

DMG MORI

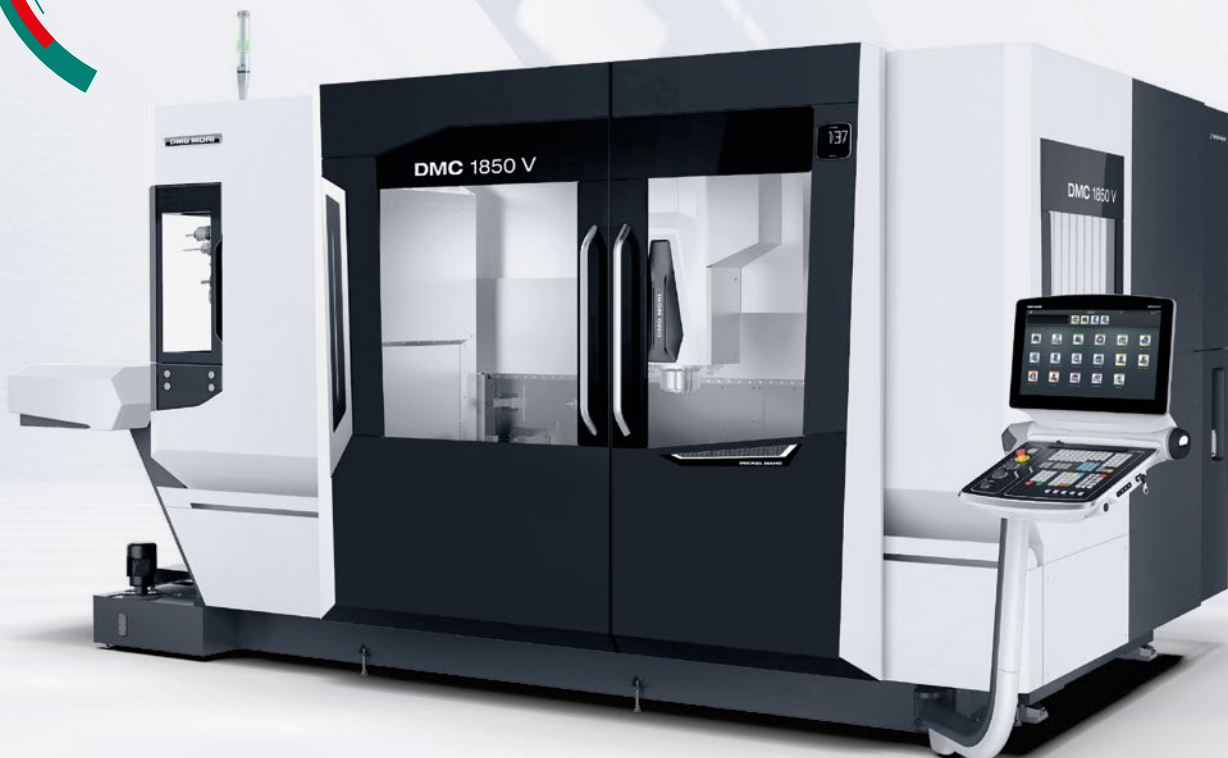
VERTICAL MACHINING CENTRE

DMC 1850 V

DMC 1850 V

DMC 1850 V

Highest level
of stability and
precision



DMC 1850 V

Dynamic vertical machining center of the latest generation

The DMC 1850 V extends the well-known and successful DMC V series upwards. The new DMC 1850 V combines the expectations and requirements for future 3-axis machining and is characterized by more than 20 years market leadership of the DMC V series in the 3-axis milling sector.

The machine design impresses with a single piece machine bed made of cast iron, reinforced slide units, directly driven ball screws and direct absolute path measuring systems. This enables high positioning accuracy ($P_{\max} 5\mu\text{m}$) and maximum stability in the field of power cutting.



DIE & MOLD INDUSTRY

Mold plate for car mat
made of 1.2714



MECHANICAL ENGINEERING

Mounting fixture made of pre-hardened tool steel



DIE & MOLD INDUSTRY

Die made of pre-hardened tool steel



JOB SHOP

Segment bar made of S355J2+N



AEROSPACE

Structural part made of aluminium

MACHINE HIGHLIGHTS

- + Highest rigidity based on single piece cast iron machine bed, 45 mm wide linear guides in all axes and a larger guideway distance of the X-axis (810 mm)
- + Direct absolut path measuring systems in all axes
- + Best thermal stability thanks to a comprehensive cooling concept
- + speedMASTER spindles up to 20,000 rpm, motor spindle up to 40,000 rpm
- + Directly driven ball screw drives in all axes
- + High dynamics, 42 m/min rapid traverse in all axes
- + Tool magazine with up to 120 pockets
- + High table load of up to 3,000 kg
- + Process-safe tool changing concept with vertical changing flap and double gripper outside the working area



DMC 1850 V

Solution-oriented machine concept

The machine concept of the DMC 1850 V enables solutions for various applications in the field of 3- and 4-axis machining. The basis for this is a solid equipment of the machine in combination with a 15,000 rpm inlineMASTER spindle, directly driven ball screw drives and direct absolute path measuring systems in the standard version already. Furthermore, the DMC 1850 V has a wide range of options for the optimal configuration of your machine. The excellent ergonomics of the working area and the tool changer offer the operator optimal access to the machine and perfect handling.



04

PERFECT ERGONOMICS

- + Large door opening with optimal access to the working area; also for crane loading
- + Large windows for better visibility, also on the right-hand side of the cabin
- + Excellent ergonomics of the working area (table height: 820 mm) and the tool changer enable optimal handling for the operator

HIGH PRECISION AND DYNAMICS

- + Comprehensive cooling measures in the standard version and direct absolute path measuring systems enable a positioning accuracy of 5 µm
- + Highest rigidity and cutting performance based on a single piece machine bed made of cast iron; 42 m/min rapid traverse in all axes



CELOS

05

CELOS

- + CELOS by DMG MORI enables continuous administration, documentation and visualisation of order, process and machine data
- + CELOS is open to APP enhancements and compatible with existing infrastructures and programs in your company.

SOLID BASIC EQUIPMENT

- + inlineMASTER spindle with 15,000rpm *
- + Directly driven ball screw drives
- + Direct absolute path measuring systems
- + Tool magazine with 20 pockets
- + 42m/min rapid traverse in all axes
- + Tool length up to 400mm

* Available as of Q2/2019

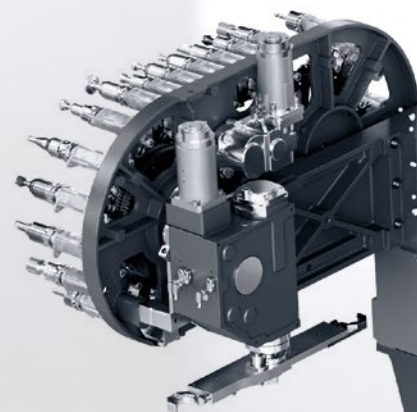
DMC 1850 V

Highest level of precision and dynamics

The DMC 1850 V offers highest rigidity and stability for perfect milling performance and excellent precision based on a single piece cast iron machine bed. This, in combination with directly driven ball screw drives, direct absolute path measuring systems and comprehensive cooling measures, enables an unparalleled precision in the vertical machine series.

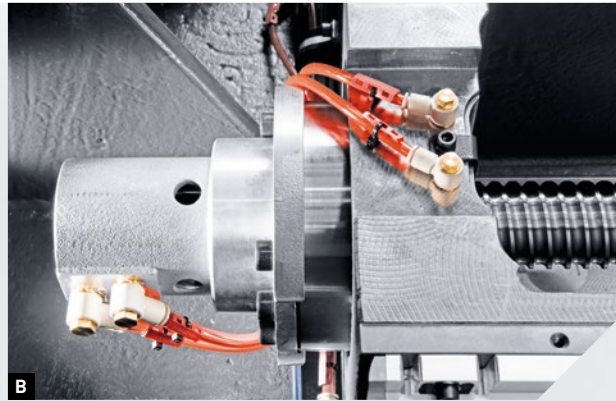
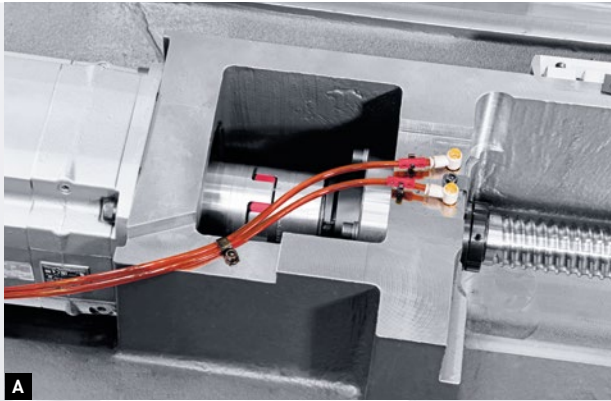
COOLING MEASURES

- 1 Milling spindle**
Cooling of the motor and the spindle flange
- 2 Cooling of the bearing block**
of ball screw nut in Y-/Z-axis
- 3 Jacket cooling**
of drive motor housings X-/Y-/Z-axis
- 4 Internal cooling of ball screw X-axis**
as well as jacket cooling of the housing of the ball screw nut
- 5 Cooling of the ball screw bearing flange**
X-/Y-/Z-axis
- 6 Cooling of the pressure plate profile**
of linear guideways X-/Y-/Z-axis

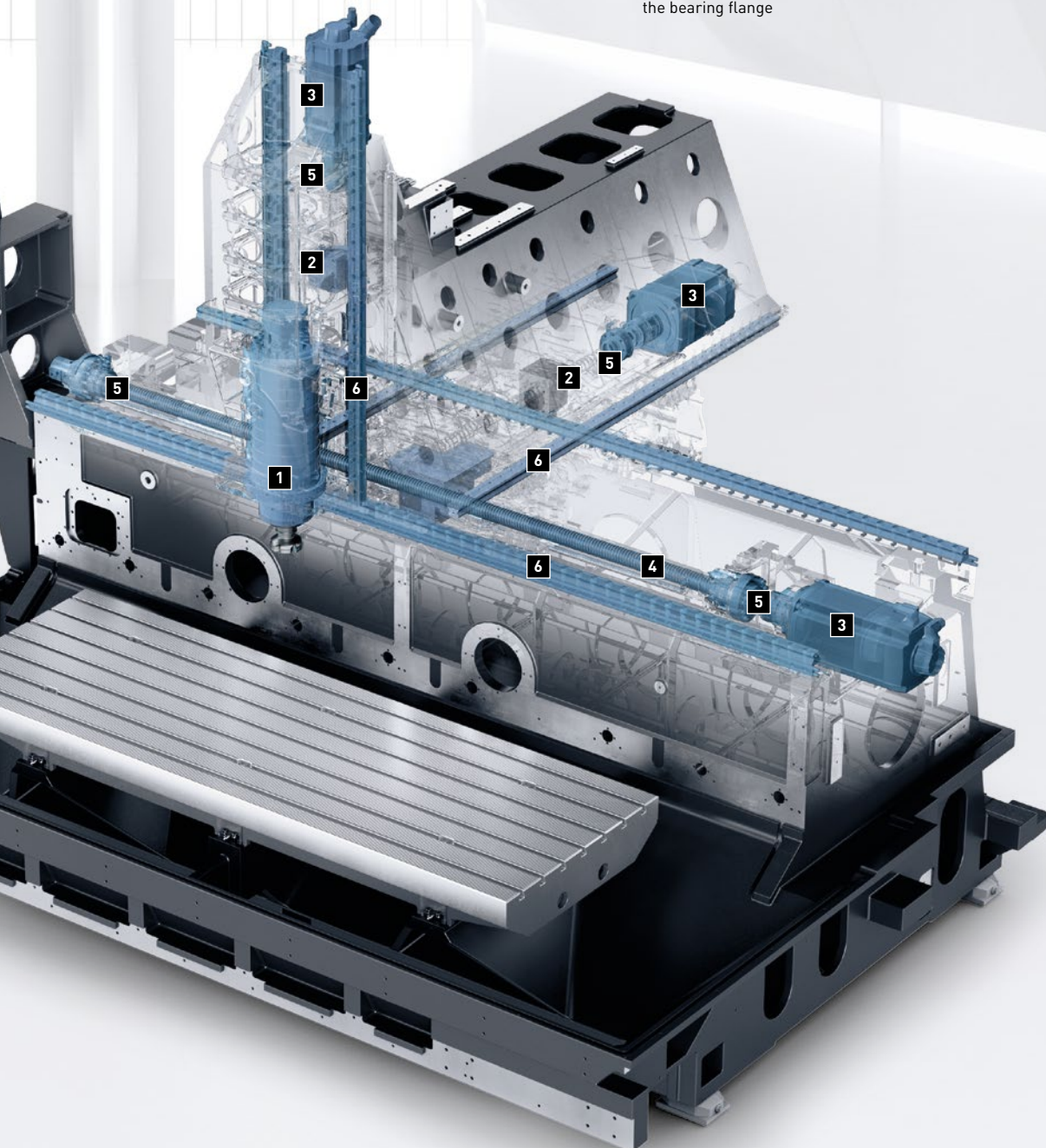


OUR HIGHLIGHTS FOR HIGHEST PRECISION AT A GLANCE

- + Directly driven ball screw drives, direct absolute path measuring systems in all axes; 1FT motors for the best surface qualities
- + Single piece cast iron machine bed
- + Table geometry independent of slide unit movements
- + Comprehensive cooling measures (active cooling in standard version)



A: Directly driven ball screw drive with cooling of the bearing flange
 B: Internal cooling of the X-axis ball screw drive as well as cooling of the bearing flange



DMC 1850 V

Ergonomic machine design

The stealth design of the new DMC 1850 V offers the operator perfect accessibility and clear visibility into the working area. The DMC 1850 V is also characterised by optimal ergonomics, like the perfect way of table loading (table height: 820 mm) and the loading position of the tool changer. In conclusion, the DMC 1850 V provides the highest level of user-friendliness!

1 CELOS

Simplifies and accelerates the process from the idea to the finished product

2 Lightline display

Displays the current machine status

3 Optimal chip fall

With bed slants $> 35^\circ$ and optional flushing of the machine bed and the working area

4 Stainless steel casing of the working area

Avoidance of dirt and pollution

5 Very good visibility into the working area

Large windows for better visibility, also on the right-hand side of the cabin

6 Perfect access to the tool magazine

Ergonomic loading position

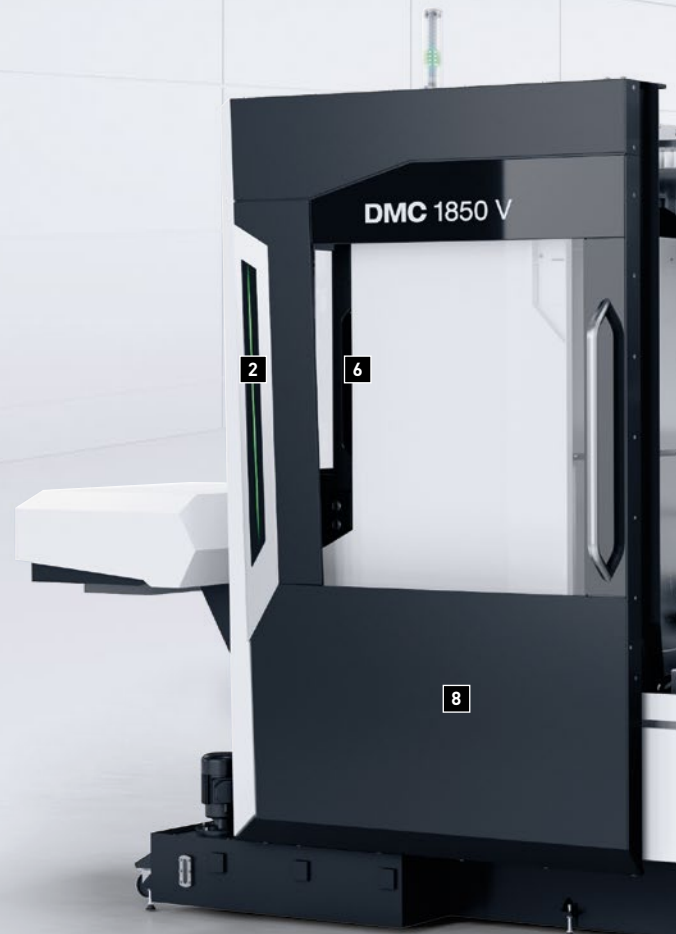
7 Symmetric installation of the machine

Six positioning elements

8 Value stability / Long-life surfaces

Higher scratch strength and protection against damages, lasting value and user-friendliness

* Option





UNLIMITED
CRANE LOADING
UP TO 3,000 kg



CELOS

Simplified machine operation,
complete integration of the machine
in the operating organisation.

APP MENU

As with a
smartphone, the
operator has
direct access to all
available applica-
tions via the "APP
MENU".



ERGOline CONTROL WITH 21.5" MULTI-TOUCH SCREEN AND SIEMENS

Simple

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

Continuous

Continuous administration, documentation and
visualisation of order, process and machine data.

Compatible

Compatible with PPS and ERP systems.
Can be networked with CAD/CAM products.
Open to future CELOS APP enhancements.

SMARTkey

Personalized authorisation
of the operator: Individually
adapted access rights to
the control system and the
machine.

DMC 1850 V

CELOS – From the idea to the finished product

CELOS offers a standardised user interface for all new high-tech DMG MORI machines. CELOS APPs enable continuous administration, documentation and visualisation of order, process and machine data. This also simplifies, standardises and automates machine operation. 26 standard APPs support the machine operator during preparation, optimisation and systematic processing of production orders.

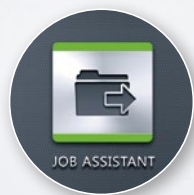
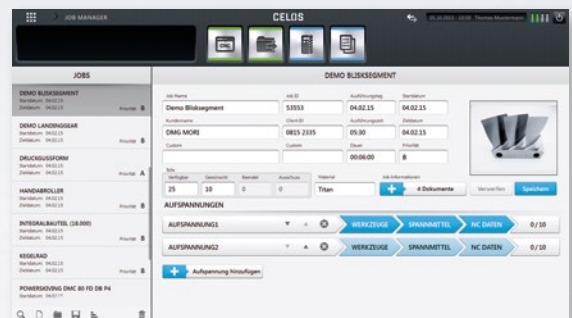
CELOS APPS – 3 EXAMPLES



JOB MANAGER

Systematic planning, administration and preparation of orders

- + Machine-based creation and configuration of new orders
- + Structured saving of all production-relevant data and documents
- + Simple visualisation of orders, including NC programs, operating media, etc.



JOB ASSISTANT

Defined job processing

- + Menu-guided tooling of the machine and processing of production jobs in dialogue
- + Reliable error prevention through work instructions with mandatory acceptance function



TOOL HANDLING

Shorter retooling times through target-actual comparison of magazine assignments for follow-on jobs

- + Displays all tools required for a job, including automatic loading list creation
- + Generation of an unloading list through automatic detection of all tools not required for subsequent jobs



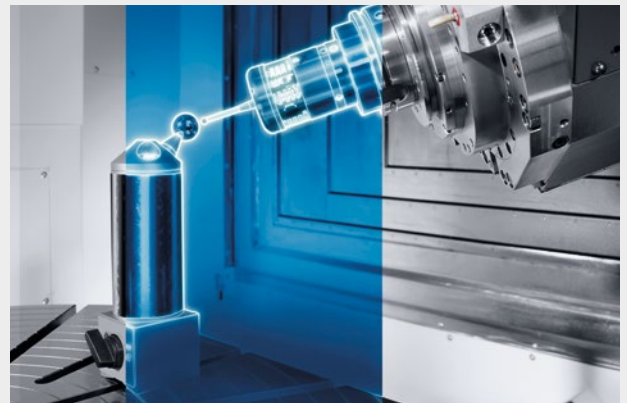
Exclusive optionally available DMG MORI technology cycles



MPC 2.0 – MACHINE PROTECTION CONTROL

Machine protection through rapid shutdown

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



3D quickSET (If 4-NC axis is integrated)

Maximum precision achieved quickly and easily

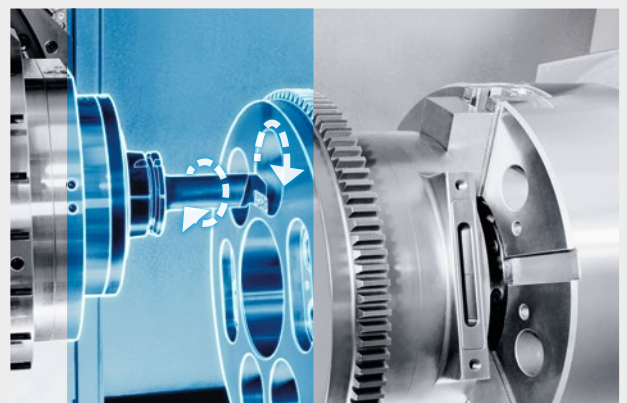
- + Tool kit for checking and correcting the kinematic accuracy of 4- and 5-axis machine configurations
- + All head variants and table axes



ATC 2.0 – APPLICATION TUNING CYCLE

Process optimisation at the touch of a button

- + Process-oriented tuning of the feed drives
- + Minimisation of machining time while maximising the relevant component quality, even when dependent on workpiece weight
- + High surface quality during finishing



INTERPOLATION TURNING – TURNING-RECESSING CYCLE

Simple production of sealing surfaces that must not be milled

- + Circular movement of tool cutter, whereby the cutter is always oriented towards the centre of the circle
- + Possible for external and internal machining
- + Synchronisation and tool path controlled by cycle

High-end CNCs for reliable processes and maximum precision



SIEMENS 840D SOLUTIONLINE

- + Simple interactive programming thanks to identical "Look & Feel" for turning and milling
- + New SINUMERIK Operate user interface
- + ATC*, 3D quickSET*
- + Powerful 32 bit multiprocessor system and controller, 1 GB RAM
- + Fast block processing time of approx. 0.6 ms
- + Look-ahead function for up to 150 NC-blocks (capable of parameterisation)
- + Graphic simulation of the machining process with plan view, triple-plane display and 3D display, synchronised display during machining
- + DECKEL MAHO MDynamics* package for improved surface quality with faster machining for surface smoothing etc.

* Option



HEIDENHAIN TNC 640

- + Unique, detailed 3D simulation graphics
- + New, optimised TNC user interface
- + HSCI – HEIDENHAIN Serial Controller Interface
- + Workshop or DIN-ISO programming
- + Fastest program creation with clear text programming
- + Graphic programming
- + CollisionMonitoring (DCM)
- + ATC*, 3D quickSET*
- + Powerful processor (Intel i7-3, 2 Cores)
- + New optimised ADP motion control for improved surfaces and faster processing (block processing time less than 0.5 ms)
- + Dynamic look-ahead function without block limitation
- + Dynamic efficiency with adaptive feed AFC and trochoidal milling as standard (Active Chatter Control ACC optional)

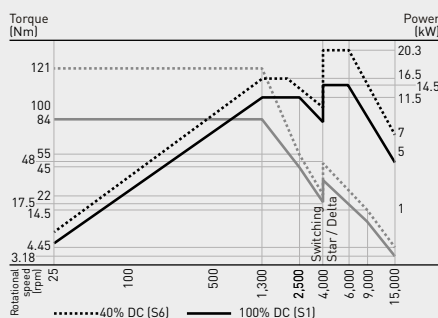
* Option

DMC 1850 V

Performance diagrams

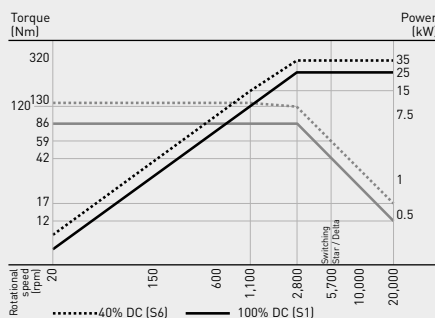
inlineMASTER spindle SK40/HSK-A63

15,000 rpm / 20 kW / 121 Nm



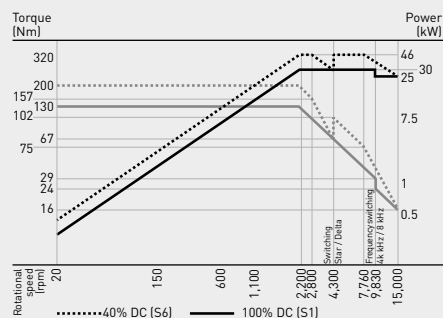
speedMASTER spindle SK40/HSK-A63

20,000 rpm / 35 kW / 130 Nm



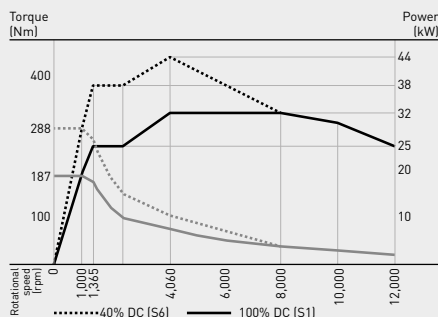
speedMASTER spindle HT SK40/HSK-A63

15,000 rpm / 46 kW / 200 Nm



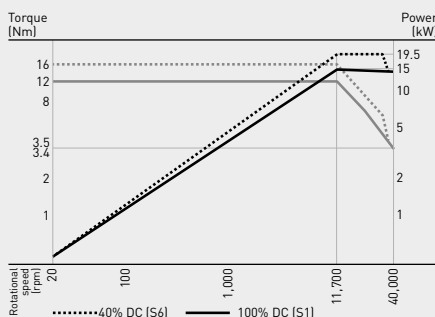
powerMASTER spindle SK50/HSK-A100

12,000 rpm / 44 kW / 288 Nm



Motor spindle HSK-E50

40,000 rpm / 19 kW / 16 Nm



DMC 1850 V

Spindle data

		inlineMASTER*	speedMASTER	speedMASTER	powerMASTER*	Motor spindle
Main drive		Standard	Option	Option	Option	Option
Speed range	rpm	15,000	20,000	15,000	12,000	40,000
Drive power (40/100 % DC)	kW	20/15	35/25	46/30	44/32	19/15
Torque (40/100 % DC)	Nm	121/84	130/86	200/130	288/187	16/12
Tool holder DIN 69871/DIN 69893		SK40/HSK-A63**	SK40/HSK-A63	SK40/HSK-A63	SK50/HSK-A100	HSK-E50

* Available as of Q2/2019 ** Option

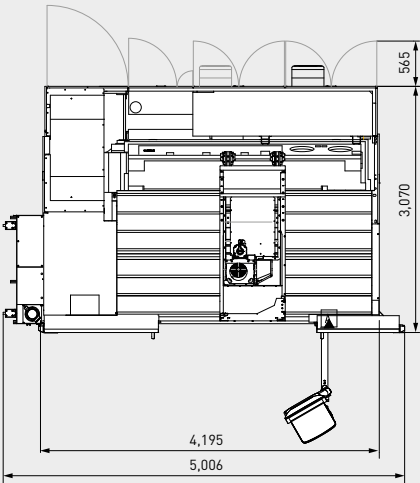
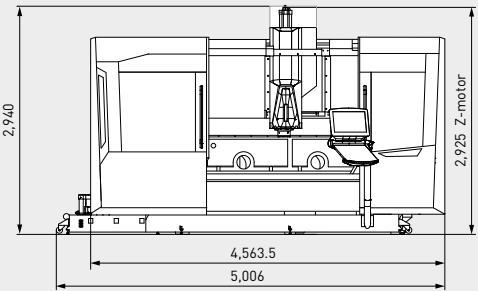
Technical specifications

DMC 1850 V		
Working area		
Travel X/Y/Z	mm	1,850/700/550
Feed		
Rapid traverse X/Y/Z	m/min	42
Feed force max. X/Y/Z	kN	23.5/16.5/14.0
Fixed table		
Clamping surface	mm	2,160×750
Loading height (top edge of table)	mm	820
Max. load	kg	3,000
Tool magazine		
Number of tools [SK40, HSK-A63]		20/30*/60*/120*
Number of tools [SK50, HSK-A100]		20/40*
Max. tool diameter	mm	80 [SK40]/100 [SK50]
Max. tool diameter with free adjacent pockets	mm	130 [SK40]/160 [SK50]
Max. tool length	mm	400
Machine weight / connection values		
Weight (standard design without tools and workpiece)	kg	15,700
Power	kW	30
Max. rated current	A	49
Control systems		
ERGOnline Control with 21.5" Multi-Touch screen, CELOS and SIEMENS 840D solutionline		•
ERGOnline Control with 21.5" Multi-Touch screen, CELOS and HEIDENHAIN TNC 640		Option
ERGOnline Control with 19" Multi-Touch screen and HEIDENHAIN TNC 640		Option

* Option

Front view

Top view





Available for you around the clock:

service-hotline.dmgmori.com

Customer First – Our service promise!

“We have good news for you: Our service and spare parts prices have been completely revised. With our service commitments, we want to meet your high demands with the highest service quality.”

Please contact us – your sales and service team is at your disposal!

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%*.



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



Up to 50% lower service costs. New Flat Call-Out Rate – without travel expenses or any additional costs!



Our protective shield for your productivity. Reduced operating costs, highest machine availability and maximum precision – DMG MORI Service *Plus*!



* All information and price advantages for Customer First are available at: customer-first.dmgmori.com

DMG MORI