DMU eVo Series

DMU 40 eVo
DMU 60 eVo
DMU 80 eVo
The DMU 40 / 60 / 80 eVo combine the flexibility of modern universal milling machines with the performance potential of vertical machining centers. The innovative machine design, optional X- / Y-axis linear drives and the proven swivel rotary table are just a few of the many features that deliver maximum flexible productivity. The NC swivel rotary table, with its large swivel range, offers 5-axis simultaneous machining for exceptional surface quality while also expanding your application possibilities with complete machining of single parts or in serial production runs. Whether for machine construction, tool and mold making, medical technology, automotive, or aerospace projects – when precision and flexibility are as important as time and cost savings, the DMU eVo Series delivers efficient technology for unmatched results.
3: Face mill, tool making  4: Titanium valve block, aerospace  
5: Steering knuckle support, automotive  6: Tire mold, mold making

Hydraulic component / Formula 1:  
The DMU eVo linear completely machines workpieces in just two setups, even with simultaneous 5-axis operation.
The new DMU 40 / 60 / 80 eVo machines are world-class successors to the proven DMU eVo product line. They are fully redesigned as portal machines, which significantly increases rigidity and precision. Compared to a conventional portal design, this “optimized portal” offers improved side access, longer travel paths and a larger work area—all on a compact footprint. The flexible swivel rotary table has been retained while table load capacity, dynamics and swivel range have been significantly increased.

The DMU 40 / 60 / 80 eVo Series with ball screws offers economical 5-axis machining. And for even greater productivity, a dynamics package is available that includes X- & Y-axis linear drives. Further customization solutions include milling / turning technology or a pallet changer for enhanced universal operations.
1: Dynamics package with linear drives in the X- & Y-axis as well as 3,149.6 ipm. rapid traverse in all axes
2: Simultaneous 5-axis machining with a powerful 18,000 rpm. spindle
DMU 40 / 60 / 80 eVo highlights

+ The revolutionary machine design brings unmatched rigidity and precision as well as impressive accessibility with the largest work area - all on a compact footprint

+ Highly dynamic swivel rotary table for simultaneous 5-axis operation with a –5° to +110° swivel range and max. 1,322.8 lbs. load capacity

+ Two drive options: entry-level version with a ball screw drive and 1,968.5 ipm. rapid traverse or dynamic version with two linear drives and 3,149.6 rapid traverse

+ Short approach and positioning times through high accelerations up to 32.8 ft./sec.²

+ Valuable standard equipment: 30-slot tool magazine, 14,000 rpm. spindle, NC swivel rotary table, direct measuring systems

+ Optional space-saving pallet changer for greater productivity

+ Optional milling / turning (FD) technology

+ CELOS® with a 21.5” multi-touch display on a Siemens 840D solutionline control
The highly dynamic swivel rotary table enables simultaneous 5-axis operation with a -5° to +110° swivel range for complex workpieces weighing up to 1,322.8 lbs.
DMU eVo Series

Revolutionary work area concept with an optimized portal design.

The machine's construction features minimal axes projection for unparalleled stability and rigidity over the entire travel area that delivers impressive long-term precision.

Positioning of the Y-slide and a round cabin design offer easy access to the work area. Even with integrated handling systems, front access to the work area is retained. Additionally, the machine’s shallow reach-in depth and optimal loading height provide favorable ergonomics.

A left-side positioned tool magazine and chain carrier layout offer a similar setup area for all magazine sizes.
1. **Guides and drives**
   outside and above the work area

2. **Linear drives**
   in the X-axis and Y-axis

3. **Magazine**
   for up to 120 tools

4. **NC swivel rotary table**
   also available with a pallet changer or as a torque table

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**Optimized portal design**

+ Compact footprint and improved accessibility versus conventional gantry designs
+ Easy access: tool magazine, machine and handling system access from the front
+ Large work area and load capacity up to 1,322.8 lbs.
+ Easy crane loading from above
Applications and parts
Machine and technology
- Innovations
Control technology
Technical specifications

DMU eVo Series:
In addition to offering optimal accessibility and impressive dynamics, the eVo Series delivers exceptional performance and power options with 10,000 rpm. and 18,000 rpm. motor spindles.

1: Tool magazine loading during operation
2: Double gripper for reliable and fast tool transfer
3: Optional internal coolant supply
4: 18,000 rpm. spindle for dynamic machining
DMU eVo Series

Advanced technology through innovation – high-tech in every way.

Perfectly harmonized advanced features in a compact design guarantee the greatest precision and efficiency. For example, the tool changer with a double gripper not only offers impressive speed with 5-second chip-to-chip times, but the versatile magazine options give you capacity flexibility for 30, 60 or even 120 tools. The dynamic version also features wear-free linear drives in the X-axis and Y-axis for unparalleled precision and 3,149.6 ipm. rapid traverse.

In addition to the standard 14,000 rpm. motor spindle, 10,000 rpm., 18,000 rpm., 24,000 rpm. or 40,000 rpm. options are available for any requirement. The internal coolant supply (with up to 1,160.3 psi.) and minimal lubrication can further guarantee optimal results and surface quality. Whether standard or custom – DMU eVo machines expand your production capabilities.

5: Ball screw with 1,968.5 ipm. rapid traverse (standard)
6: Dynamic version with 3,149.6 ipm. rapid traverse and a linear motor with direct measuring systems for exceptional precision
Fast and strong for tough jobs.

**Knee joint / Medical technology**
Up to 100 rpm. (B-axis), 150 rpm. (C-axis) and max. -20° machining angles guarantee efficient complete machining for single part or serial production.
DMU eVo Series

Table options for all applications. Swivel range up to -20 degrees.

The best options for top performance at an unbeatable price - DMU 40 / 60 / 80 eVo machines fit these demands perfectly. Reduced downtime and increased productivity are achieved with rapid traverses of up to 60 rpm in the B-axis and 60 rpm in the C-axis. A large B-axis swivel range also offers -20° machining angles for greater complete production capabilities.

In addition to the NC swivel rotary table, a torque table with 100 rpm. (B-axis) and 150 rpm. (C-axis) as well as the max. 1,200 rpm. milling / turning table guarantees unmatched production flexibility.
DMU eVo Series

Maximum productivity: 5-axis machining with a compact pallet changer.

For greater productivity, the new eVo Series can be equipped with a pallet changer. Setup during operation and fast pallet changing reduces downtime for more efficient production.

Here again, the advantages of an optimized portal design are clear—the pallet changer only slightly increases the overall footprint and work area accessibility is maintained.
1–2: Fast pallet changing

**Highlights**

+ **Fast pallet changing** for reduced downtime
+ **Compact design** and a small footprint
+ **Great accessibility** to the setup station & work area
Simplified machine operation. Comprehensive integration for your business.

ERGOline® panel with a 21.5” multi-touch display & SIEMENS control.

**Consistent**
Consistent interface across all new DMG MORI machines.

**Comprehensive**
Comprehensive management, documentation and visualization of jobs, processes and machine data.

**Compatible**
Compatible with PPS / ERP systems, CAD / CAM products and all CELOS® APPs.

Just like a smartphone, the APP MENU offers direct access to all available programs.
DMU eVo Series

**CELOS® – from your idea to the finished product.**

CELOS® offers a uniform interface for all high-tech machines from DMG MORI with APPs that deliver comprehensive management, documentation and visualization of jobs, processes and machine data. Your machine operations are simplified, standardized and automated. The latest CELOS® features 16 APPs, giving you optimal direct control over your production planning and execution.

**CELOS® APPs – 3 examples:**

**JOB MANAGER**

*Systematic job planning, management and preparation.*

- Machine-specific job setup
- Organized storage of all relevant production data and documentation
- Clear job visualization, including NC programs, equipment, etc.

**JOB ASSISTANT**

*Define and process jobs.*

- Menu-guided machine setup and interactive job processing
- Reliable error warnings through step-by-step screen guidance and confirmation windows

**TOOL HANDLING**

*Faster setup with “estimated / actual” comparisons to streamline magazine loading for sequential jobs.*

- Display of all required tools for a specific job, including automatic generation of a loading list
- Creation of a unloading list via automatic identification of unnecessary parts for upcoming jobs

DMU eVo Series – from your idea to the finished product.
Exclusive DMG MORI Technology Cycles (optional)

**MPC – Machine Protection Control**
- Machine protection via quick shut-off function
- Vibration sensors on the milling spindle
- Shut-off function with teach technology
- Process monitoring via bar graph display
- Milling spindle bearings diagnosis

**ATC – Application Tuning Cycle**
- Process optimization with the push of a button
- Practical feed drive tuning
- Faster machining and maximum part quality, even for heavy workpieces

**3D quickSET°**
- Fast and easy for the greatest precision
- Toolkit for inspection and adjustment of the kinematic precision (4- & 5-axis configurations)
- All heads and table axes

**CELOS® featuring a 21.5˝ monitor:**
Benefit from impressive 3D simulation, large memory capacity as well as a fast processor and simple user interface.
Modern control systems offer superior performance and a user-friendly operator experience. DECKEL MAHO confidently looks to the global market leaders Siemens and Heidenhain for these qualities and further supplements seamless operations with proprietary software solutions, including DMG Virtual Machine and DMG Process Chain.

**Siemens 840D solutionline**
- New SINUMERIK Operate user interface
- 3D simulation
- Fast network connection
- 2 GB of memory
- Fast editing of large programs
- Easy, graphically supported setup
- Comprehensive tool management
- 19” monitor

**Advantages**
- Easiest interactive programming
- Programming without additional documentation
- Extensive cycle selection
- Reliability through pre-production simulation
- Efficient tool handling

**Heidenhain iTNC 530 HSCI**
- Shopfloor or DIN/ISO programming
- 3D simulation
- Simple editing of large programs
- Coordinates transformation
- Tool management with interactive support system
- Pentium 2 processor
- 19” monitor

**Advantages**
- Familiar and proven Heidenhain programming interface
- Fastest programming
- Extensive cycle selection
- Reliability through pre-production simulation
- Efficient tool handling

**ERGoline®**

High-end CNCs for reliable processes and maximum precision
DMU eVo Series

Floor plans

DMU 40 eVo
Front view

DMU 60 eVo
Front view

DMU 40 eVo
Top view

DMU 60 eVo
Top view

DMU 40 eVo (with pallet changer)
Top view

DMU 60 eVo (with pallet changer)
Top view
DMU eVo Series

Torque / performance charts

Motor spindle: 10,000 rpm.*

Motor spindle: 14,000 rpm. (standard)

Motor spindle: 18,000 rpm.*

Motor spindle: 24,000 rpm.*

Motor spindle: 40,000 rpm.*

* Optional
Energy efficient with DMG MORI machines

Up to 30% energy savings

As co-founder of the Blue Competence Initiative, sustainable production technology and resource allocation is already standard on DMG MORI production lines. Thanks to intelligent technologies, our machines consume on average 30% less energy over their service lives.

**Intelligent control technology:**

+ **DMG AUTOshutdown:**
  Intelligent standby regulation for minimized energy use during idling

+ **DMG GREENmode:**
  Faster processes and greater energy savings through intelligent feed regulation

+ **Simulation with DMG Virtual Machine:**
  Quick setup and reduced downtime with pre-production simulation

**Intelligent electronics and drive technology:**

+ Optimal drive layout
+ Regulated motor component technology
+ Regenerative drives

**Optimized mechanics:**

+ Reduced moving masses and optimal weight balancing
+ Minimized friction

The revolutionary work area and portal design of the new eVo Series offers unbeatable flexibility and efficiency for simultaneous 5-axis machining of up to 1,122.3 lbs. workpieces.
### Technical specifications

#### Work area
- Travel (X- / Y- / Z-axis) in.
- Distance (spindle nose – table) in.

<table>
<thead>
<tr>
<th>DMU 40 eVo</th>
<th>DMU 60 eVo</th>
<th>DMU 80 eVo</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.7 / 15.7 / 14.8</td>
<td>14.9 / 14.9 / 13.8</td>
<td>13.8 / 13.8 / 12.8</td>
</tr>
<tr>
<td>4.9–19.7</td>
<td>4.7–18.7</td>
<td>4.5–17.7</td>
</tr>
</tbody>
</table>

#### Main drive
- AC motor spindle (SK40 / HSK-A63*) rpm.
- Drive power (40 / 100% DC) hp.
- Torque (40 / 100% DC) ft. / lbs.
- Motor spindle (SK40* / HSK-A63*) rpm.
- Drive power (40 / 100% DC) hp.
- Torque (40 / 100% DC) ft. / lbs.
- AC motor spindle (SK40* / HSK-A63*) rpm.
- Drive power (40 / 100% DC) hp.
- Torque (40 / 100% DC) ft. / lbs.

<table>
<thead>
<tr>
<th>DMU 40 eVo</th>
<th>DMU 60 eVo</th>
<th>DMU 80 eVo</th>
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<tbody>
<tr>
<td>14,000</td>
<td>13,000</td>
<td>12,000</td>
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<tr>
<td>25.3 / 18.8</td>
<td>23.5 / 17.5</td>
<td>22.0 / 16.0</td>
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<tr>
<td>73.8 / 54.6</td>
<td>68.0 / 47.0</td>
<td>63.0 / 42.0</td>
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<td>10,000</td>
<td>9,000</td>
<td>8,000</td>
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<td>61.7 / 40.2</td>
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<td>51.0 / 33.0</td>
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<tr>
<td>147.5 / 95.9</td>
<td>135.0 / 85.0</td>
<td>120.0 / 75.0</td>
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<td>18,000</td>
<td>16,000</td>
<td>14,000</td>
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<tr>
<td>46.9 / 33.5</td>
<td>42.0 / 28.0</td>
<td>38.0 / 24.0</td>
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<tr>
<td>95.9 / 64.2</td>
<td>88.0 / 57.0</td>
<td>80.0 / 50.0</td>
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<tr>
<td>24,000</td>
<td>22,000</td>
<td>20,000</td>
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<tr>
<td>32.2 / 21.5</td>
<td>28.0 / 18.0</td>
<td>24.0 / 15.0</td>
</tr>
<tr>
<td>73.8 / 49.4</td>
<td>68.0 / 43.0</td>
<td>60.0 / 36.0</td>
</tr>
</tbody>
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#### Feed drives
- Standard configuration (X- / Y- / Z-axis) ipm.
- Dynamic configuration (X- / Y- / Z-axis)* ipm.

<table>
<thead>
<tr>
<th>DMU 40 eVo</th>
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<th>DMU 80 eVo</th>
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<tbody>
<tr>
<td>1,968.5</td>
<td>1,900.0</td>
<td>1,800.0</td>
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<tr>
<td>3,149.6</td>
<td>3,050.0</td>
<td>2,950.0</td>
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</tbody>
</table>

#### NC swivel rotary table
- Clamping area in. × in.
- Table load lbs.
- Swivel range (B-axis) degrees
- Turning range (C-axis) degrees
- Speed (B- / C-axis) rpm.
- Speed (milling / turning table) rpm.
- Toolholder slots

<table>
<thead>
<tr>
<th>DMU 40 eVo</th>
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<th>DMU 80 eVo</th>
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</thead>
<tbody>
<tr>
<td>17.7 × 15.7</td>
<td>16.5 × 14.5</td>
<td>15.3 × 13.3</td>
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<tr>
<td>551.2</td>
<td>500.0</td>
<td>450.0</td>
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<tr>
<td>–5 / +110</td>
<td>–4.5 / +105</td>
<td>–4.0 / +100</td>
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<tr>
<td>360</td>
<td>320</td>
<td>280</td>
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<tr>
<td>60 / 60</td>
<td>55 / 55</td>
<td>50 / 50</td>
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<td>1,200</td>
<td>1,100</td>
<td>1,000</td>
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<td>30</td>
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#### Dimensions
- Footprint (without control cabinet cooler) in. × in.
- Height in.

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<thead>
<tr>
<th>DMU 40 eVo</th>
<th>DMU 60 eVo</th>
<th>DMU 80 eVo</th>
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<tbody>
<tr>
<td>80.7 × 110.8</td>
<td>78.0 × 108.0</td>
<td>75.0 × 105.0</td>
</tr>
<tr>
<td>99.6</td>
<td>96.0</td>
<td>92.0</td>
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#### Controls
- CELOS® with a 21.5” multi-touch display
- ERGOline®
- with a 19” display and 3D software
- Siemens 840D solutionline
- Siemens 840D solutionline
- Heidenhain iTNC 530 HSCI

* Optional

### Options

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<tr>
<th>DMU 40 eVo</th>
<th>DMU 60 eVo</th>
<th>DMU 80 eVo</th>
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<tbody>
<tr>
<td>Toolholder (60 / 120 slots)</td>
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<tr>
<td>Internal coolant supply (580.2 psi.)</td>
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<tr>
<td>Internal coolant supply (580.2 / 1,160.3 psi. switchable)</td>
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<tr>
<td>Chip conveyor</td>
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<tr>
<td>Counterholder</td>
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<tr>
<td>Programmable coolant nozzles</td>
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<tr>
<td>Oil mist / emulsion separator</td>
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<tr>
<td>Pallet changer</td>
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<tr>
<td>Milling / turning table</td>
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<td>DMU 60 eVo</td>
<td>DMU 80 eVo</td>
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<td>112.8</td>
<td>120.1</td>
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- Infrared measuring sensor
- Laser tool measuring
- Minimal lubrication
- Air blast through the spindle center
- Hydraulic workpiece clamping
- Handling system preparation
- Electronic hand wheel
- Automatic work area door