

**DMG MORI**

DMV 115  
DMV 145  
DMV 185

VERTICAL MACHINING CENTERS

## DMV Series



DMGMORI.COM

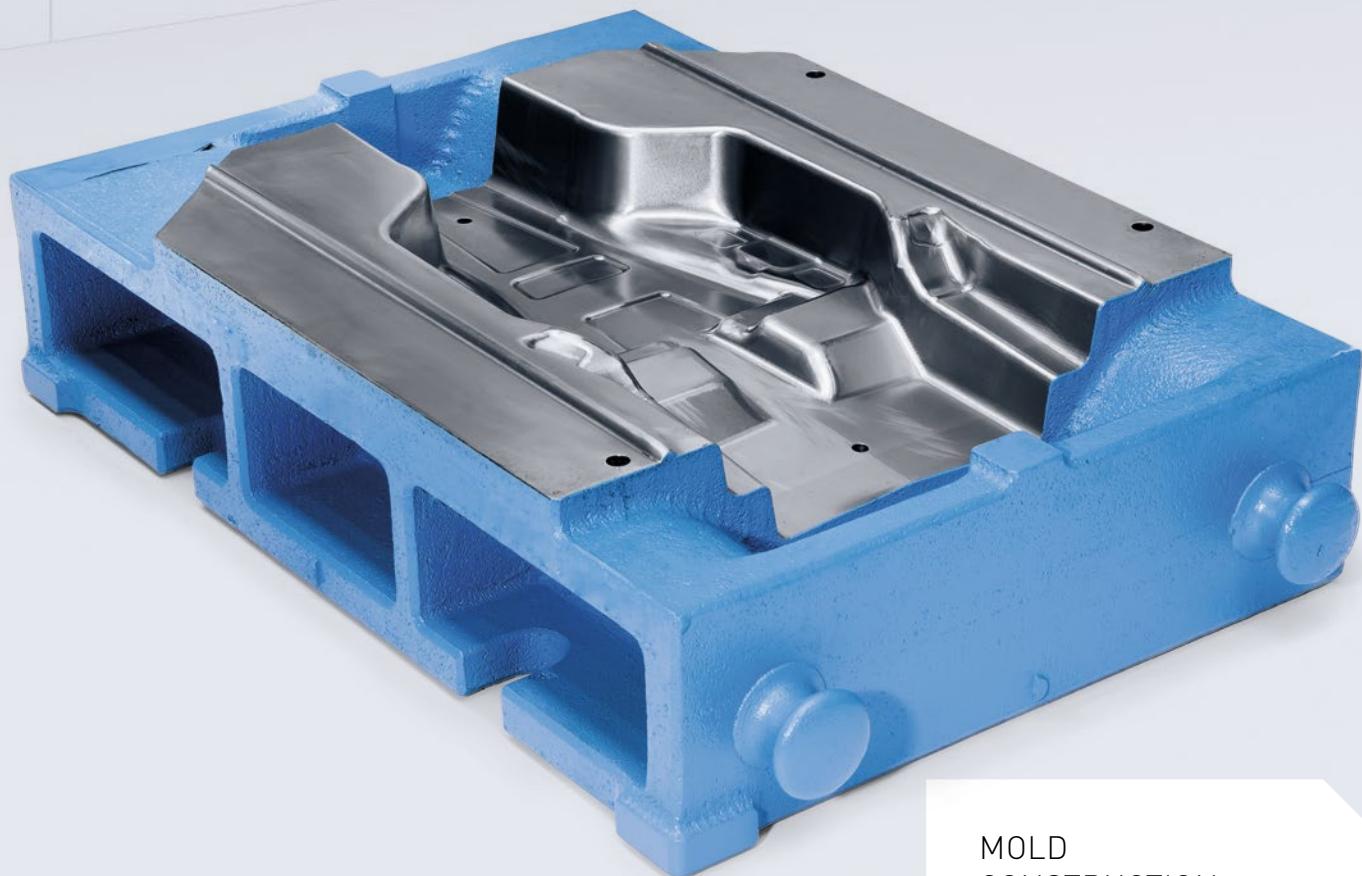
DMV SERIES

## Powerful vertical machining with maximum dynamics

The machine models in the DMV model series are oriented to the different requirements of future 3-axis milling, and have therefore been designed under the aspects of performance capability, dynamics, flexibility and accuracy.

With the DMV series, DMG MORI is providing a continuous machine model series which provides an optimum solution for challenges in the area of mechanical engineering in general, the aerospace industry, in the job shop and in tool and mold construction.

02



### MOLD CONSTRUCTION

Die made from cast iron



## AEROSPACE

Structural frame made from aluminum



## JOB SHOP

Segment strip made from steel



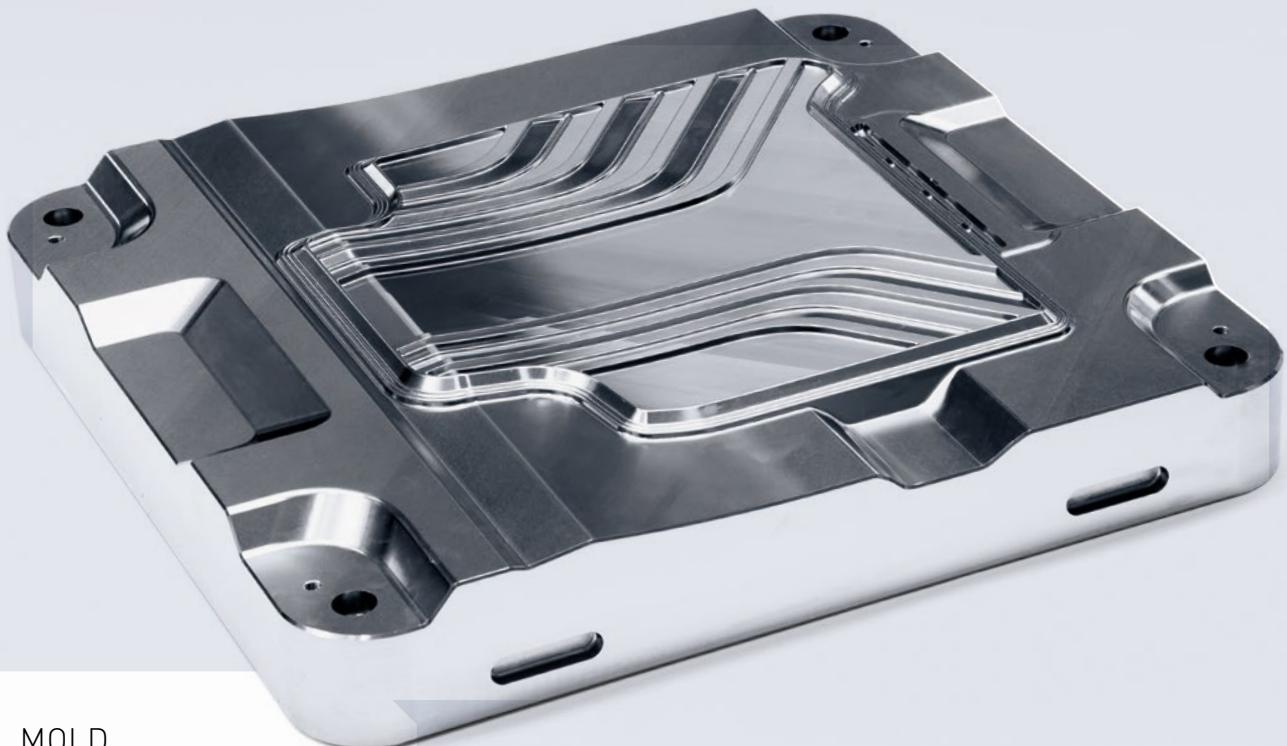
## JOB SHOP

Housing made from tool steel



## MECHANICAL ENGINEERING

Assembly device made from aluminum



## MOLD CONSTRUCTION

Mold for foot mat made from tool steel

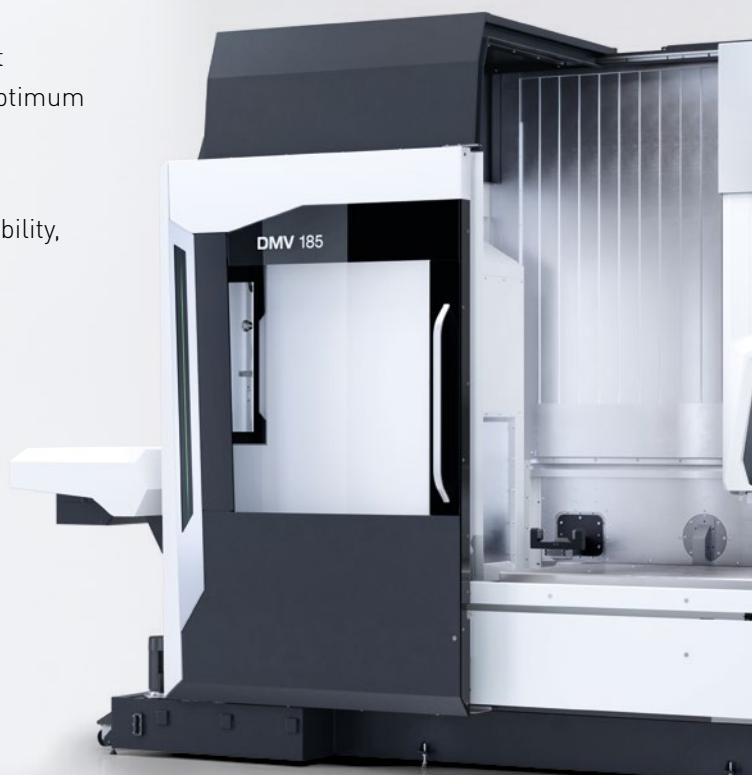
DMV SERIES

## Powerful, dynamic and flexible

The basic configuration of the DMV model series impresses with a stable C-frame design with a rigid machine table made from cast iron, high dynamics with rapid traverses of up to 42 m/min and a powerful spindle portfolio.

The machine is also characterized by having perfect ergonomics, so that the operator can be given an optimum insight and perfect handling.

Because of the comprehensive range of options, the DMV model series also provides maximum flexibility, whereby the individual machines can be used in different areas of industry.



### STABLE MACHINE CONSTRUCTION

- + Stability due to the proven C-frame design
- + Optimum vibration damping
- + Robust machine bed for maximum stability
- + FEM-optimized design of the individual machine components
- + Robust ball screws for fast speeds

### HIGH DYNAMICS

- + High rapid traverse speed of up to 42 m/min in all axes
- + Rapid acceleration makes short positioning times possible
- + Double gripper unit for a reliable tool change and very short chip-to-chip times



CONTINUATION  
OF A SUCCESS STORY  
**> 10,000  
MACHINES IN  
THE FIELD**



05

## CELOS

### POWERFUL SPINDLES

- + Comprehensive spindle portfolio with spindles with up to 40,000 rpm and up to 288 Nm
- + Powerful milling spindles SK40/HSK-A63 and SK50/HSK-A100

### SOLID BASIC EQUIPMENT

- + speedMASTER spindle with 20,000 rpm (35 kW / 130 Nm at 40 % DC)
- + Direct absolute path measuring systems in all axes
- + Tool magazine with 20 pockets
- + 42 m/min rapid traverse in all axes
- + Stealth design ideally suitable for production

**DMV SERIES**

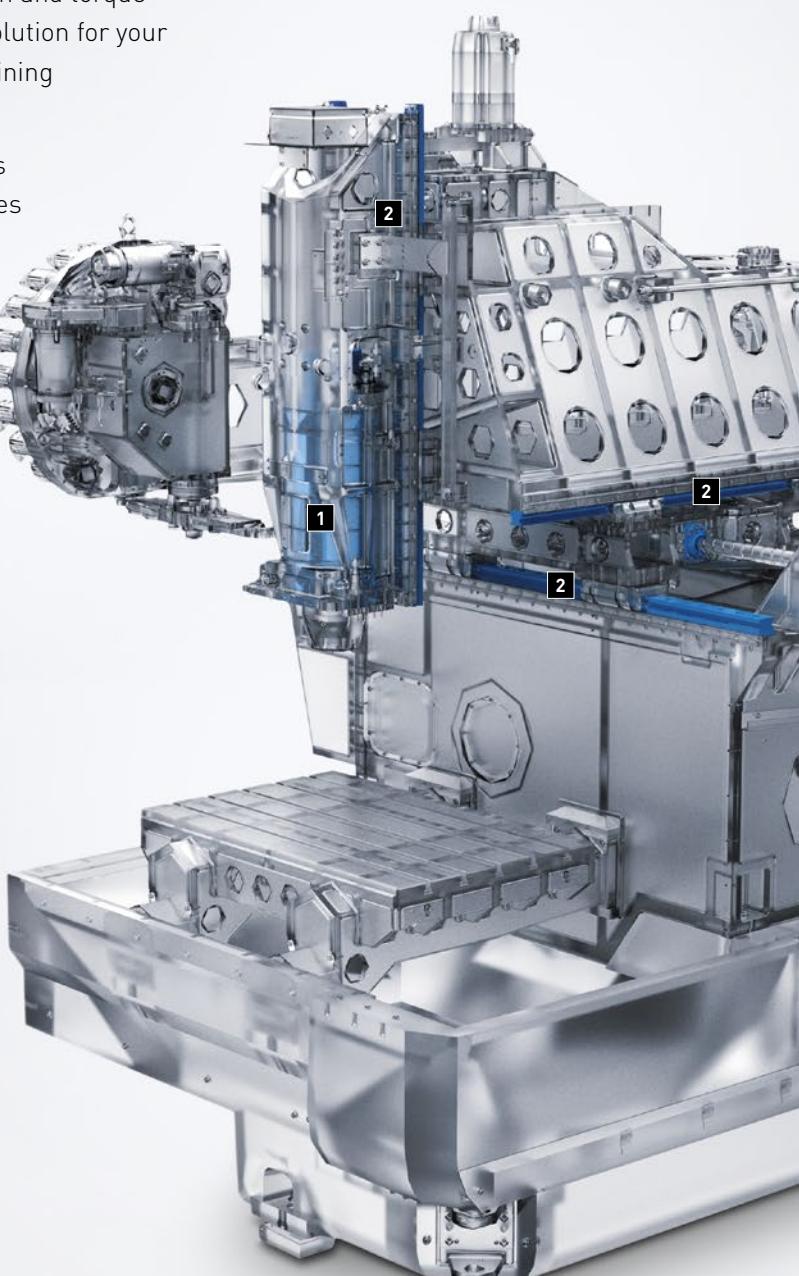
# Best machine concept for powerful 3-axis milling

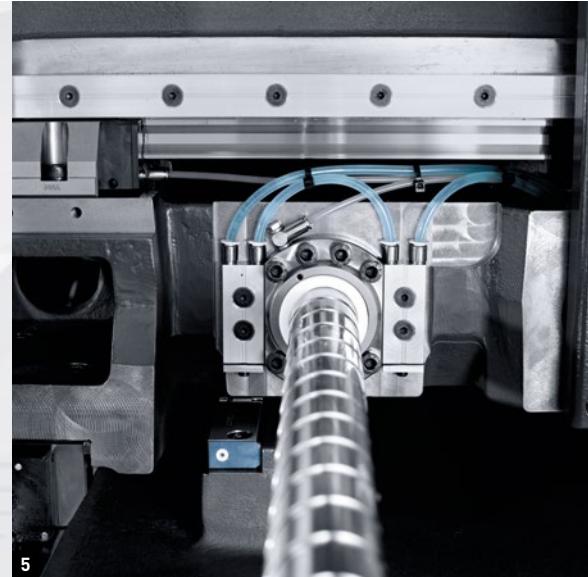
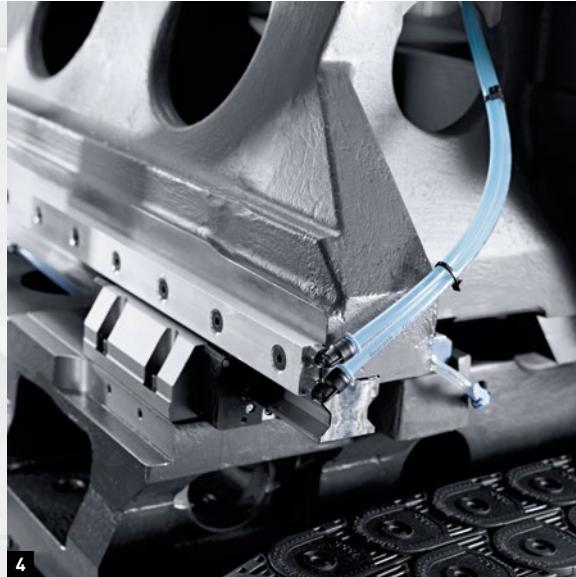
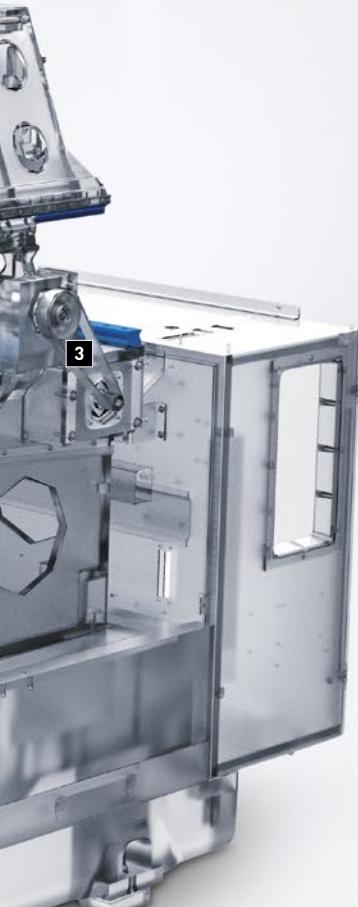
Because of the comprehensive spindle portfolio, starting from a speedMASTER spindle with 20,000 rpm and torque of 130 Nm, an SK 50 motor spindle with 12,000 rpm and torque of 288 Nm up to a motor spindle with 40,000 rpm and torque of 16 Nm, the DMV model series provides the solution for your individual requirements – from precision machining to heavy duty machining.

When doing so, the machine concept impresses with a comprehensive range of cooling measures in the standard version.

## COOLING MEASURES

- 1 Milling spindle cooling**  
motor and spindle flange cooling
- 2 Cooling of the pressure bars**  
of the linear guides
- 3 Cooling of the ball screw nuts**  
for effective heat removal  
and guaranteed accuracy





**4+5:** Cooling of the guides and the ball screw nuts  
**6:** Laser for tool measurement (can be retracted and extended)  
**7:** Tool magazine with up to 120 pockets

## MAXIMUM SUITABILITY FOR PRODUCTION

- + Powerful configuration of the basic machine
- + Tool magazine with up to 120 pockets (optional)
- + Workpiece weight of up to 3,000 kg
- + Integration of 4<sup>th</sup> axis possible (optional)
- + Closed cabin roof (optional)

---

**DMV SERIES**

# User-friendly ergonomics!

Its small footprint (just 8.33 m<sup>2</sup> with the DMV 115) makes the DMV series one of the most compact vertical machining centers with a high workpiece loading weight. The DMV series also impresses with user-friendly ergonomics, which are underlined by perfect accessibility and visibility into the working area. Thanks to the excellent accessibility to the machine, set-ups can be carried out in a quick and very economic way.

**1 CELOS**

simplifies and accelerates the process, from idea to finished product

**2 Light line display**

display of the current machine status

**3 Optimum chip fall**

thanks to steep slopes in the machine bed

**4 Ergonomic machine loading**

large door openings with optimum access to the working area; also for crane loading

**5 Optimum visibility into the machine room**

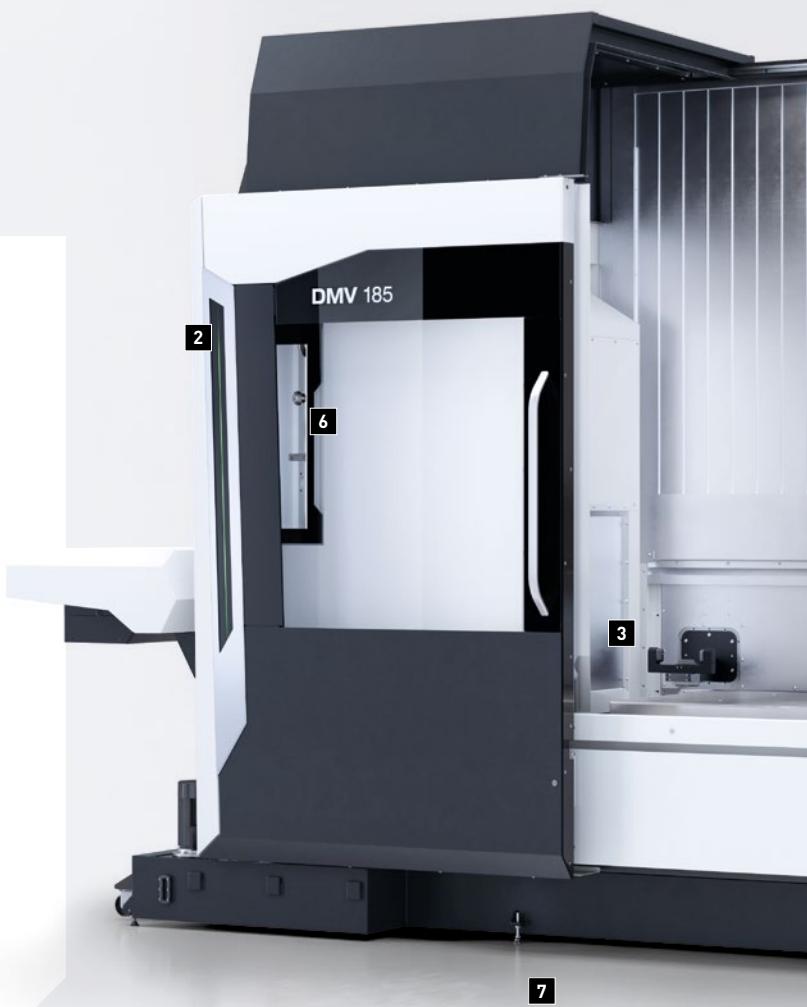
large inspection windows for the best view of the workspace

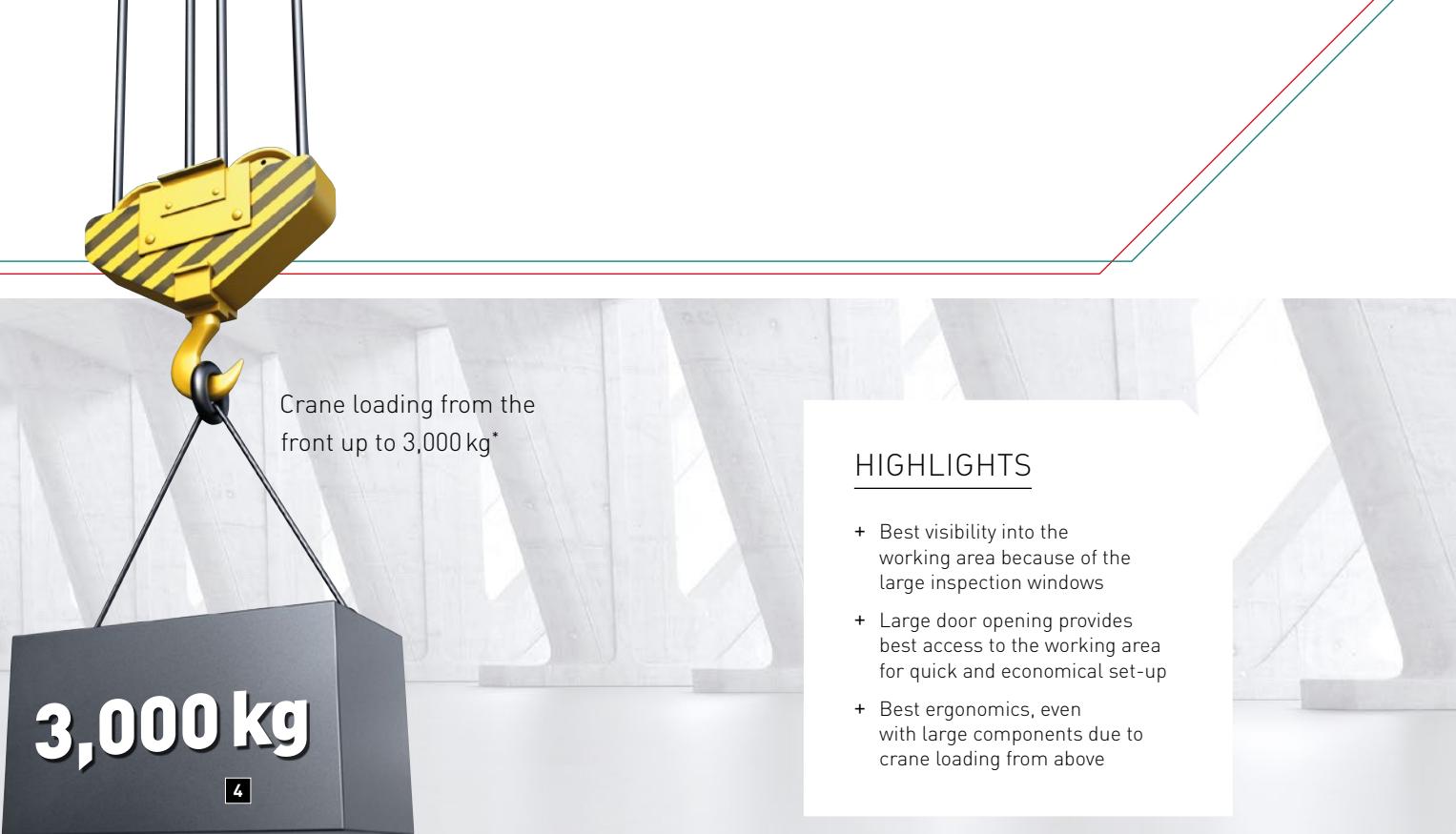
**6 Tool magazine**

optimum loading from the front

**7 Compact machine design**

(8.33 m<sup>2</sup> DMV 115; 9.10 m<sup>2</sup> DMV 145; 13.23 m<sup>2</sup> DMV 185)





Crane loading from the front up to 3,000 kg\*

## HIGHLIGHTS

- + Best visibility into the working area because of the large inspection windows
- + Large door opening provides best access to the working area for quick and economical set-up
- + Best ergonomics, even with large components due to crane loading from above



09

\*3,000 kg Table load DMV 185  
2,000 kg Table load DMV 145  
1,500 kg Table load DMV 115

DMV SERIES

# DMV 185 – Maximum stability and accuracy

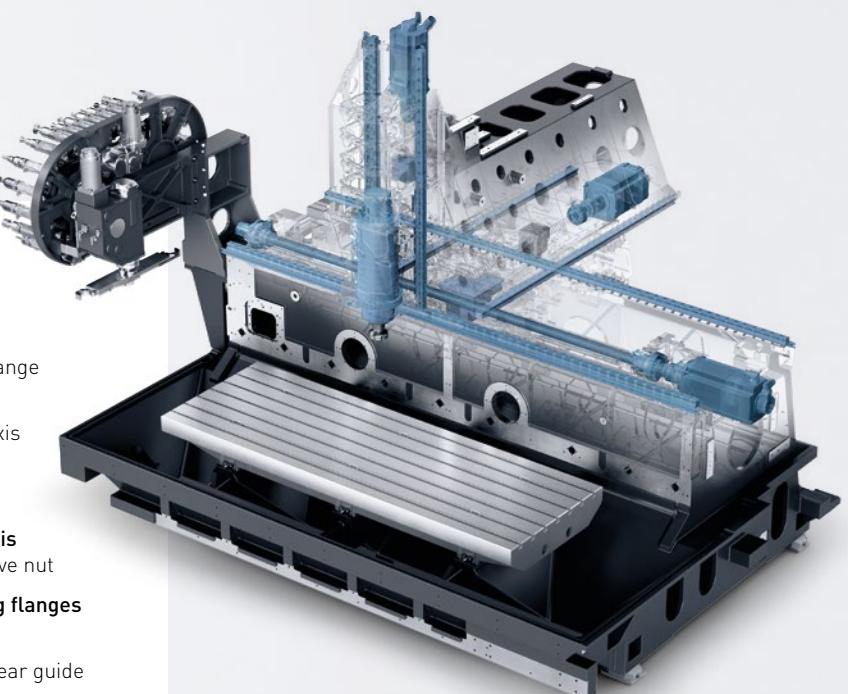
The machine concept of the DMV 185 extends the existing machines of the DMV series in an upwards direction. The extremely stable machine design of the DMV 185 has several special features compared to the other machine models in this series.

The machine construction impresses with a one-piece machine bed made from cast iron, reinforced slide units, directly driven ball screw spindles and direct absolute path measuring systems, providing a high degree of positioning accuracy ( $P_{max} 6 \mu\text{m}$ ) and maximum stability in the field of powerful machining.

Another highlight is the comprehensive cooling concept, which enables a precision that was unattained for the vertical series so far.

## COOLING MEASURES

- + **Spindle**  
cooling of the motor and the spindle flange
- + **Cooled bearing block**  
of the ball screw drive nut in the Y/Z axis
- + **Jacket cooling**  
of the drive motors in the X/Y/Z axis
- + **Internally cooled ball screw drive X axis**  
and jacket cooling of the ball screw drive nut
- + **Cooling of the ball screw drive bearing flanges**  
in the X/Y/Z axis
- + **Cooling of the pressure bars** of the linear guide





11

## MACHINE HIGHLIGHTS OF THE DMV 185

- + Maximum stability due to one-piece machine bed made from cast iron, 45 mm wide linear guides in all axes and increased guidance distance in the X axis
- + Direct absolute path measuring systems in all axes
- + Maximum thermal stability due to comprehensive cooling concept
- + speedMASTER spindles up to 20,000 rpm
- + Directly driven ball screws in all axes
- + High dynamics, 42 m/min rapid traverse in all axes
- + Tool magazine with up to 120 pockets
- + High table loading of up to 3,000 kg
- + Process-reliable tool change concept due to vertical changeover flap and double gripper outside the working area

# CELOS

Simplified machine operation. The holistic integration of the machine into the company organization.



## ERGOline CONTROL WITH A 21.5" MULTI-TOUCH-SCREEN AND SIEMENS

### Simple

Simple machine operation for all new high-tech machines from DMG MORI.

### Consistent

Consistent administration, documentation and visualization of order, process and machine data.

### Compatible

Compatible with PPS and ERP systems can be networked with CAD / CAM products. Open for future-oriented CELOS APP extensions.

### SMARTkey

Personalized user authorization: Individually adapted access rights for the control system and the machine.

DMV SERIES

# CELOS – From idea to finished product

Ergonomic  
Accurate  
Versatile  
CELOS

CELOS provides a standardized user interface for all new high-tech DMG MORI machines. CELOS APPs enable continuous administration, documentation and visualization of order, process and machine data. They also simplify, standardize and automate the operation of the machine. 26 standard APPs help the machine operator during the preparation, optimization and systematic processing of manufacturing orders.

## CELOS APPS – 3 EXAMPLES



### JOB MANAGER

Systematic planning, administration and preparation of orders.

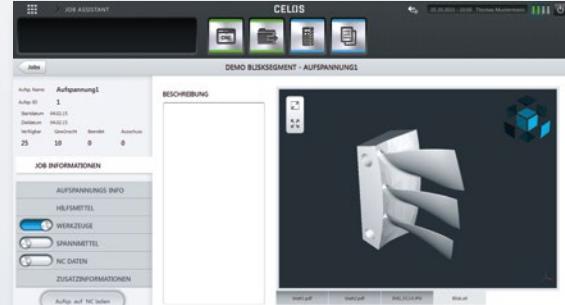
- + Machine-related creation and configuration of new orders
- + Structured storage of all production-related data and documents
- + Easy visualization of orders, including NC program, equipment etc.



### JOB ASSISTANT

Process-defined orders

- + Menu-guided set-up of the machine and processing of production orders in a dialog
- + Reliable error prevention thanks to work instructions with a mandatory acknowledgment function



### TOOL HANDLING

Faster tool setup times thanks to target/actual comparison of the magazine configuration for subsequent orders.

- + Display of all tools required for a job, including automatic production of a loading list
- + Production of an unloading list by means of automatic detection of all tools that are not required for subsequent jobs



DMV SERIES

# DMG MORI technology cycles

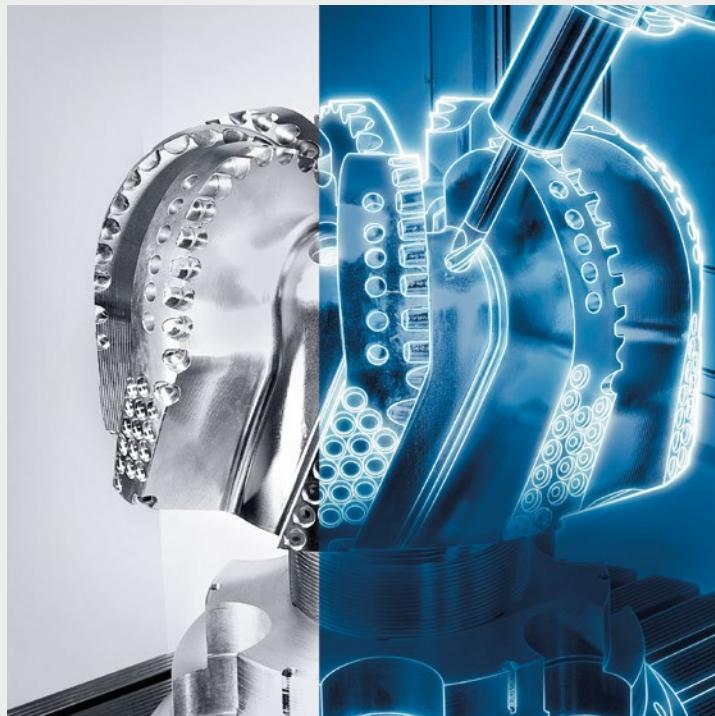
Increase the productivity of your DMV machines  
with unique technology cycles from DMG MORI!



## MPC 2.0 – MACHINE PROTECTION CONTROL

### Machine protection by means of rapid shutdown

- + Vibration sensors on the milling spindle
- + Shutdown function with teach function
- + Process monitoring using bar display
- + Bearing status diagnostics of the milling spindle



## ATC 2.0 – APPLICATION TUNING CYCLE

### Process optimization at the push of a button

- + Process-oriented tuning of the feed drives
- + Minimization of machining time while maximizing the relevant component quality, also in dependence on the workpiece weight
- + High surface quality during finishing

## High-end CNCs for safe processes and maximum precision



### SIEMENS 840D SL OPERATE

- + Very simple interactive programming by means of identical "Look & Feel" for turning and milling
- + New SINUMERIK Operate user interface
- + ATC\*, MPC\*
- + Powerful 32-bit multi-processor system and controller, 1 GB of RAM
- + Fast block processing time of approx. 0.6 ms
- + Look-ahead function for up to 150 NC blocks (parameterizable)
- + Graphical simulation of the machining procedure with top-down view, display on three levels and 3D display; synchronous graphics during machining
- + DECKEL MAHO Mdynamics package\* for improved surface quality with shortened machining time for the smoothing of surfaces etc.\*

\*Optional



### HEIDENHAIN TNC 640

- + Unique 3D simulation graphics, accurate down to the last detail
- + New, optimized TNC user interface
- + Signal transmission with optical waveguide
- + Workshop or DIN ISO programming
- + Super-fast program creation thanks to plain text programming
- + Graphical programming
- + ATC\*, MPC\*
- + Powerful processor (Intel i7-3, 2 cores)
- + New, optimized ADP movement guidance for improved surfaces and faster machining (block processing time less than 0.5 ms)
- + Dynamic look-ahead function without block limitation
- + Dynamic efficiency with adaptive feed control (AFC) and trochoidal milling as standard (Active Chatter Control ACC optional)

\*Optional

Applications and Parts

**Machines and Technology**

Control Technology

Technical Data

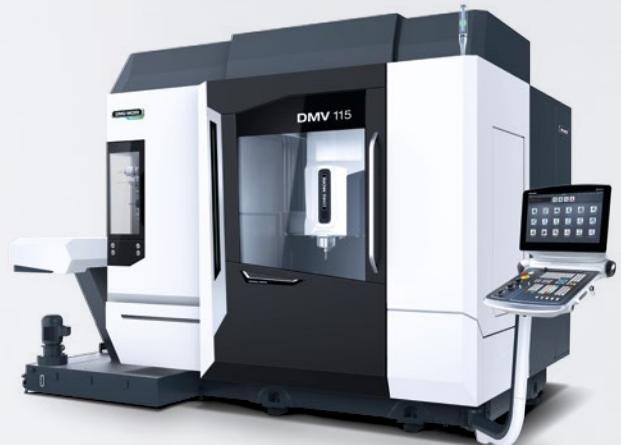
› Footprint vs. work area

DMV SERIES

# Perfect ratio of large work area and compact footprint!

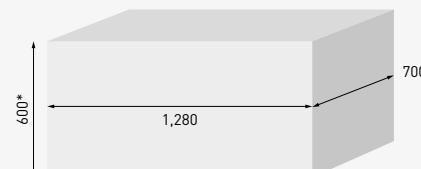
**DMV 115**  
just 8.33 m<sup>2</sup>

Footprint



**DMV 115**

Traverse distances X/Y/Z	mm	1,150/700/550
Table size	mm	1,460 × 750
Loading weight	kg	1,500
Workpiece dimensions	mm	



\*Tool length 100 mm



### **DMV 145** just $9.10\text{ m}^2$

Footprint

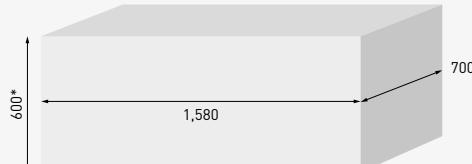


**DMV 145**

1,450/700/550

1,760 × 750

2,000



### **DMV 185** just $13.33\text{ m}^2$

Footprint

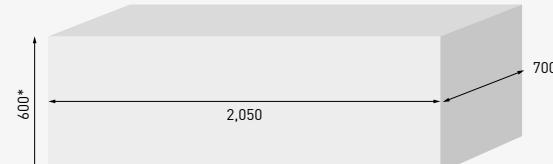


**DMV 185**

1,850/700/550

2,160 × 750

3,000

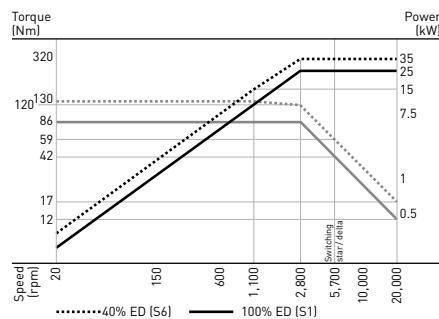


DMV SERIES

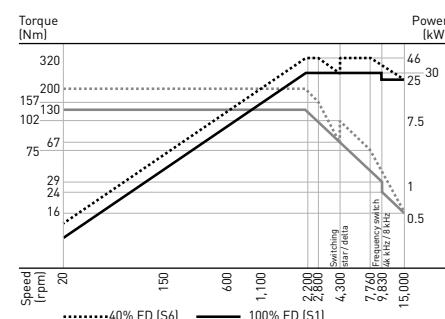
# Comprehensive range of spindles

**speedMASTER spindle SK40 / HSK-A63\***

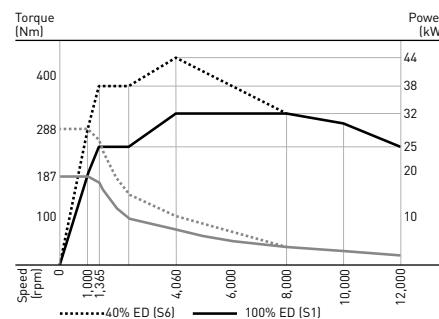
20,000 rpm / 35 kW / 130 Nm

**speedMASTER spindle SK40 / HSK-A63**

15,000 rpm / 46 kW / 200 Nm

**Motor spindle SK50 / HSK-A100**

12,000 rpm / 44 kW / 288 Nm

**speedMASTER****speedMASTER HT****Motor spindle****Main drive**

Speed range	20,000	15,000	12,000
Drive power (40/100% DC)	35/25	46/30	44/32
Torque (40/100% DC)	130/86	200/130	288/187
Tool holder DIN 69871/DIN 69893	SK40/HSK-A63*	SK40/HSK-A63	SK50/HSK-A100

\*Optional



**1:** speedMASTER – motor spindle with best true running accuracy

**2:** Spindles with SK 50 / HSK-A 100 optionally available

## LARGE WORKING AREA

With rigid table for  
high loading weights of  
up to 3,000 kg



DMV SERIES

# Automation



20

## PH 150 HIGHLIGHTS

- + **Operation directly via the machine controller**  
no external controller for  
the automatic system required
- + **Maximum clamping force of up to 112 kN**  
with SCHUNK VERO-S chuck turbo function
- + **EROWA clamping system as standard**  
(SCHUNK optional)
- + **Three palette configurations:**  
10 pallets 320 × 320 mm, 6 pallets 400 × 400 mm,  
4 pallets 500 × 500 mm
- + **Reduced failure times**
- + **Maximum load of 150 kg (250 kg\*) per palette**
- + **High repeat clamping accuracy**  
of the pallets < 0.002 mm  
with EROWA UPC-P chuck

\* optional

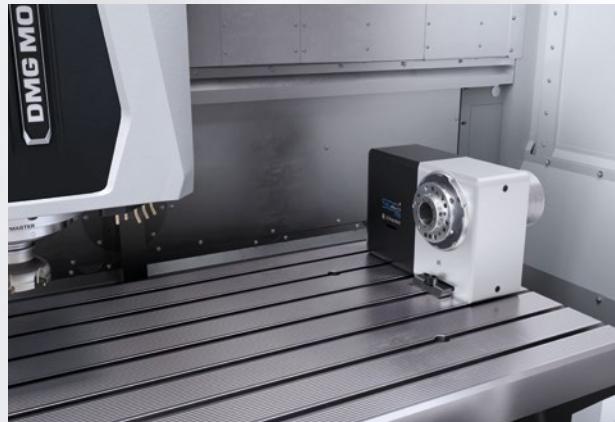


DMV SERIES

# Integration of 4<sup>th</sup> axis

## HIGHLIGHTS

- + Extension of working area and increased flexibility due to integration of 4<sup>th</sup>/5<sup>th</sup> axis\*
- + Multi-side machining of components possible
- + Application-specific use without loss of original working area\*\*
- + Integration of additional rotary union for automated clamping devices available



## INDEXING HEAD

- + Model: EA-520 L
- + Tip height 180 mm
- + Through hole: 46 mm
- + Speeds of up to 50 rpm (S3: 20 % DC)
- + Weight: 70 kg
- + Optionally available with direct measuring system



## TAILSTOCK

- + Manual version with 40 mm stroke
- + Tip height 180 mm
- + Additional options / accessories by request



## TWO-AXIS INDEXING HEAD

- + Model TOP 2 (T1-510520.LL)
- + Version by request
- + 4./5<sup>th</sup> axis for multi-side machining
- + With clampable counter bearing
- + Swivel range: 90° +5°/-25°
- + Weight: 175 kg

\*5-axis indexing heads by request

\*\*Simple installation/removal of the additional round axes

DMV SERIES

# Technical Data

		<b>DMV 115</b>	<b>DMV 145</b>	<b>DMV 185</b>
<b>Work area</b>				
Travel X / Y / Z		1,150/700/550	1,450/700/550	1,850/700/550
Distance between spindle nose and table	mm			
<b>Main drive (standard)</b>				
Speed range	rpm	20,000	20,000	20,000
Drive power (40/100 % DC)	kW	35/25	35/25	35/25
Torque (40/100 % DC)	Nm	130/86	130/86	130/86
Tool holder DIN 69871/DIN 69893		SK40/HSK-A63*	SK40/HSK-A63*	SK40/HSK-A63*
<b>Main drive (optional)</b>				
Speed range	rpm	15,000	15,000	15,000
Drive power (40/100 % DC)	kW	46/30	46/30	46/30
Torque (40/100 % DC)	Nm	200/130	200/130	200/130
Tool holder DIN 69871/DIN 69893		SK40/HSK-A63	SK40/HSK-A63	SK40/HSK-A63
<b>Main drive (optional)</b>				
Speed range	rpm	12,000	12,000	12,000
Drive power (40/100 % DC)	kW	44/32	44/32	44/32
Torque (40/100 % DC)	Nm	288/187	288/187	288/187
Tool holder DIN 69871/DIN 69893		SK50/HSK-A100	SK50/HSK-A100	SK50/HSK-A100
<b>Feed</b>				
Rapid traverse	m/min	42	42	42
Acceleration	m/s <sup>2</sup>	5	5	5
<b>Positioning accuracy</b>				
P <sub>max</sub> according to VDI / DGQ 3441	µm	6	6	6

		<b>DMV 115</b>	<b>DMV 145</b>	<b>DMV 185</b>
<b>Tool magazine</b>				
Number of tools (SK40, HSK-A63)		20/30*/60*/120*	20/30*/60*/120*	20/30*/60*/120*
Number of tools (SK50, HSK-A100)		20/40**	20/40**	20/40*
Max. tool diameter	mm	80/100**	80/100**	80/100**
Max. tool diameter of free adjacent locations	mm	130/160**	130/160**	130/160**
Max. tool length	mm	300/360**	300/360**	400
Chip-to-chip time (SK40, HSK-A63, 20/30 locations)	sec.	8.0	8.0	10.0
<b>Table</b>				
Clamping surface	mm	1,460×750	1,760×750	2,160×750
Infeed height (top edge of table)	mm	820	820	820
Max. table load	kg	1,500	2,000	3,000
<b>Control systems</b>				
ERGOline control with 21.5" multi-touch screen, CELOS and SIE-MENS 840D solutionline		•	•	•
ERGOline control with 21.5" multi-touch screen, CELOS and HEIDENHAIN TNC 640		•	•	•
<b>Options</b>				
Job package with chip conveyor, coolant / blast air changeover, flushing gun, bed flushing		•	•	•
IKZ package 20 bar/310 l with chip conveyor, bed flushing, cabin roof		•	•	•
IKZ package 40 bar/600 l with chip conveyor, bed rinsing, work area rinsing, cabin roof, double switch filter 50 µm		•	•	•
IKZ package 80 bar/980 l frequency controlled with chip conveyor, bed rinsing, work area rinsing, cabin roof, double switch filter 50 µm		•	•	•
Blast air spindle center		•	•	•
Oil mist separator		•	•	•
Rotating inspection window		•	•	•

• Optionally available

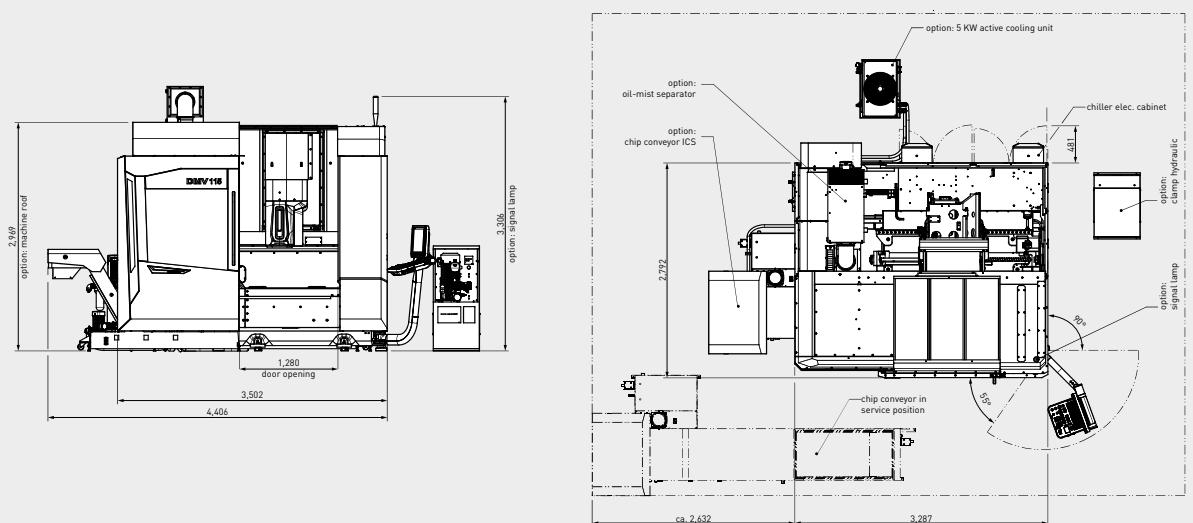
DMV SERIES

# Floor plans

**DMV 115**

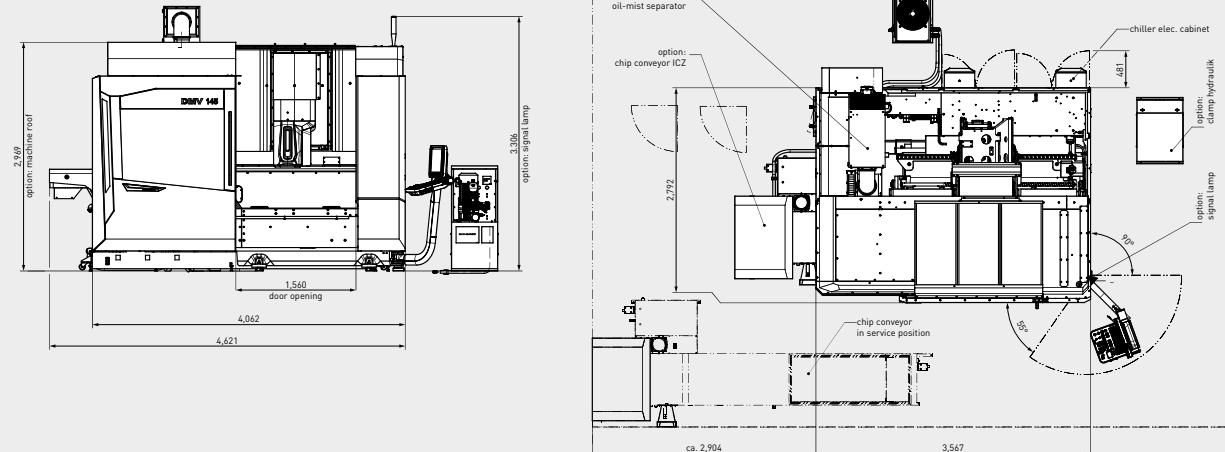
Front view

Top down view

**DMV 145**

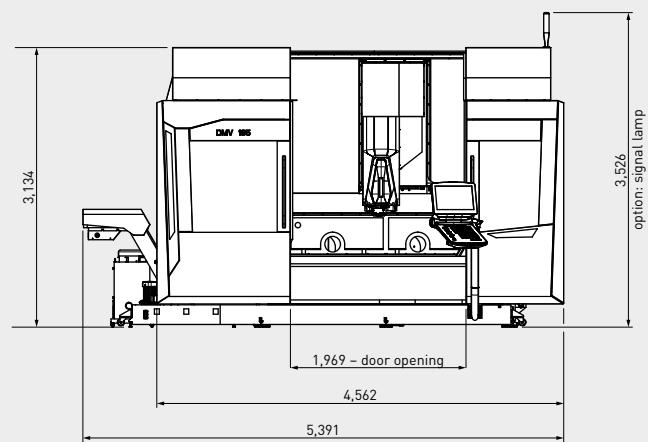
Front view

Top down view

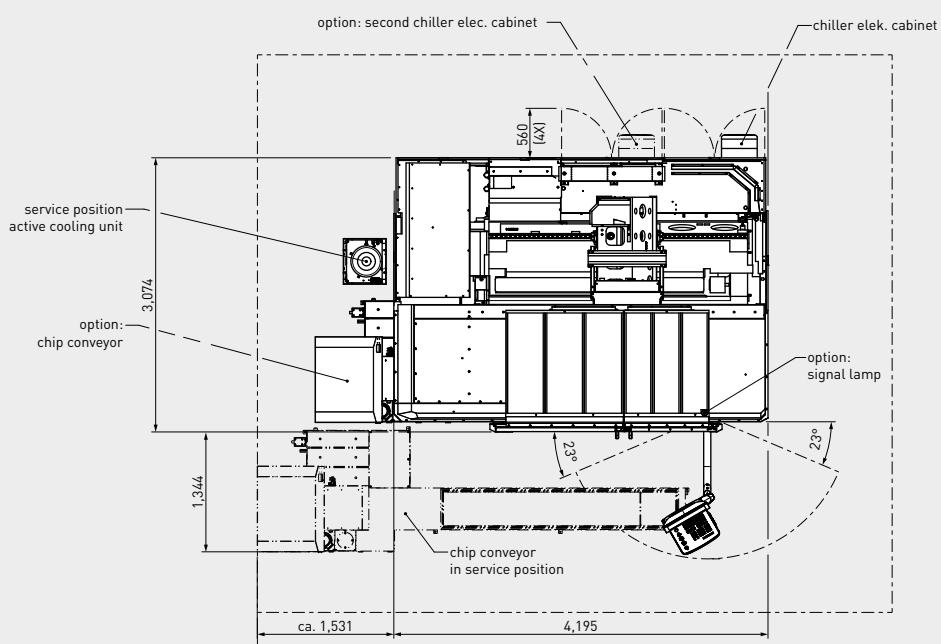


**DMV 185**

Front view



## Draufsicht



---

Applications and Parts

---

Machines and Technology

---

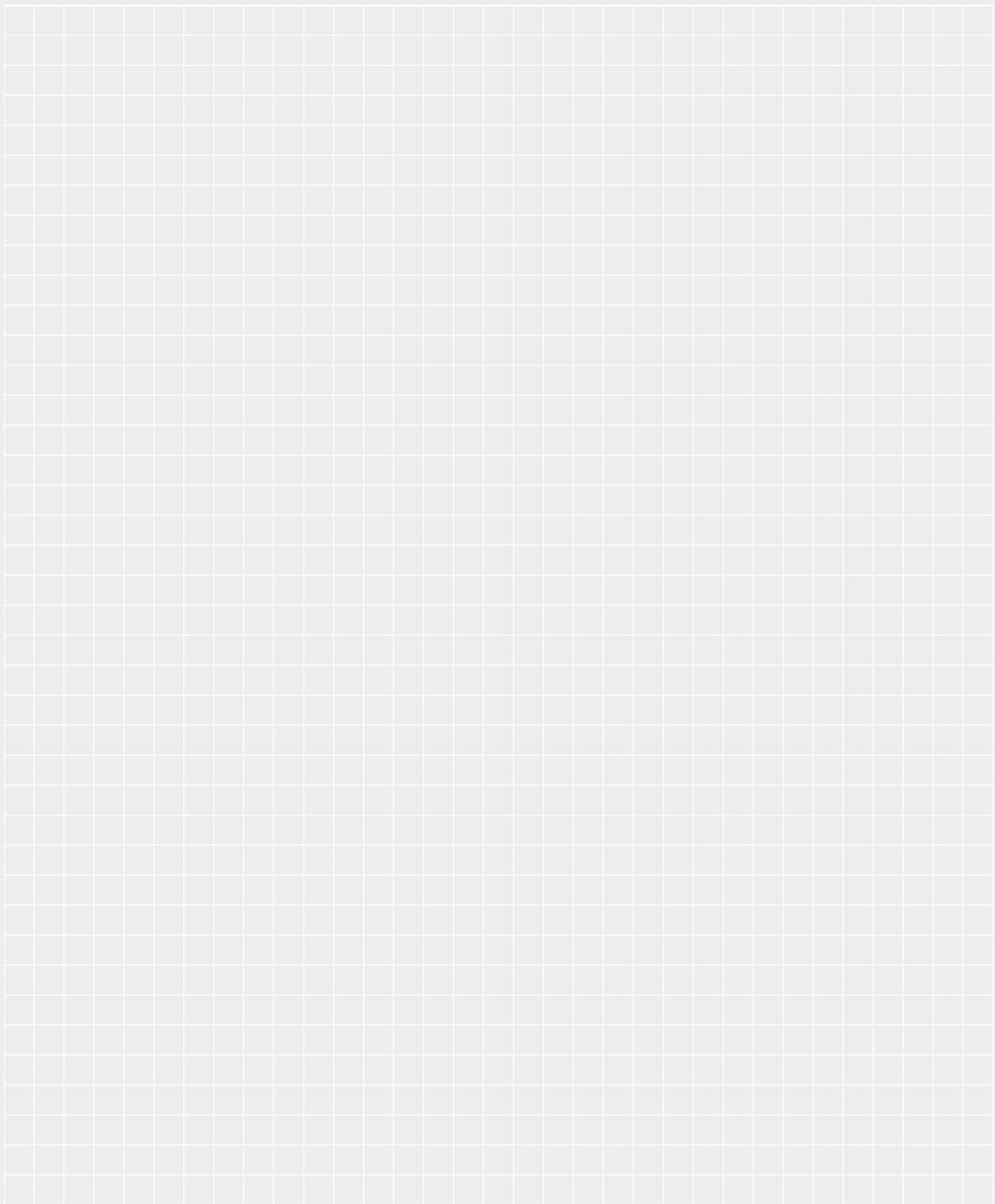
Control Technology

---

Technical Data

DMV SERIES

## Notes



# YOUR ONLINE SERVICE MANAGER



## my DMG MORI

The customer portal for service optimization

### MORE SERVICE

Fast support and live status of your service requests

### MORE KNOWLEDGE

All relevant documents can be called up digitally

### MORE AVAILABILITY

The direct line to a service expert with guaranteed prioritized processing, registration in < 3 minutes

Every customer benefits – at no extra charge!

All countries in which myDMG MORI is available can be found at:  
[myDMGMORI.com](http://myDMGMORI.com)



You too can benefit!  
Register now for free:  
[myDMGMORI.com](http://myDMGMORI.com)

## Customer First – Our service promise!!

Top quality at fair prices. It's a promise!



### Best Price Guarantee for Original Spare Parts.

Should you get a spare part offered by us at least 20 % cheaper elsewhere, we will refund the price difference up to 100%\*.

\*All information and price advantages for Customer First are available at: [customer-first.dmgmori.com](http://customer-first.dmgmori.com)



### Spindle service at best prices.

The highest level of competence from the manufacturer at new and attractive prices – DMG MORI spindle service!

**Export Control:** To prevent the illegal diversion of the equipment to individuals or nations that threaten international security, from 01/01/2023, every DMG MORI machine may be equipped with an RMS function (Relocation Machine Security). The RMS automatically deactivates the machine when the machine is moved or disassembled. Such deactivation does not take place during regular operation or maintenance.

If the equipment is so-disabled, it can only be re-activated by DMG MORI or some authorized representatives. Reactivation can be ordered via DMG MORI Service. If the machine is deactivated due to a substantial repair activity, this service is free of charge.

DMG MORI may refuse to re-activate the machine if it determines that doing so would be an unauthorized export of technology or otherwise violate applicable export restrictions.

DMG MORI shall have no obligation to re-activate such machine and shall have no liability as a result thereof.

Subject to modification. Technical update rights reserved.  
The machines depicted here may include some options, equipment and CNC alternatives.