5-Axis Vertical Machining Centers

UNIVERSAL CENTER MU-V series

MU-5000V/MU-6300V/MU-8000V
The MU-V series—Changing perceptions of what a 5-axis machine can do

Machining accuracy and capacity similar to 3-axis machines is achieved with a machine design that utilizes “M-E-I-K”.

The MU-8000V is the latest addition to the MU-V series that combines the above with ease of use and has changed the way people think about 5-axis machines.

Innovations in volumetric accuracy

- Highly rigid trunnion table supports high accuracy and quality
- High accuracy maintained over long times with synergistic effect of Okuma Intelligent Technology

A 5-axis machine that really cuts

- Face milling: 504 cm³/min
- End milling: 672 cm³/min
- Process-intensive machining with turning
  - Turning: 3 mm²

The value of good visibility and operability required in 5-axis machining

- Superb operator access to the machining chamber
- Even with long travel and large workpieces, machining with space to spare
- Tools can be changed even with the trunnion table swung out

* The merging of Mechanics - Electronics – Information (IT) - Knowledge (Creation) technologies, only Okuma can provide, as Your Single Source for Machine & Control.
Next generation of 5-axis machining centers bring innovations to volumetric accuracy in 5-axis machining

High-accuracy machines that go beyond normal expectations of a 5-axis machine

Highly rigid trunnion table supports high-accuracy 5-axis machining

- The indexing accuracies that take 5-axis machining to higher accuracies (MU-5000V Actual data)
  - Indexing accuracy
    - A-axis indexing accuracy/Indexing return accuracy: ±0.68 sec/±0.40 sec
    - C-axis indexing accuracy/Indexing return accuracy: ±0.78 sec/±0.14 sec
  - Fast operation
    - A-axis/C-axis 90°clamp/unclamp indexing time: 1.0 sec/1.2 sec

- High quality machined surfaces with the high following of 5-axis machining
  - Highly rigid trunnion table supports both ends
  - With ball-screw cooling (Std), reduced following error is achieved while maintaining highly accurate machining.

Maximized machining accuracies

Gauging and compensation of geometric error

5-Axis Auto Tuning System (optional)

- Automatic tuning for geometric error is quick, easy, and can be done by anyone

Automatic tuning of a total of 11 different kinds of geometric error, including spindle misalignment and inclination.

The accuracy of 5-axis machines is measured in less than 10 minutes to draw out maximum performance.

High accuracy maintained over long times in 5-axis machining

The unique approach of “accepting temperature changes” Thermo-Friendly Concept

- 5-Axis Auto Tuning System accuracy maintained

Accuracy changes due to changes in ambient temperature or spindle heat are minimized. When the 5-Axis Auto Tuning System is also used, a synergistic effect is achieved with the two intelligent technologies and high accuracy is maintained in 5-axis machining even when the environmental temperature changes.

Note: The data mentioned in this brochure are “actual data” and do not represent guaranteed accuracies.

Thermo-Friendly Concept

The unique approach of “accepting temperature changes”

With just a touch probe and datum sphere — auto tuning completed.

MU-5000V thermal deformation over time (Actual data)

- X axis: ±10 µm
- Y axis: ±10 µm
- Z axis: ±10 µm

MU-5000V actual data

- Room temp [˚C] 16 20 24
- Time [h] 0 4 8 12 16 20 24

MU-5000V thermal deformation over time

- X axis: ±10 µm
- Y axis: ±10 µm
- Z axis: ±10 µm

MU-5000V actual data

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- Time [h] 0 4 8 12 16 20 24

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Beyond the limits of conventional 5-axis machining
Highly efficient machining with amazing machining capacity (MU-5000V, MU-6300V: Actual data)

Face milling capacity: 504 cm³/min (S45C)
- ø80 face mill 8 blade (coating)
  - Spindle speed: 895 min⁻¹
  - Cutting speed: 225 m/min
  - Feedrate: 2,250 mm/min
  - Cut width x infeed: 56 x 4 mm

End milling capacity: 672 cm³/min (S45C)
- ø20 roughing end mill 7 blade (carbide)
  - Spindle speed: 4,000 min⁻¹
  - Cutting speed: 251 m/min
  - Feedrate: 4,800 mm/min [2,800 mm/min]
  - Cut width x infeed: 7 x 20 mm [12 x 20 mm]

Turning capacity: 3 mm² (S45C)
- Machining dia: ø164 mm [ø250 mm]
  - Cutting speed: 130 m/min (table rotation: 252 min⁻¹)
  - Feedrate: 0.6 mm/rev
  - Infeed: 5 mm

Note: The above are actual examples. Your results may vary due to differences in specifications, tooling and cutting conditions.

Intelligent technologies draw out maximum machine and tool capabilities

Cutting condition search for milling
Machining Navi M-ⅰ, M-ⅱ⁺ (Optional)

Automatically changes to optimum spindle speed (M-ⅰ)
Built-in sensors measure chatter vibration and the machine automatically changes to the best spindle speed.

Adjust cutting conditions while monitoring the data (M-ⅱ⁺)
Navigates effective measures by detecting and analyzing machining chatter with a microphone attached to the machine.

Eliminate chatter with Machining Navi

Machining Navi OFF Machining Navi ON

w/ chatter w/o chatter
Get a real sense of the good visibility and operability demanded in 5-axis machining

Superb operator access to the machining chamber
- Structure allows easy tool edge confirmation during setup and machining
- Best table, spindle, and operation panel layout in terms of operability
- Large step platform for easy working
- Operating stress reduced with large platform so that operator does not have to worry about footing
- Large window for good visibility in machining compartment

Large machining range; tools can be changed with trunnion still in swing position

The tool reaches the end of the workpiece even with the table at various inclination angles, enabling wide-range 5-axis machining. Tools can be changed with the trunnion still in a swing position, leading to reduced cycle times and higher machining accuracies.

- Even the largest workpieces are machined with capacity to spare
- Visibility of the cutting edge at the time of cutting also excellent

Process-intensive machining with turning capacity that approaches that of a lathe

Process-intensive machining and high-accuracy 1-chuck machining achieved with multitasking in which turning can also be done

MU-5000V-L
- Turning spindle
  - Table spindle speed: 1,000 min⁻¹
  - Max output: 17/13 kW (15 min/cont)
  - Max torque: 621/477 N·m (15 min/cont)

MU-6300V-L, MU-8000V-L
- Turning spindle
  - Table spindle speed: 800 min⁻¹
  - Max output: 16/12 kW (15 min/cont)
  - Max torque: 1,019/764 N·m (15 min/cont)
Productivity can be further improved with a wide array of automation options

**Flexible automation options**

- **ATC magazines**
  - 48 tools, 64 tools: Chain magazine system
  - Over 64 tools: Matrix magazine system
- **Auto pallet changer (APC)**
  - External setup of workpiece preparations improve machine utilization
  - Good access to machine interior even with APC specs
  - Turning specs can also be selected
- **Extra ports for complex hydraulic/pneumatic fixture arrangements**
  - Max ports: 8 ports (Optional)
  - Different for turning specifications and APC specifications.
- **Auto tool gauging with workpiece mounted**
  - Tool breakage detection/ Auto tool length compensation
- **Automatically measures workpiece alignment and dimensions**
  - Auto zero offset / Auto gauging (radio transmission)

**Excellent chip discharge**

Quick and smooth chip discharge with saddle mounted washer and in-machine coil chip conveyor

- **Recommended Chip Conveyors**
  (Please contact an Okuma sales representative for details.)

<table>
<thead>
<tr>
<th>Workpiece material</th>
<th>Steel</th>
<th>FC</th>
<th>Aluminum / Nonferrous</th>
<th>Mixed (general use)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chip shape</td>
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<tr>
<td>In-machine</td>
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<tr>
<td>Coil (Standard)</td>
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<tr>
<td>Hinge</td>
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<tr>
<td>Scraper</td>
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<tr>
<td>Scraper (with drum filter)</td>
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<tr>
<td>Hinge + scraper (with drum filter)</td>
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<tr>
<td>Off-machine (Optional)</td>
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<tr>
<td>CoD (Dry-Wet)</td>
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<tr>
<td>Hinge</td>
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<td>Scraper</td>
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<tr>
<td>Scraper (with drum filter)</td>
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<tr>
<td>Hinge + scraper (with drum filter)</td>
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<tr>
<td>Off-machine lift-up chip conveyors</td>
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</tr>
<tr>
<td>Type</td>
<td>Hinge</td>
<td>Scraper</td>
<td>Scraper (with drum filter)</td>
<td>Hinge + scraper (with drum filter)</td>
</tr>
<tr>
<td>Shape</td>
<td></td>
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</tr>
</tbody>
</table>

- 1. When there are many fine chips
- 2. When chips are longer than 100 mm
- 3. When chips are shorter than 100 mm
- 4. When there are few fine chips

Safe, reliable chip discharge

- **In-machine chip discharge (coil) (Standard)**
- Washer on saddle (Standard)
- **Off-machine chip discharge (lift-up chip conveyor) (Optional)**

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*Images and diagrams not included in this text.*
High accuracy 5-axis machining is achieved with advanced technology

The unique approach of “accepting temperature changes”
Thermo-Friendly Concept

- Thermo-friendly structure gives outstanding thermal stability
- Eliminate waste with the Thermo-Friendly Concept

In addition to maintaining high dimensional accuracy when room temperature changes, Okuma’s Thermo—Friendly Concept provides high dimensional accuracy during machine startup and machining restart. To stabilize thermal deformation, warming-up time is shortened and the burden of dimensional correction during machining restart is reduced.

Thermo Active Stabilizer—Construction (TAS-C)
Thermo Active Stabilizer—Spindle (TAS-S)

High dimensional change over time minimized with outstanding dimensional stability

1. Minimal thermal deformation
2. Manageable thermal deformation
3. Accurate compensation

Thermo Active Stabilizer—construction

Machine tool idling stop
ECO Idling Stop

Only the necessary units run

ECO suite benefits
- Electricity consumption during non-machining time greatly reduced with “ECO Idling Stop”, which shuts down each piece of auxiliary equipment not in use.
- ECO suite provides a suite of energy-saving functions that can be used on machines
  - “ECO Idling Stop” for operation of necessary units only
  - “ECO Power Monitor” for visual graphics of power consumption
  - Intermittent/continuous operation of chip conveyor and mist collector during operation — “ECO Operation” (Optional)
  - Energy-saving hydraulic unit using servo control technology — “ECO Hydraulics” (Optional)

High dimensional stability

1. TAS-C (Thermo Active Stabilizer—Construction) (Optional)
The TAS-C environmental thermal deformation control accurately controls the machine’s structural thermal deformation by taking into consideration the machine’s thermal deformation characteristics, temperature data from properly placed sensors, and feed axis positioning information.

Machine startup
Machining restart
Room temp change

ECO suite

Gauging and compensation of geometric error
5-Axis Auto Tuning System (Optional)

Higher accuracies in 5-axis machining
5-axis machining accuracy is greatly affected by misalignment and other “geometric errors” on the rotary axis. The 5-Axis Auto Tuning System measures geometric error using a touch probe and datum sphere, and performs compensation using measurement results to tune the movement accuracy on 5-axis machines. In this way 5-axis machining accuracy on a higher level is achieved.

Press START MEASURE key and cycle start button

Cutting condition search for milling
Machining Navi M-i, M-ii, M-iii (Optional)

Automatically changes to optimum spindle speed (M-ii)
Sensors built in to the machine detect and analyze machining chatter. Machining Navi then navigates to the effective measures in a wide range of spindle speeds, from low to high.

Adjust cutting conditions while monitoring the data (M-ii+)
Based on the chatter noise captured by the microphone, Machining Navi displays a number of optimal spindle speed possibilities on the screen. The operator can change to the indicated spindle speed with a single touch and immediately confirm the result.

Collision prevention
Collision Avoidance System (Optional)

World’s first “Collision-Free Machine”
CAS prevents collisions in automatic or manual mode, providing risk-free protection for the machine and great confidence for the operator.

World’s first “Collision-Free Machine”
CAS prevents collisions in automatic or manual mode, providing risk-free protection for the machine and great confidence for the operator.
Command

Runout of insert-type endmill tool edge

Dynamic Tool Load Control (Optional)

Prevents chipping, extends tool life

When machining of difficult-to-cut material, chipping from blade runout often occurs with insert-type end mills. To stabilize such machining, solid end mills with high tool costs have generally been used.

Dynamic Tool Load Control gives uniform cutting force with advanced synchronization of spindle phase and feed rate to control insert-end mill chipping. This improves tool life and stabilizes machining. Switching from expensive solid tools also leads to reduced tool costs.

With simultaneous 5-axis control that produces excellent machined surface quality

Simultaneous 5-axis kit makes it even easier because “Machine & Control” OSP provides advanced features

1. High Speed Contouring Super-NURBS (5-axis specs) (Optional)

High-speed NC function for high accuracy, high quality, and high-speed machining of curved surfaces of any shape with newly-developed “sculptured-surface adaptive acceleration control.”

2. Tool center point control

a. Tool center point control manual feed (Optional)

This feature will provide rotary operation with a tool point as the center when operating the rotary axes manually. When the table is swiveled, axis movement will occur with no change in the tool position on the workpiece.

b. Table origin coordinate manual feed (Optional)

A feature to perform X-Y-Z-axis manual feed (rapid traverse, cutting feed, pulse handle) when origin coordinate systems shift on a swiveling table.

3. Tool tilt compensation (Included in Tool Center Point Control)

The tool angle on a workpiece (tool tilt) in 5-axis machining will change on a waving surface. CAM processing errors will cause the tool to stagger with unnecessary acceleration (deceleration) and reverse angles during axis feed. Simul 5-Axis TTC will keep feedrates steady with a smooth sequence of commands to automatically correct tool tilt angles—resulting in shorter cycle times and smoother surface finishes.

Note: The above are actual examples. Your results may vary due to differences in specifications, tooling and cutting conditions.
### Machine specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>MU-5000V &lt;L-2&gt; No. 40 spindle</th>
<th>MU-6300V &lt;L-2&gt; No. 50 spindle</th>
<th>MU-6300V &lt;L-2&gt; No. 50 spindle</th>
<th>MU-8000V &lt;L-2&gt; No. 40 spindle</th>
<th>MU-8000V &lt;L-2&gt; No. 50 spindle</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tolerance</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>X axis (mm)</td>
<td>800 (31.50)</td>
<td>925 (36.42)</td>
<td>925 (36.42)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y axis (mm)</td>
<td>1,050 (41.34)</td>
<td>1,050 (41.34)</td>
<td>1,050 (41.34)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z axis (mm)</td>
<td>600 (23.62)</td>
<td>600 (23.62)</td>
<td>600 (23.62)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A axis (deg)</td>
<td>+90 to -120</td>
<td>+90 to -120</td>
<td>+90 to -120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C axis (deg)</td>
<td>360</td>
<td>360</td>
<td>360</td>
<td></td>
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<tr>
<td><strong>Machine specifications</strong></td>
<td></td>
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</tr>
<tr>
<td>Spindle size</td>
<td>80 to 680 (3.15 to 26.77)</td>
<td>160 to 760 (6.30 to 29.92)</td>
<td>200 to 800 (7.87 to 31.52)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max work size</td>
<td>ø700 × H500 (ø27.66 × H19.69)</td>
<td>ø800 × H600 (ø30.68 × H21.65)</td>
<td>ø1,000 × H500 (ø39.37 × H21.65)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floor to table top</td>
<td>1,140 (44.88)</td>
<td>1,150 (46.44)</td>
<td>1,210 (47.64)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max load capacity* (kg)</td>
<td>500 (1.10)</td>
<td>600 (1.32)</td>
<td>700 (1.54)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spindle (10 min/cont)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cutting feedrate</td>
<td>A: 18,000 (50 min^-1)</td>
<td>C: 18,000 (50 min^-1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spindle speed</td>
<td>10,000 ([15,000, 20,000, 25,000])</td>
<td>6,000 ([12,000])</td>
<td>6,000 ([12,000])</td>
<td>10,000 ([15,000, 20,000, 25,000])</td>
<td>6,000 ([12,000])</td>
</tr>
<tr>
<td>Tapered bore</td>
<td>7/24 taper No.40 &lt;HSK-A63&gt;</td>
<td>7/24 taper No.50 &lt;HSK-A100&gt;</td>
<td></td>
<td>7/24 taper No.50 &lt;HSK-A100&gt;</td>
<td>7/24 taper No.50 &lt;HSK-A100&gt;</td>
</tr>
<tr>
<td>No. of spindle ranges</td>
<td>Infinitely variable</td>
<td>Infinitely variable</td>
<td>Infinitely variable</td>
<td>Infinitely variable</td>
<td>Infinitely variable</td>
</tr>
<tr>
<td>Bearing dia</td>
<td>ø70 (2.76)</td>
<td>ø90 (3.54)</td>
<td>ø70 (2.76)</td>
<td>ø90 (3.54)</td>
<td>ø90 (3.54)</td>
</tr>
<tr>
<td>Feed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rapid traverse</td>
<td>A: 18,000 (50 min^-1)</td>
<td>C: 18,000 (50 min^-1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. work weight</td>
<td>10,000 ([15,000, 20,000, 25,000])</td>
<td>6,000 ([12,000])</td>
<td>6,000 ([12,000])</td>
<td>10,000 ([15,000, 20,000, 25,000])</td>
<td>6,000 ([12,000])</td>
</tr>
<tr>
<td>Max. tool length</td>
<td>ø800/ ø1,000 × 630 (31.50)/ (24.80)</td>
<td>ø925/ ø1,000 × 700 (39.37)</td>
<td>ø1,000/ ø1,000 × 700 (39.37)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. tool weight</td>
<td>8 (17.8)</td>
<td>12 (26.4)</td>
<td>8 (17.6)</td>
<td>12 (26.4)</td>
<td>8 (17.6)</td>
</tr>
<tr>
<td>Tool selection Memory random matrix magazine is fixed address system</td>
<td>Memory random matrix magazine is fixed address system</td>
<td>Memory random matrix magazine is fixed address system</td>
<td>Memory random matrix magazine is fixed address system</td>
<td>Memory random matrix magazine is fixed address system</td>
<td>Memory random matrix magazine is fixed address system</td>
</tr>
<tr>
<td>Height (mm)</td>
<td>3,450 (135.24)</td>
<td>3,525 (137.8)</td>
<td>3,605 (142.7)</td>
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<td></td>
</tr>
<tr>
<td>Machine size</td>
<td>W x D (w/o operator platform)</td>
<td></td>
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<tr>
<td>Spindle type</td>
<td>MU-5000V &lt;OSP-P300S&gt;</td>
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</tr>
<tr>
<td>Weight (kg)</td>
<td>15,400 (53.86)</td>
<td>15,650 (53.94)</td>
<td>17,500 (58.08)</td>
<td>17,700 (58.84)</td>
<td>18,400 (60.48)</td>
</tr>
</tbody>
</table>

* With APC specifications, there are limits on maximum pallet load and maximum workpiece dimensions.
**Standard specifications / accessories**

- Spindle speed (50 to 10,000 min⁻¹)
  - 1.75 kW (10 min/cont)
- Spindle speed (50 to 20,000 min⁻¹)
  - 1.75 kW (10 min/cont)
- Rapid traverse
  - X, Y, Z: 10 m/min
- Spindle Spindlehead cooling system
- Oil controller
- Ball screw cooling
- X-Z axis
- Air cleaner (filter)
  - Including regulator
- Operation panel with colored LCD
- Pulse handle
- Tapered bore cleaning bar
- A/C axis rotary table
- Multitasking axis 50 to 10,000 min⁻¹
- Multitasking sp 50 to 12,000 min⁻¹
- Wide-range sp 50 to 12,000 min⁻¹
- High-speed sp 50 to 20,000 min⁻¹
- Chemical anchors
- TAS-C
- Chemical anchors
- TAS-S
- Chemical anchors
- Collision Assistance System
- Super-NURBS
- Chip air blower
- Tapped table top
- ATC magazines
- 48-tool, 64-tool (option type)
- 64-tool or more (Matrix type)
- Multitasking axis 50 to 10,000 min⁻¹

**Optional specifications / accessories**

- Spindle speed (50 to 15,000 min⁻¹)
  - No. 40: 22.14 kW (20/50 kW) (10 min/cont)
- Spindle speed (50 to 25,000 min⁻¹)
  - No. 40: 25/40 kW (20/50 kW) (10 min/cont)
- Spindle speed (50 to 30,000 min⁻¹)
  - No. 40: 35/50 kW (20/50 kW) (10 min/cont)
- Spindle speed (50 to 50,000 min⁻¹)
  - No. 50: 50/75 kW (20/50 kW) (10 min/cont)
- Spindle speed (50 to 75,000 min⁻¹)
  - No. 50: 75/100 kW (20/50 kW) (10 min/cont)
- Spindle speed (50 to 100,000 min⁻¹)
  - No. 50: 100/150 kW (20/50 kW) (10 min/cont)

**Standard spindle No. 40**

- Speed: 10,000 min⁻¹ (8,000 min⁻¹ with turning specifications)
- Max output: 11/7.5 kW (10 min/cont)
- Max torque: 198/135 N·m (5 min/cont)

**Standard spindle No. 50**

- Speed: 6,000 min⁻¹
- Max output: 15/11 kW (10 min/cont)
- Max torque: 198/135 N·m (5 min/cont)

**High-speed spindle No. 40**

- Speed: 25,000 min⁻¹
- Max output: 26/18.5 kW (10 min/cont)
- Max torque: 199/146 N·m (5 min/cont)

**High-speed spindle No. 50**

- Speed: 20,000 min⁻¹
- Max output: 30/22 kW (10 min/cont)
- Max torque: 27/4 N·m (10 min/cont)

**Wide-range spindle No. 40**

- Speed: 15,000 min⁻¹ (12,000 min⁻¹ with turning specifications)
- Max output: 22/18.5 kW (10 min/cont)
- Max torque: 199/146 N·m (5 min/cont)

**Wide-range spindle No. 50**

- Speed: 20,000 min⁻¹ (10,000 min⁻¹ with turning specifications)
- Max output: 30/22 kW (10 min/cont)
- Max torque: 27/4 N·m (10 min/cont)

**Multi-pallet APC dimensional drawing**

- (with MU-6300V (Optional))

**2-pallet APC**

- Speed: 20,000 min⁻¹
- Max output: 30/22 kW (10 min/cont)
- Max torque: 27/4 N·m (10 min/cont)

**6-pallet APC**

- Speed: 20,000 min⁻¹
- Max output: 30/22 kW (10 min/cont)
- Max torque: 27/4 N·m (10 min/cont)
The Next-Generation Intelligent CNC

It is a suite of premium applications to increase the efficiency of each manufacturing process by increasing status visibility and digitizing shop floor production instructions, setup information, machining and utilization, machine maintenance information and more. Intelligent, fast machining and efficient "monozukuri" (craftsmanship-based manufacturing) achieved with a control interface that can be operated on a new dimension.

suite apps

In addition to Okuma’s Intelligent Technology, a rich array of applications is available for visualization and digitization of information needed on shop floors to support high-level “monozukuri”.

suite operation

A highly reliable touch panel suited to shop floors is used. Suite apps can be started by touching a function key icon on the right side of the screen. They are then displayed in a pop-up window. The icon layout is customizable. Suite apps can be accessed with one touch according to the desired phase of operation.

Actual Load

Maintenance Monitor that displays daily and regular check items

Tool Data
### Working range

**MU-5000V**
- Max table load capacity: 500 kg

**MU-6300V**
- Max table load capacity: 600 kg

**MU-8000V**
- Max table load capacity: 700 kg

### Max workpiece dimensions (with APC)

**MU-5000V (P)**
- Max pallet load capacity: 400 kg

**MU-6300V (P)**
- Max pallet load capacity: 450 kg

**MU-8000V (P)**
- Max pallet load capacity: 550 kg

Unit: mm
This product is subject to the Japanese government’s Foreign Exchange and Foreign Trade Control Act with regard to security-controlled items; whereby Okuma Corporation should be notified prior to its shipment to another country.

When using Okuma products, always read the safety precautions mentioned in the instruction manual and attach to the product.

The specifications, illustrations, and descriptions in this brochure vary in different markets and are subject to change without notice.