Advanced DMG MORI technology for tool and mold making

Ra < 0.000006 in.
surface quality
& < 0.0002 in.
long-term precision

Die & Mold
Expertise in tool and mold making

Benefit from the expertise of a technology leader: together we will optimize your manufacturing procedures, develop comprehensive turnkey technology solutions and support you throughout the entire production process.
Ra < 0.000006 in.
surface quality & < 0.0002 in.
long-term accuracy

Maximum precision with 0.0002 in. consistent accuracy thanks to sturdy construction & innovative cooling features
Up to 40,000 rpm. spindles for maximum surface quality
For large molds up to 88,184.9 lbs.
New technologies: surface patterning and additive manufacturing
Advanced control technology featuring CELOS® on a Siemens or Heidenhain TNC 640
DMG Process Chain – from programming to a finished workpiece
Maximum precision from small to XXL

Up to 88,184.9 lbs. workpieces

Our high-tech equipment is the most advanced and precise technology for tool and mold on the market. The industry-leading DMG MORI machine design, with more than 30,000 machines installed worldwide, features only the best spindle and control technology.
### 3-axis

**NVX 5000 Series**

Increased efficiency thanks to a faster 13,000 rpm. spindle. Excellent stability and damping with sliding guides in all axes.

**NVX 5100**

Mold for radiator grill
Material: SKD61
Dimensions: 27.6 × 17.7 × 5.9 in.
Production time: 33 hours

### 5-axis

**HSC 30/70 linear**

Innovative cooling and 40,000 rpm. HSC spindles with shaft, flange and jacket cooling for maximum long-term precision and Ra < 0.000006 in. surface quality.

**DMU eVo linear**

Dynamic 5-axis machining with linear drives and a modern work area design. Also available with a 2-tray pallet changer (optional).

**DMU monoBLOCK®**

Swivel rotary table with high load capacity and impressive dynamics. Moveable table for fast machining and excellent surface quality.

**HSC 70 linear**

Injection mold for headlights
Material: 1.2312
Dimensions: 26.8 × 15.7 × 13.8 in.
Ra < 0.000006 in.
**DMU PORTAL**

Highly stable portal design enables maximum precision with the best dynamics for machining of workpieces up to 118.1 × 236.2 in.

**DIXI 210 / 270**

High-precision machines with volumetric accuracy up to 0.001 in., 3-point support with cast iron components for ultimate precision by dynamic finishing and power milling.

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**DMU 340 P**

Mold insert for bumpers  
Material: 21CrNiMo2  
Dimensions: 98.4 × 39.4 × 55.1 in.

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**LASERTEC 45 Shape**

Laser texturing of geometrically defined injection mold surface structures for automotive, consumer electronics, lifestyle and blow molding.

**LASERTEC 65 3D**

Additive Manufacturing – laser cladding and milling on one machine for complete, high-quality 3D parts production.

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**LASERTEC 45 Shape**

Injection mold for tablet PC cover  
Material: aluminum  
Dimensions: 11.4 × 8.7 × 2.6 in.  
Production time: 25 hours

**LASERTEC 65 3D**

Turbine housing  
Material: stainless steel  
Dimensions: 7.1 × 5.9 in.  
Production time: 230 minutes (laser cladding), 76 minutes (milling)
HSC 30/70 linear

Greatest long-term precision and 
Ra < 0.000006 in. surface quality

HIGHLIGHTS

- **Highest long-term accuracy** with innovative 
  cooling and a thermo symmetrical design
- **Impressive Ra < 0.000006 in.** surface quality via 
  HSC spindles with shaft, flange and jacket cooling
- **Linear motors in all axes come standard** for 
  unmatched dynamics and precision with max. 
  3,149.6 ipm. rapid traverse and a 5-year warranty
- **Also available as ULTRASONIC 30 linear:** 
  efficient ULTRASONIC milling and grinding 
  of advanced materials

High precision via a magnetic 
measuring system with 0.0000004 in.

<table>
<thead>
<tr>
<th></th>
<th>HSC 30 linear</th>
<th>HSC 70 linear</th>
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<tbody>
<tr>
<td>Travel (X / Y / Z), in.</td>
<td>12.6 / 11.8 / 11.0</td>
<td>25.6 (33.5)* / 23.6 / 15.0 (17.7)*</td>
</tr>
<tr>
<td>Fixed table, in./lbs.</td>
<td>15.7 x 15.0 / 440.9</td>
<td>33.5 x 23.6 / 1,543.2</td>
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<tr>
<td>NC table, in./lbs.</td>
<td>ø 9.8 / 176.4</td>
<td>ø 23.6 / 1,102.3</td>
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*5-axis version
Linear drive with up to 3,149.6 ipm. rapid traverse in all axes (standard)

- 5-year warranty for linear drives
- Low maintenance & lifecycle costs: no mechanical transmission parts, no wear
- Max. 2 g acceleration in X / Y / Z

HSC spindle with shaft, flange and jacket cooling

- Up to 70% less tool expansion
- Approximately 5x faster warm-up to stable temperature
- Thermally stable process conditions
- Discharge of heat accumulated in rotor

Thermo symmetrical design for unbeatable workpiece precision.

Thermo symmetrical portal design & innovative cooling

- Cooled components: machine bed & portal linear drives linear guides (pressure plates) Z-slides
Portal Series

Maximum precision & surface quality for large workpieces up to 44.8 t.

**HIGHLIGHTS**

- **Large work area** for workpieces up to 236.2 in. x 137.8 in. and 44.8 t.
- **Effortless deep mold penetration** through optimized milling head interference contour
- **50 % more dynamic** thanks to new drive technology in the NC rotary table
- Interchangeable 30,000 rpm. HSC pick-up spindle
- Highest precision through **optimized temperature stability**: 0.0006 in. for 19.7 ft. travel
- **Quick machine setup** without a base thanks to 3-point foundation support (excludes DMU 600 P)
- Also available as **LASERTEC Shape**: flexible laser head integration via HSK interface for milling & laser texturing of injection molds on one machine

**DMU 270 P**

5-axis production for max. 13.4 t. workpieces

<table>
<thead>
<tr>
<th>DMU 270 P</th>
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<tr>
<td>Travel (X / Y / Z), in.</td>
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<tr>
<td>Rapid traverse, ipm.</td>
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<tr>
<td>Spindle speed, rpm.</td>
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<tr>
<td>Power, hp.</td>
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</table>
Portal design for impressive rigidity with maximum milling performance

- Large vertical passages
- High axis dynamics with up to 236.2 in./sec.²
- Highly static and dynamically rigid bed (GG 30), portal (GGG 60)
- Extensive cooling features come standard
- Optimal chip flow to the rear via a large chip conveyor passage
- Ergonomic design

Mold making spindle from DMG MORI

- Motor spindle with 15,000 rpm., 69.7 hp. of power & 295.0 ft./lbs. of torque
- HSK-A100 toolholder
- Cartridge design for quick change out
- Maximum precision: Spindle Growth Sensor (SGS) to compensate for spindle growth (comes standard)
- Mold spindle optionally available for duoBLOCK® 4th Generation & DIXI machines

DIXI 270 – unmatched accuracy with 80% greater volumetric precision

- Positioning accuracy in X / Y / Z: 0.0002 in.
- Temperature control of all heat-generating machine components
- Greatest rigidity for maximum milling performance (GGG-60 cast iron components)
- Custom user optimization: thermal expansion & volumetric compensation tailored to conditions

More Precise
Additive manufacturing of high-quality 3D parts.

Laser cladding & milling on one machine

LASERTEC 65 3D

Travel (X / Y / Z), in. 28.9 / 25.6 / 22.0
Workpiece dimensions, in. ø 19.7 × 13.8
Load weight, max., lbs. 1,322.8

LASER CLADDING

1. Laser buildup of the cylinder
2. Generation of the contours
3. Finish with conical taper

MILLING

4. Milling of the outer contours

5. Automatic switching from milling to laser cladding
6. Build up of the vane
7. Milling of the vane
8. Finishing

Application example: impeller / stainless steel
Laser cladding: 312 minutes production time
Milling: 240 minutes production time
LASERTEC 45 Shape

A new dimension in high-precision 3D laser cladding & texturing.

**HIGHLIGHTS**

- **80% larger work area** with the same footprint as well as **3x greater dynamics** with 2,362.2 ipm. rapid traverse (vs. LASERTEC 40).
- **5-axis laser machining** possible via integrated swivel / rotary axis with torque motors (optional).
- **Siemens 840D sl** with 15” touchscreen: direct programming on the control.

**APPLICATIONS**

- **Production**
  - Laser cladding: filigree cavities for miniature forms
  - Prototypes and small series production of complex lightweight / integral components
- **Repair**
  - Repair of damaged and worn parts
- **Coating**
  - Application of corrosion-resistant and wear-resistant coatings
- **Repair**
  - Application of corrosion-resistant and wear-resistant coatings

**LASERTEC Shape Series:**
- Injection molds up to 82.7 in. and 9.0 t.
DMG MORI Services
Machine reliability thanks to worldwide service support from the manufacturer.

We know that machine **reliability and consistent precision** is key to **success in tool and mold making**. Our service and support offerings are focused on ensuring that your business is able to **confidently meet the demands** of a highly competitive industry.

**HIGHLIGHTS**

- Over 95% global spare parts availability
- More than 260,000 different spare parts in stock
- 24/7 Service Hotline: around the clock support
- 60% of all issues resolved over the phone
- Over 2,500 certified Service Technician worldwide
- DMG MORI Spindle Service - from quick repair to full replacement
- Professional training & development

**DMG MORI Academy**
greater productivity through training!

- Comprehensive training program with special courses for tool and mold making
- Hands-on training directly on the machine in small groups for maximum course benefit
- Highly qualified instructors & modern equipment
- Valuable training materials
- Formal certificate upon successful course completion

**CONTACT:** training@dmgmori.com

**DMG MORI Microset**
UNO – customizable for any requirement!

- FEM-optimized and thermally stable cast iron construction
- Customizable through modular concept
- Tool measuring in snap gauge principle up to ø 3.9 in.
- LED light for cutting edge control
- Data connection via USB, LAN Ethernet & RS232
- Optionally available with autofocus or full automation

**Measuring range:**

\[X = \pm 7.9 \text{ to } -2.0 \text{ in.} \]
\[Z = 15.7 / 27.6 \text{ in.} \]

**United States:** (855) DMG-MORI (855) 364-6674
DMG Process Chain
Fast, reliable production with certified CAD / CAM & unique 1 : 1 simulation

PROGRAMMING WITH SIEMENS NX CAD / CAM

1 : 1 SIMULATION WITH DMG VIRTUAL MACHINE

PRODUCTION WITH DMG MORI MACHINE TOOLS

CELOS® for PCs
Plan and control your production processes in advance. With CELOS® for PCs, you can also comprehensively integrate other machines and equipment into one unified system.

"Easy access via an external computer – with CELOS® I can bring my office to the machine."

“I have all the required information for a given job electronically available.”

NEW!

STATUS MONITOR
Comprehensive management, documentation and visualization of jobs, processes and machine data as well as timely maintenance notifications

MULTI-TOUCH INTERFACE
for exceptional user comfort and unique functionality

CELOS®
with MAPPS
CELOS® offers a uniform interface for all high-tech machines from DMG MORI. CELOS® APPs deliver comprehensive management, documentation and visualization of jobs, processes and machine data. Your machine operations are simplified, standardized and automated. The latest CELOS® now features 4 new APPs and uniquely integrates the machine with your company’s infrastructure for a seamlessly comprehensive digital production process.

4 new CELOS® APPs available today!

- JOB SCHEDULER
- TOOL HANDLING
- MESSENGER
- SERVICE AGENT

21.5" MULTI-TOUCH MONITOR
for quick and easy operation

APP MENU
Centralized access to all available applications

Comprehensive machine integration for your company with simplified operation.
DMG MORI Center of Excellence

HSC Center in Geretsried, Germany & Mold Laboratory in Nara, Japan

Our Center of Excellence in Geretsried and Nara cover every aspect of the tool and mold making industry. Experienced DMG MORI Application Technicians can produce sample parts onsite while also providing insight on proper tool selection, milling strategies and industry trends. Along with our technology partners, we offer the most comprehensive solutions for tool and mold making. The Mold Laboratory in Nara even has eroding and injection molding machines for a truly complete representation of the manufacturing process. A wide range of engaging, practical seminars supplement the live demonstrations.

All new product innovations from DMG MORI for tool and mold making are available for demonstration at any time. Make an appointment with us today!

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Email: die-and-mold@dmgmori-usa.com

Experience the entire process chain of modern HSC technology live in our centers of excellence.