on Y axis.

### X, Y-axis linear ways

» The X, Y-axis linear ways are fixed with clamping pieces, which tighten linear ways securely by means of bolts. This results in a stable tightening force, free of any instability problem that may be caused by the friction force from tapered gibs.

» A standard equipment on MCV-1200.
» An optional equipment on MCV-1200BA.

# All new MCV-1200 / MCV-1200BA

## Equipped with direct-drive spindle for ultra high machining accuracy

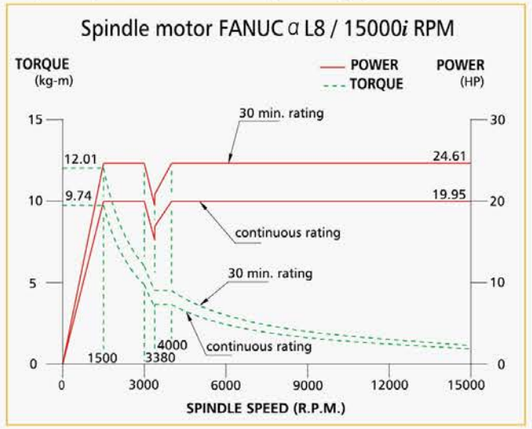
» Low cost » Minimum vibration » Minimum noise » Easy to install
» Easy to maintain » High rigidity » High accuracy



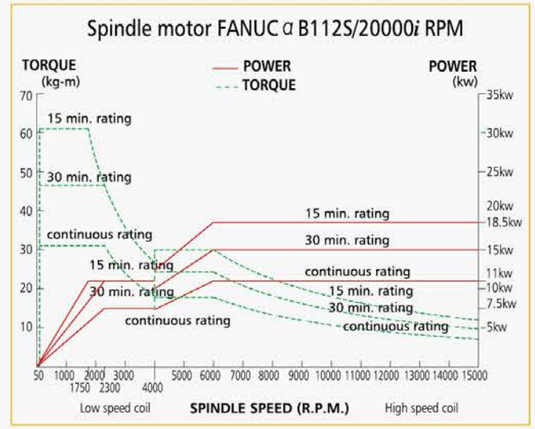
# High speed, high precision machining

## Designed with advanced concepts that enhance speed and efficiency

**15,000 rpm direct-drive spindle (Optional)**




**15,000 rpm built-in type spindle (Optional)**




## BENEFITS OF DIRECT-DRIVE SPINDLE

### Low Cost

» The high speed direct-drive spindle has a lower cost than that of the built-in type spindle.

### Low Vibration & Low Noise

» The direct-drive spindle is not affected by the side force that usually occurs on a belt-drive spindle. Therefore, it reduces vibration, noise and tool wear.

### Convenient To Install And Maintain

» The direct-drive spindle is easy to install. As the spindle and the motor is separated, its maintenance cost is lower than that of the built-in type spindle.

### High Rigidity

» The inside diameter of spindle bearing is Ø70mm, featuring high rigidity to resist heavy cutting.

### High Precision

» The temperature growth and the motor heat of the direct-drive spindle have less impact on spindle head displacement than the belt-drive spindle, providing more stable machining accuracy.

## » STANDARD

**LATEST ADVANCED CNC CONTROL**
Available to equip with Fanuc, Heidenhain and other brands of CNC controllers.

**SPINDLE COOLER**
It is used for cooling the spindle and ball screws.

**HEAT EXCHANGER FOR CONTROL CABINET**
The high performance heat exchanger ensures a constant temperature inside the control cabinet. It provides protection for electronic components, controller and motor driver.

**WORK LIGHT**
This machine is equipped with a waterproof work light, providing lighting for the working area. The light features soft illumination without being irritating to the operator's eyes.

**CONVENIENT AIR AND LUBRICATION SYSTEM MAINTENANCE**
The air/lubrication systems are centralized at the back of the machine for convenient maintenance and inspection.

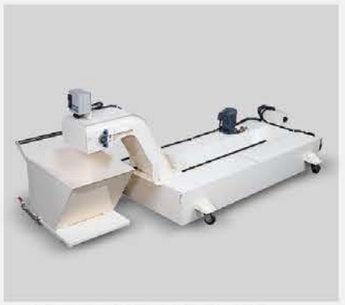
**WELL-PLANNED ELECTRICAL CABINET**
- The centralized electrical cabinet saves wiring time and permits convenient maintenance.
- The electrical cabinet is equipped with a heat exchanger to ensure constant temperature in the electrical cabinet. It also provides protection for electronic components, controller and motor driver.



# More Powerful and Efficient Operations with Extra Optional Accessories

## » OPTIONS

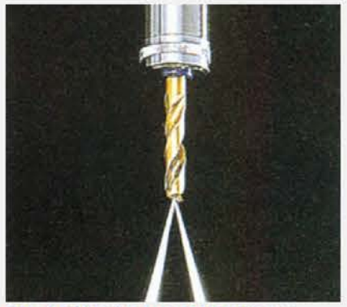
**AUTOMATIC TOOL LENGTH MEASURING DEVICE (DAHLIH)**



**FLAT TYPE CHIP CONVEYOR**

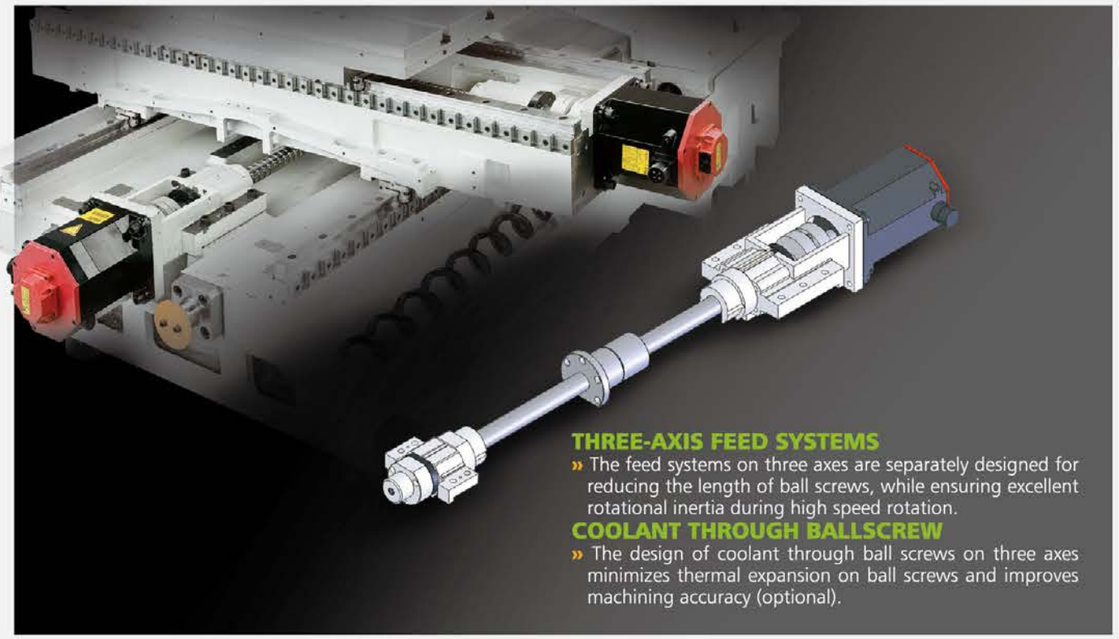
**AUTOMATIC WORKPIECE MEASURING DEVICE**

**COOLANT WASH**



**COOLANT THROUGH SPINDLE DEVICE (TOOL NOT INCLUDED)**

**4TH AXIS CONTROL AND ROTARY TABLE**



**THREE-AXIS FEED SYSTEMS**
- The feed systems on three axes are separately designed for reducing the length of ball screws, while ensuring excellent rotational inertia during high speed rotation.

**COOLANT THROUGH BALLSCREW**
- The design of coolant through ball screws on three axes minimizes thermal expansion on ball screws and improves machining accuracy (optional).

# SPECIFICATIONS, ACCESSORIES AND DIMENSIONS

## SPECIFICATIONS

| MODEL | | MCV-1200 | MCV-1200BA |
|---|---|---|---|
| **TABLE** | | | |
| Table surface area | | 1300 x 640 mm | 1300 x 640 mm |
| T-slots (Width x No. x Pitch) | | 18 x 5 x 125 mm | 18 x 5 x 125 mm |
| Max. table load | | 1000 kg | 1000 kg |
| **TRAVEL** | | | |
| X / Y / Z-axis | | 1200 mm / 600 mm / 500 mm | 1200 mm / 600 mm / 600 mm |
| Distance from spindle nose to table top | | 100~600 mm | 150~750 mm |
| Distance from spindle center to column surface | | 805 mm | 705 mm |
| Slide way type (X, Y, Z-axis) | | Linear ways | X, Y-axis linear ways/Z-axis box ways |
| **FEED** | | | |
| Rapid traverse rate | X axis | 30 m/min | 30 m/min |
| | Y axis | 30 m/min | 30 m/min |
| | Z axis | 18 m/min | 18 m/min |
| Cutting feed rate | | 10000 mm/min | 10000 mm/min |
| Minimum Input Increment | | 0.001mm | 0.001mm |
| **SPINDLE** | | | |
| Spindle type | | Direct-drive | Belt-drive |
| Spindle motor (30 min./cont. rating) | | 7.5kW (10HP) / 5.5kW (7.4HP) | 11kW (14.7HP) / 7.5kW (10HP) |
| Spindle nose taper | | N.T.40 | N.T.40 |
| Spindle speed | | 10000 rpm | 8000 rpm |
| Spindle bearing size | | Ø70 mm | Ø70 mm |
| Spindle bearing lubrication | | Grease | Grease |
| **A.T.C.** | | | |
| Tool magazine capacity | | 24T | 24T |
| Tool holder | | BT40 | BT40 |
| Pull stud | | Jaw type 45° pull head | Jaw type 45° pull head |
| Max. tool weight | | 7 kg | 7 kg |
| Max. tool length | | 300 mm | 300 mm |
| Max. tool diameter (Adjacent empty tool) | | Ø76 (150) mm | Ø76 (150) mm |
| Tool selection | | Random | Random |
| **MOTORS** | | | |
| X axis drive motor | | 2.5kW (3.4HP) | 2.5kW (3.4HP) |
| Y axis drive motor | | 2.5kW (3.4HP) | 2.5kW (3.4HP) |
| Z axis drive motor | | 2.5kW (3.4HP) | 3kW (4HP) |
| **OTHERS** | | | |
| Power required | | 36KVA | 36KVA |
| Air pressure required (Air supply) | | 6 kg/cm² | 6 kg/cm² |
| Coolant pump | | 3/4HP | 3/4HP |
| Coolant tank capacity (Total capacity) | | 365L | 365L |
| Machine weight | | 7500kgf | 7500kgf |
| Floor area occupied | | 3150 x 4060mm | 3150 x 4060mm |

Specifications are subject to change without prior notice.

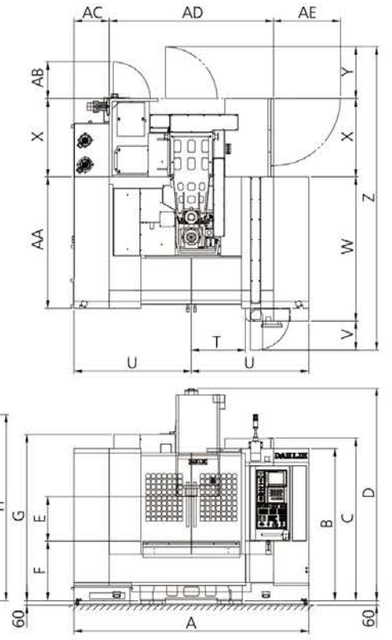
## » STANDARD

- Heat exchanger
- Removable manual pulse generator
- Fully enclosed splash guard
- RS-232 interface
- Automatic power off
- Call light
- Automatic lubrication equipment
- Work light
- Tool kit
- Spare fuses
- Swing type operator panel
- Spindle oil cooler
- Rigid tapping
- Chip augers on base

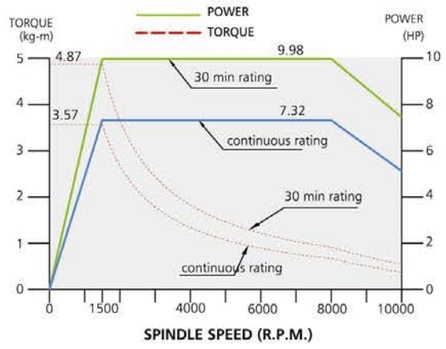
## » OPTIONS

- Screw type chip conveyor
- Flat type chip conveyor and chip bin
- 4th axis control and rotary table
- Coolant through spindle with filter
- Bed coolant wash
- Automatic tool length measuring device
- Automatic workpiece measuring device
- Linear scale
- 12,000/15,000 rpm direct-drive spindle
- 15,000 rpm built-in type spindle
- Coolant through ball screw
- 30, 32, 40-tool CAM type ATC
- Roller type linear ways on Z axis

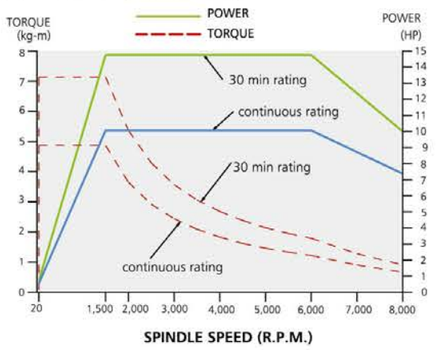
## MACHINE DIMENSIONS



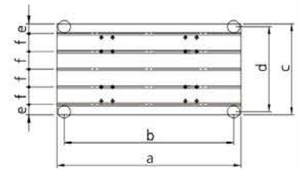

### MCV-1200 spindle power/torque diagram (10,000 RPM) (STANDARD)



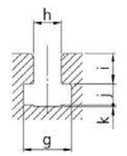

### MCV-1200BA spindle power/torque diagram (8,000 RPM) (STANDARD)



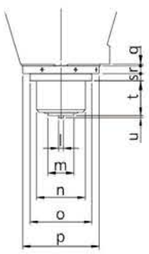

### TABLE




### T-SLOT




### SPINDLE




## EXTERNAL DIMENSIONS

| Model | | MCV-1200/MCV-1200BA |
|---|---|---|
| Unit | mm | inch |
| A | 3150 | 124.02 |
| B | 2040 | 80.31 |
| C | 2178 | 85.75 |
| D | 2852/2587 | 112.28/101.85 |
| E | 100-600/150-750 | 3.93-23.62/5.91-29.53 |
| F | 795 | 31.30 |
| G | 2232/2382 | 87.87/93.78 |
| H | 2496 | 98.27 |
| I | 1800 | 70.87 |
| J | 863 | 33.98 |
| K | 505-1105 | 19.88-43.50 |
| L | 575 | 22.64 |
| M | 2075 | 81.69 |
| N | 350 | 13.78 |
| O | 1510 | 59.45 |
| P | 665 | 26.18 |
| Q | 2307 | 90.83 |
| R | 412/317 | 16.22/12.48 |
| S | 2440/2270 | 96.06/89.37 |
| T | 725 | 28.54 |
| U | 1575 | 62.01 |
| V | 385 | 15.16 |
| W | 1930 | 75.98 |
| X | 1050 | 41.34 |
| Y | 695 | 27.36 |
| Z | 4060 | 159.84 |
| AA | 1760 | 69.29 |
| AB | 495 | 19.49 |
| AC | 475 | 18.70 |
| AD | 2200 | 86.61 |
| AE | 900 | 35.43 |

## TABLE & T-SLOT

| Model | | MCV-1200/MCV-1200BA |
|---|---|---|
| Unit | mm | inch |
| a | 1300 | 51.18 |
| b | 1200 | 47.24 |
| c | 640 | 25.20 |
| d | 600 | 23.62 |
| e | 70 | 2.76 |
| f | 125 | 4.92 |
| g | 31.5 | 1.24 |
| h | 18 | 0.71 |
| i | 20 | 0.87 |
| j | 13.5 | 0.69 |
| k | 1 | 0.04 |
| l | 14 | 0.55 |
| m | 85 | 3.35 |
| n | 160 | 6.30 |
| o | 202 | 7.95 |
| p | 250 | 9.84 |
| q | 5 | 0.20 |
| r | 25 | 0.98 |
| s | 24 | 0.94 |
| t | 113 | 4.45 |
| u | 8 | 0.31 |