DMG MORI

TRAVELLING COLUMN MACHINING CENTRES

DMF Series

DMF 180|7 / 260|7 / 260|11 / 360|11
DMF 180|7 / 260|7 / 260|11 / 360|11 *linear*

DMGMORI.COM

DMF 180/260/360

The new DMF Series with up to 3,600 mm | *141.7 in* X traverse.

As a leading manufacturer of travelling column machining centres, DMG MORI sets new standards with the DMF series. DMF machines offer impressive performance data and intelligent modular construction.

The DMF series is especially suitable for the machining of long workpieces, but can be configured and retrofitted for diverse tasks and industries. This applies to operations ranging from 3-axis milling up to 5-axis simultaneous machining and from parts production, the machining of cylinders or moulds all the way to applications in the aerospace industry. The series is available in two sizes with 700 mm | *27.6 in* or 1,100 mm | *43.3 in* travel in the Y-axis. In addition to a cost-effective version with ballscrew drives a dynamic version with a linear drive in the X-axis is available. With higher values for feed and accelerations also in Y and Z, the DMF *linear* offers the highest dynamics and precision for challenging production.

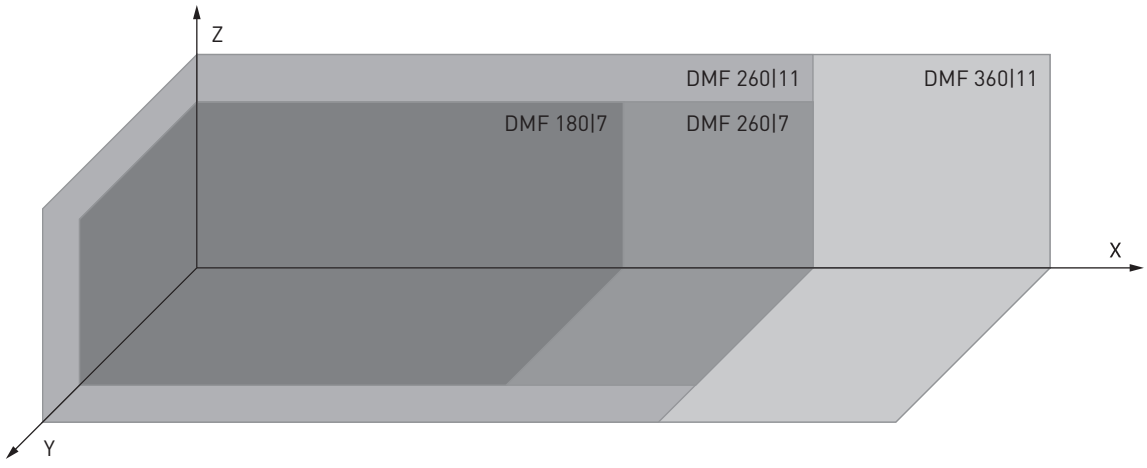
THE SIZES OF THE DMF SERIES AT A GLANCE

The small series with a 700 mm | *27.6 in* Y-axis traverse:

DMF 180|7: 1,800/700/700 mm | *70.9/27.6/27.6 in*
DMF 260|7: 2,600/700/700 mm | *102.4/27.6/27.6 in*

The large series with a 1,100 mm | *43.3 in* Y-axis traverse:

DMF 260|11: 2,600/1,100/900 mm | *102.4/43.3/35.4 in*
DMF 360|11: 3,600/1,100/900 mm | *141.7/43.3/35.4 in*



1: Connector / Automotive industry **2:** Rail / Machine construction **3:** Structural component / Aerospace
4: Housing / Mechanical engineering **5:** Injection mould / Tool and mould making **6:** Mould insert / Toolmaking
7: Actuating lever / Drive technology **8:** Compressor housing / Aerospace

DMF Series

Excellent chip removal performance increases productivity for both long and complex workpieces.

DMF 180|7 / DMF 260|7

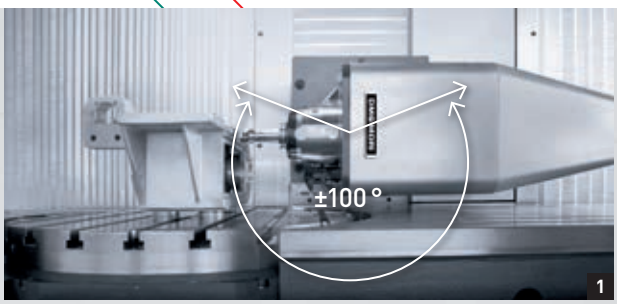
15 % greater chip removal volume, maximum precision and a unique design.

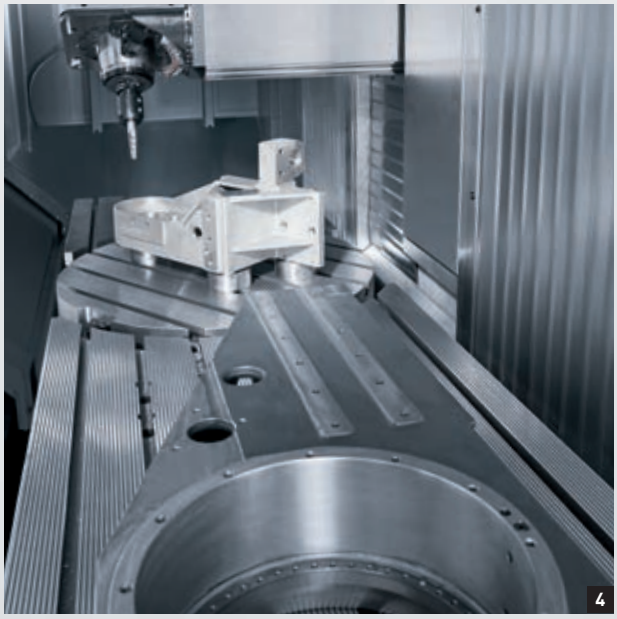
The DMF series with thermo-symmetrical travelling column and a new work area design allows 5-axis machining with large travels of 700 mm | *27.6 in* in Y and Z, due to the integration of an NC rotary table and a swivelling milling head as a controlled B-axis. The distance between the centre of the milling spindle and the table surface when the spindle is in the fully pivoted position has been reduced by 30 % compared with the previous model.

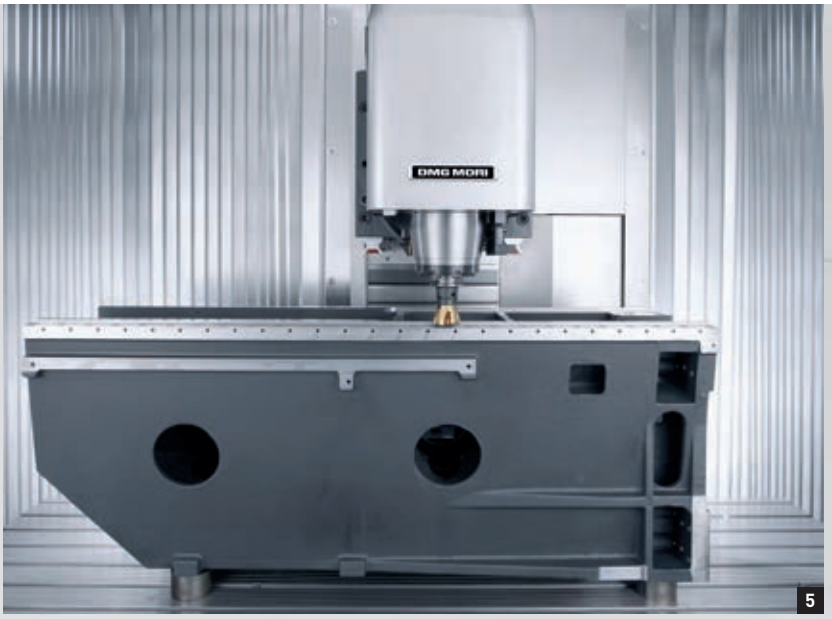
Noticably reduced chip-to-chip times due to the new design of the travelling tool magazine as well as a 15 % increase in chip removal volume demonstrate the potential for production. As the workpiece rests on the table higher workpiece weights are allowed not influencing the dynamics of the machine. Large windows provide an unrestricted view of the well-illuminated work area excellent ease of.

Precision & productivity

DMF 180|7 *linear* with thermo-symmetrical travelling column and CELOS®.







1: Swivelling milling head (B-axis)
2: Tool magazine with 30 magazine pockets (optional 60 or 120 pockets)
3: Fast tool changer
4: Multiple clamping with integrated NC table
5: Large work area of the DMF 180|7

HIGHLIGHTS DMF 180|7 / DMF 260|7

+ **Precision:** Excellent sturdiness due to a machine bed made from mineral composite, thermo-symmetrical travelling column, high precision due to linear drives with a dynamics package
+ **Efficiency:** Standard machine with a ball screw drive delivering 40 m/min | *1,575 ipm* rapid traverse and short tool exchange times
+ **Productivity:** Machine with a dynamics package, linear drive delivering 80 m/min | *3,150 ipm* rapid traverse and optimised tool exchange times
+ **Flexibility:** Work area partition, integrated NC tables, proven NC rotary table, modular expansion options
+ **Swivelling milling head w**ith increased continuous torque
+ **New design with large viewing windows** and optimal access to the work area

DMF 260|11 / DMF 360|11

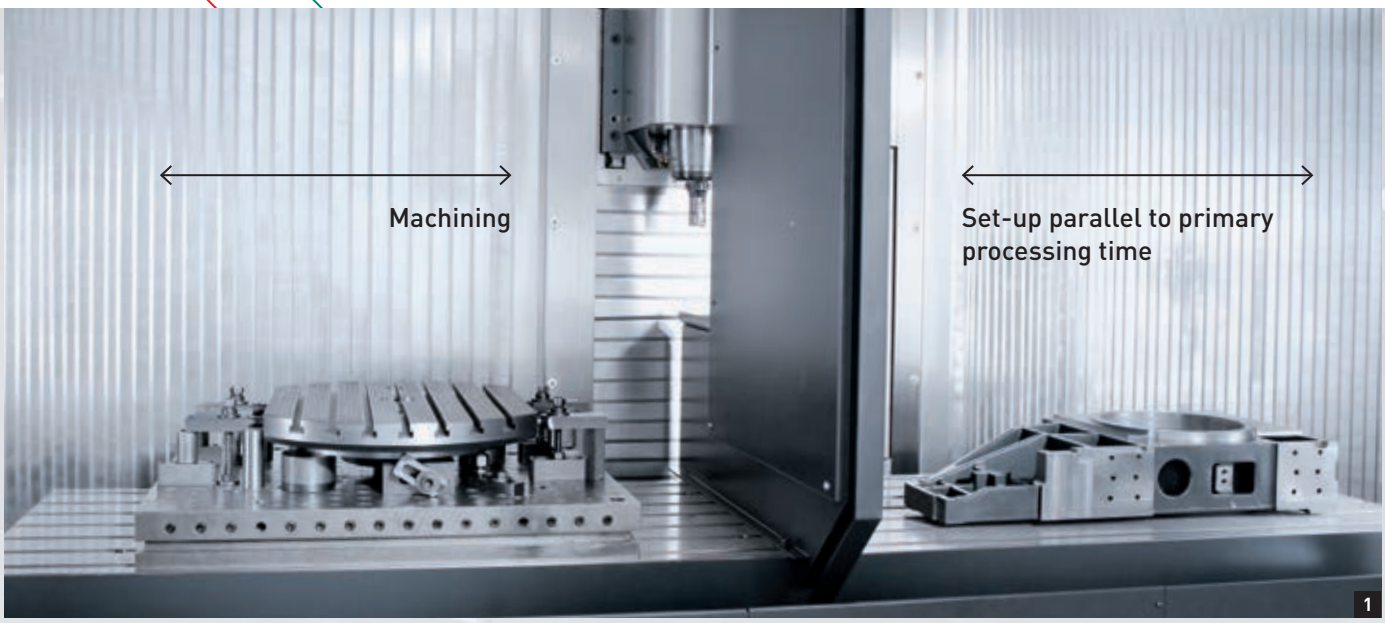
Flexible power milling with 80 m/min | *3,150 ipm* rapid traverse and 1,100 mm | *43.3 in.* in the Y-axis.

The large DMF series with 1,100 mm | *43.3 in.* in Y is based on the same design as the small series. The mineral cast machine bed, and the thermo-symmetrical travelling column guarantee a high degree of rigidity and long-term stability. Spindle options up to 20,000 rpm and the ability to integrate two NC rotary tables offer various applications.

With larger guideways and higher feed forces, the large series is especially suited to heavy roughing. This picture is completed with the powerful SK50 spindle with 10,000 rpm and 413 Nm | *304.6 ft-lbs* torque.

Large Workarea

DMF 260|11 *linear* with 1,100 mm | *43.3 in* travel in the Y-axis and B-axis (standard)



1: Work area with an X-axis traverse up to 3,600 mm | *141.7 in*, 1,100 mm | *43.3 in.* in Y and 900 mm | *35.4 in.* in Z, for long workpieces and effective pendulum machining with a work area partition **2:** Linear drive in the X-axis **3:** Tool magazine with up to 120 pockets **4:** Spindle option: 10,000 rpm motor spindle with SK50 or HSK-A100

HIGHLIGHTS DMF 260|11 / DMF 360|11

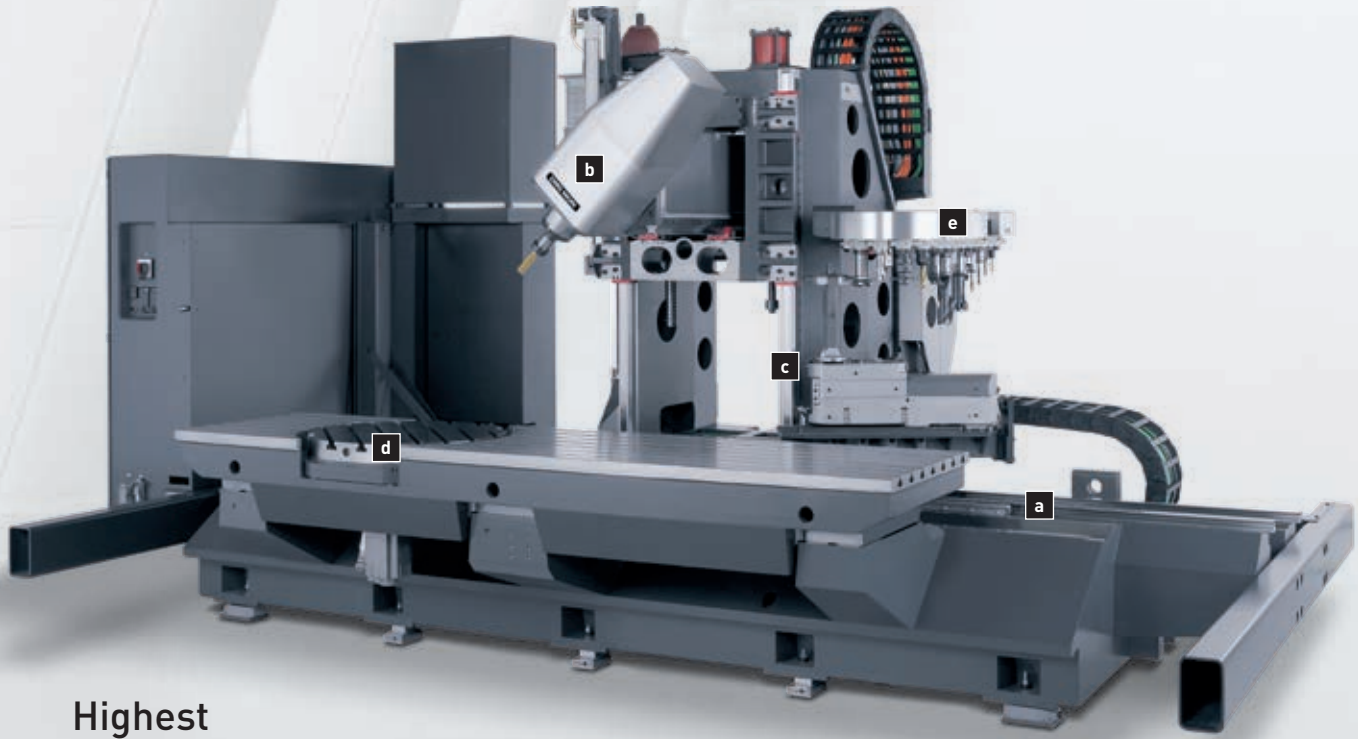
+ **Linear drive in the X-axis (optional)** for high rapid traverses and precision
+ **Large work area with up to a 3,600 mm | *141.7 in* traverse in X, 1,100 mm | *43.3 in* in Y and 900 mm | *35.4 in.* in Z for long workpieces or effective pendulum machining**
+ **Standard milling spindle** with 8,000 rpm for high chip removal
+ **Tool magazine for 30 tools in the standard version or for 60 to 120 tools**
+ **Powerful spindle** with 10,000 rpm and SK50 / HSK-A100 (optional) also in the B-axis

DMF SERIES

2nd Generation Travelling Column Machines – Standard version dynamics package.

At the heart of the DMF series is the highly stable machine bed made of vibration-reducing minearalic casting and the thermo-symmetrical travelling column. Due to the high mass of the mineral cast bed, the machine has a lower centre of gravity and markedly higher rigidity compared with welded constructions.

The travelling column is accompanied by the tool magazine which holds 30 tools in the standard version and reaches chip-to-chip times of less than eight seconds. With the dynamics package, even faster chip-to-chip times can be achieved.



Highest rigidity

DMF 260|7 *linear* with a thermo-symmetrical travelling column and linear drive in the X-axis.

1

2ND GENERATION TRAVELLING COLUMN DESIGN

a **Linear drive**
in the X-axis* for up to 80 m/min | *3,150 ipm* rapid traverse, standard machine with ball screws and 40 m/min | *1,575 ipm* rapid traverse

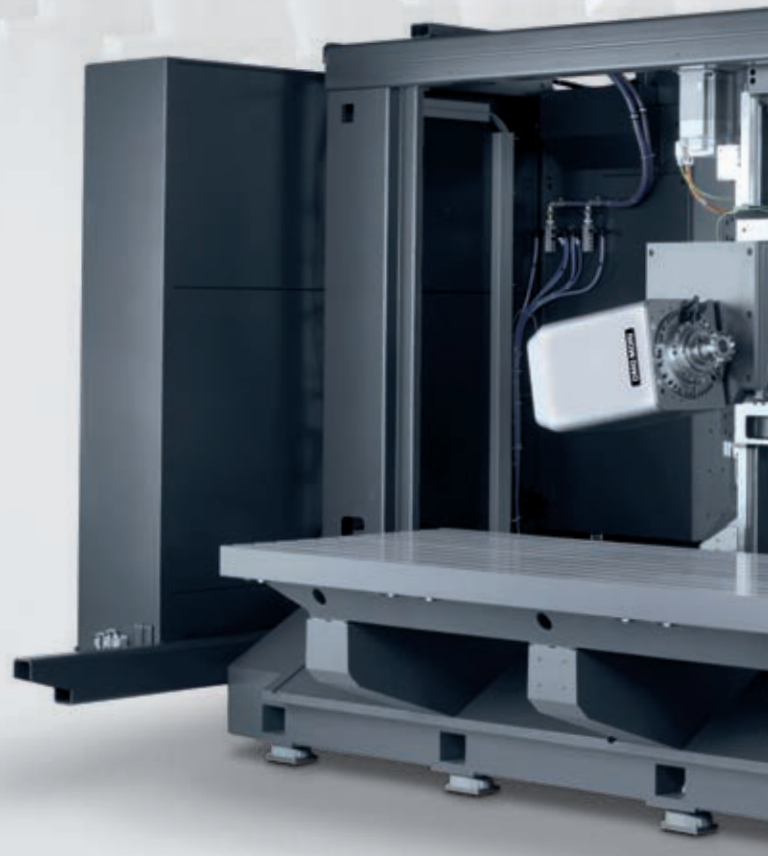
b **Motor spindle**
8,000, 15,000, 20,000 or 10,000 rpm

c **Large work area**
with up to 1,100 mm | *43.3 in.* in Y and up to 900 mm | *35.4 in.* in Z

d **Work table**
with an integrated C-axis*

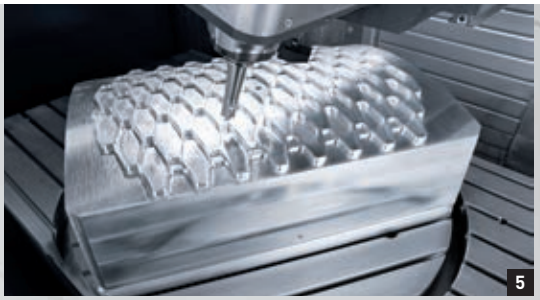
e **Travelling tool magazine**
for short chip-to-chip times

* Option

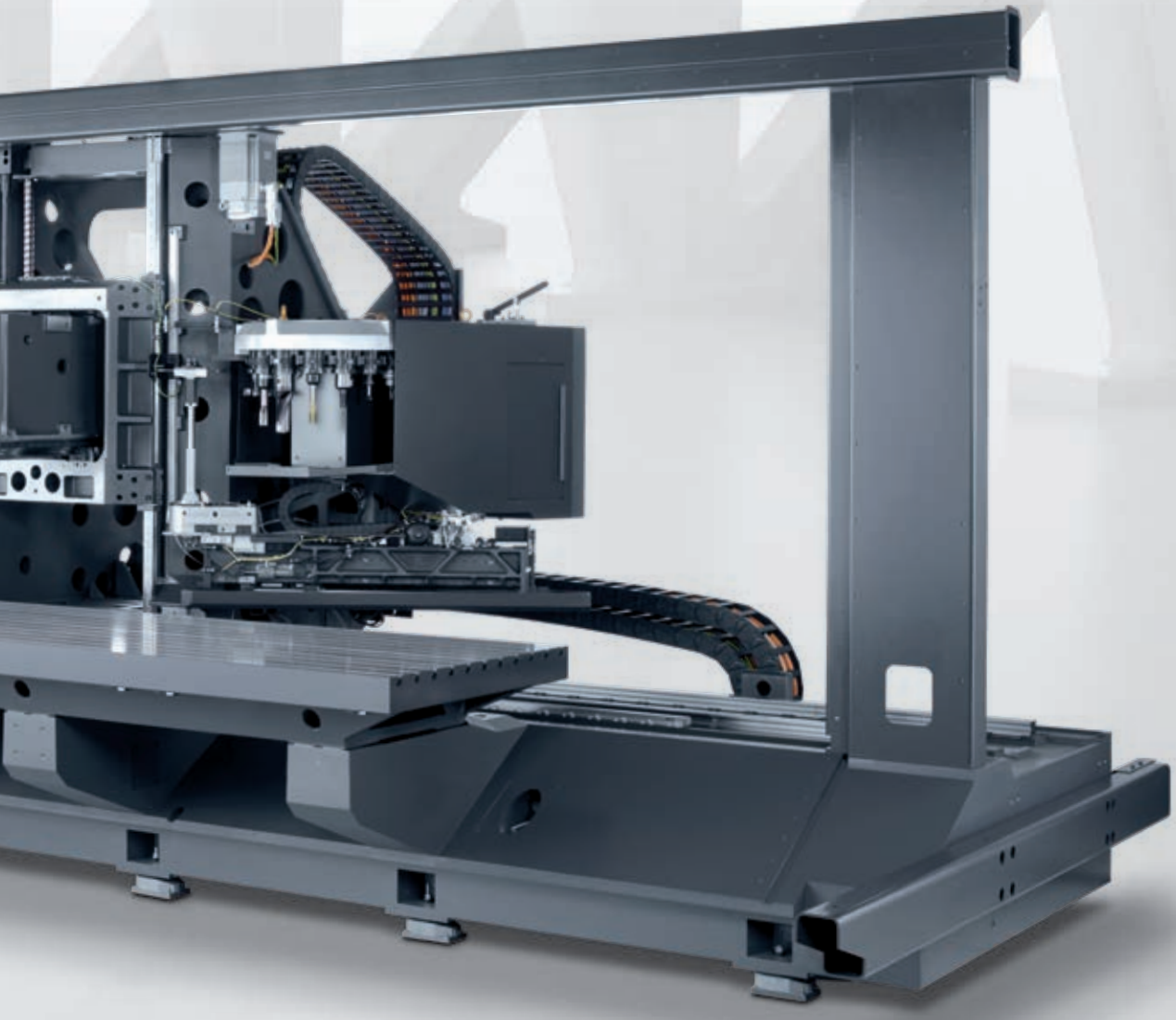


DMF 360|11 *linear*

Large work area with 1,100 mm | *43.3 in* in Y and 900 mm | *35.4 in.* in the Z-axis



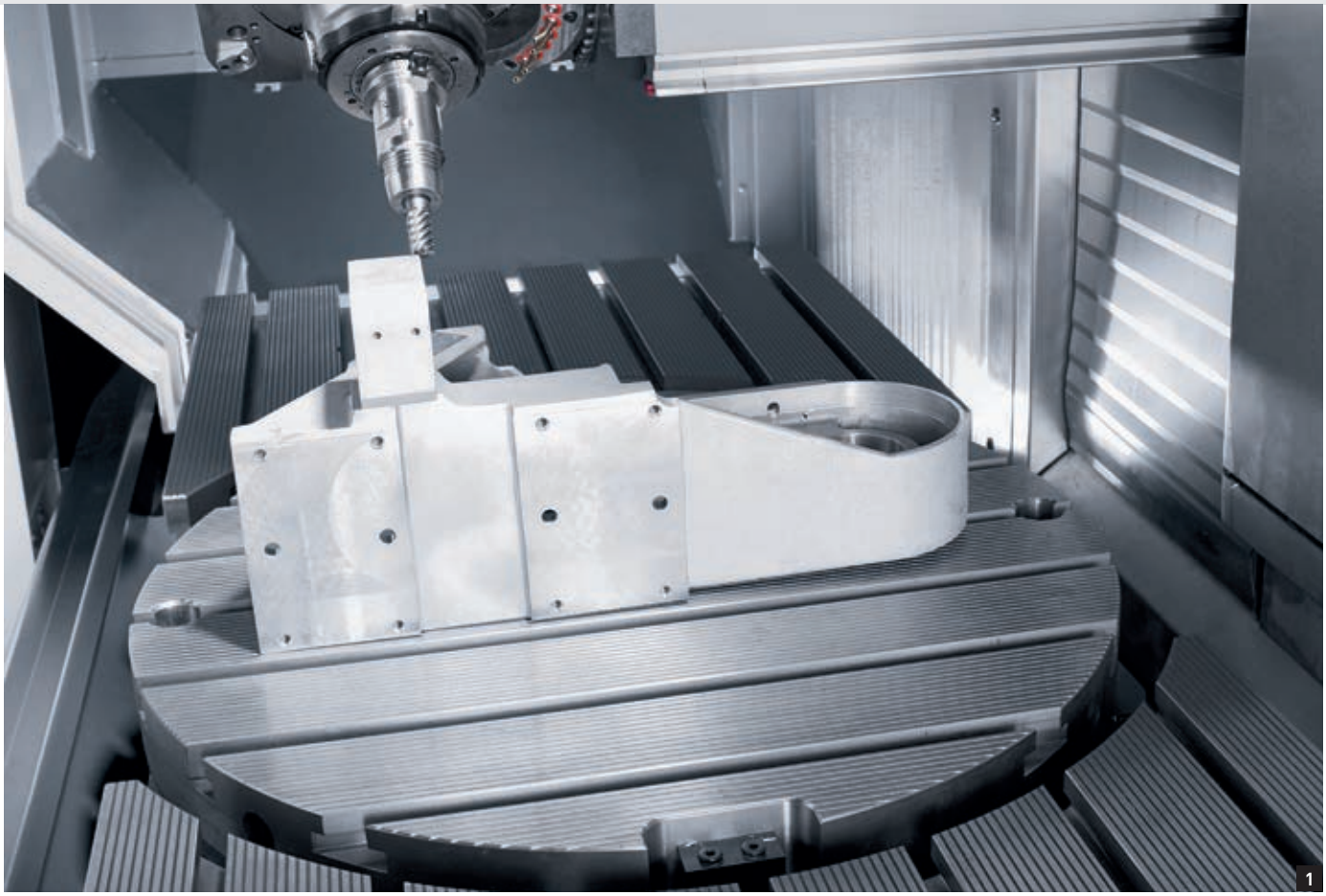
1: Linear encoders and linear drives in the X-axis with optional dynamics package
2: Ball screw drive as standard
3: Vertical spindle up to 20,000 rpm
4: B-axis (standard)
5: Integrated NC-rotary table (optional)

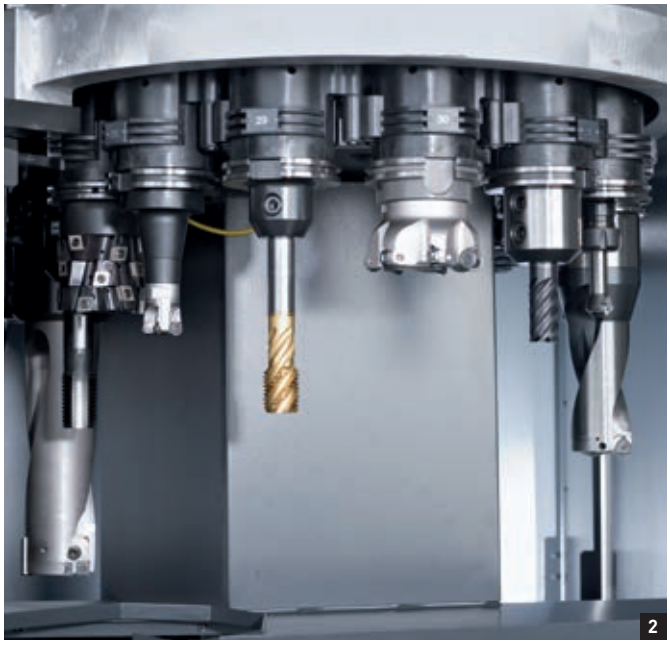


5-AXIS MILLING

DMF 180|7 *linear*

The configuration with the B-axis and with the integrated NC rotary table enables the DMF suitable for challenging 5-axis milling.





1: Integrated NC rotary table
2: Tool magazine with 30 pockets in the standard version, or with an optional 60 or 120 pockets
3: Convenient loading of the tool magazine through a separate door and optional set-up aid
4: 5-axis machining of long components with rotary indexer and B-axis

The expansion options of the DMF series.

The customer's requirements dictate the configuration of the machine. Options include a standard ballscrew drive or a dynamic version with linear drive in the X-axis for the highest precision and dynamics, motor spindles that are available as vertical or pivoting milling heads, tool magazines with 30, 60 or 120 tools and 5-axis machining. The DMF series offers the right solution for each task.

The long X-axis travel of the DMF 260|11 / 360|11 allows the integration of two NC rotary tables and the work area partition also allows 5-axis pendulum machining of smaller workpieces with reduced set-up time. An additional configuration is the familiar NC set-up comprising a C- or A-axis, corresponding tailstocks or counter bearings, as well as diverse cooling devices, air blast, minimum quantity lubrication and industry-specific solutions.

CELOS®

Simplified machine operation.
Seamless integration of machine and company.

APP MENU

Like on a smartphone, the operator has direct access to all available applications through the "APP MENU".

ERGO*line*® CONTROL WITH 21.5" MULTI-TOUCH-SCREEN AND SIEMENS

Simple

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

Consistent

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

Compatible

Compatible with PPS and ERP systems.
Can be interlinked with CAD/CAM products.
Open to trendsetting CELOS® APP extensions.

SMART*key*®

Customised user authorisation. Individually adapted access privileges to the control system and the machine.

DMF SERIES

CELOS® – From the idea to the finished product.

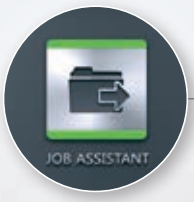
CELOS® features a standard user interface for all new high-tech machines from DMG MORI. CELOS® APPs facilitate the consistent management, documentation and visualisation of order, process and machine data. They also simplify, standardise and automate the operation of the machine. 26 standard APPs support the operator during preparation, optimization and systematically processing production orders.

CELOS® APPS – 3 EXAMPLES

JOB MANAGER

Systematic planning, administration and preparation of orders.

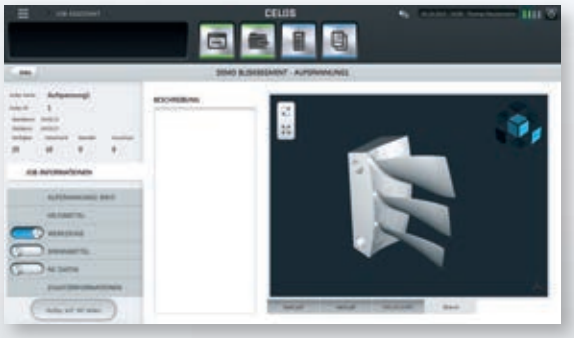
+ Machine related creation and configuration of new orders
+ Structured storage of all production related data and documents
+ Easy visualisation of orders, including NC program, equipment, etc.



JOB ASSISTANT

Process-defined orders.

+ Menu guided set-up of the machine and processing of production orders
+ Reliable error prevention thanks to windows-based assistance instructions with a mandatory acknowledgement function



TOOL HANDLING

Shorter tool setup times through assessments of the magazine configuration for subsequent orders.

+ Display of all tools required for a job, including the automatic generation of a loading list
+ Generation of an unloading list through the automatic detection of all tools not required for subsequent jobs

TECHNOLOGY CYCLES

Exclusive, optionally available DMG MORI technology cycles.

MPC – MACHINE PROTECTION CONTROL

Protecting machines with an emergency shut-off function

+ Vibration sensors on the milling spindle
+ Emergency shut-off with teach function
+ Process monitoring by means of a bar graph
+ Milling spindle bearing diagnostics

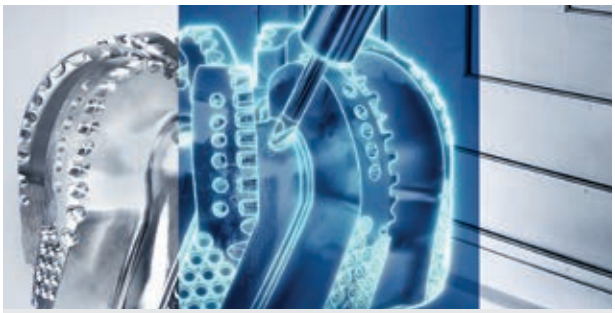
MPC Machine Protection Control

ATC – APPLICATION TUNING CYCLE

Process optimisation at the push of a button

+ Process-oriented feed drive tuning
+ Minimised machining time with maximised component quality, even in consideration of workpiece weight

ATC Application Tuning Cycle

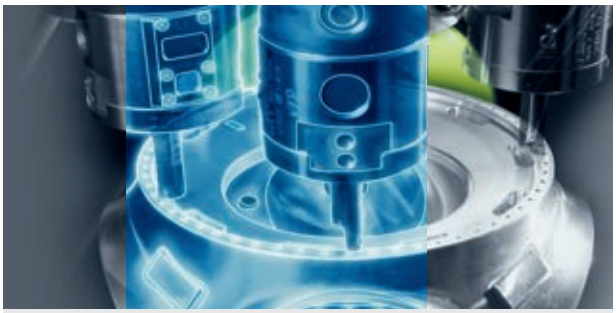


3D quickSET®

Quick and easy for the highest precision

+ Toolkit for checking and correcting the kinematic precision of four- and five-axis machine configurations
+ All head variants and all table axes

3D quickSET



INTERPOLATION TURNING

machining of sealing surfaces and grooves without FD table

+ Machining in a circular movement around or inside the workpiece
+ Spindle is always oriented rectangular to the drive direction

SIEMENS 840D SOLUTIONLINE

+ New SINUMERIK Operate user interface
+ 3D simulation
+ Quick network connection
+ 2 GB user memory
+ Quick editing of large programs
+ Simple, graphically supported set-up
+ Comprehensive tool management
+ 19″ monitor

Advantages

+ The simplest interactive programming
+ Programming with no additional documentation
+ Wide range of cycles
+ Safety due to simulation
+ Sophisticated tool handling

HEIDENHAIN TNC 640

+ Workshop or DIN-ISO programming
+ 3D simulation
+ Easy to edit large programs
+ Coordinate transformation
+ Tool management with a context-based help system
+ Hardware: Pentium 2 based
+ 19″ monitor

Advantages

+ Familiar and proven HEIDENHAIN programming interface
+ For the fastest programming
+ Graphical programming support
+ Convenient, thanks to the comprehensive selection of cycles

ERGO*line*® CONTROL

High-end CNCs for safe machining and maximum precision.

Intelligent control systems are indispensable when it comes to converting engineering performance into maximum process efficiency, applying the highest precision to the component and providing optimal user-friendliness. DECKEL MAHO relies on the quality of the global market leaders SIEMENS and HEIDENHAIN and improves their output holistically with its own software solutions such as DMG MORI Virtual Machine and the DMG MORI process chain.

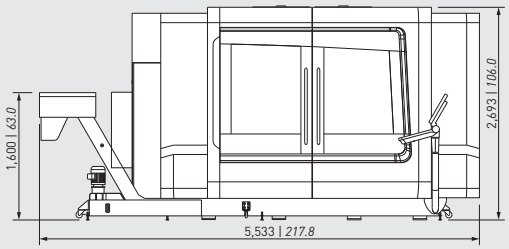
DMF SERIES

Floor plans

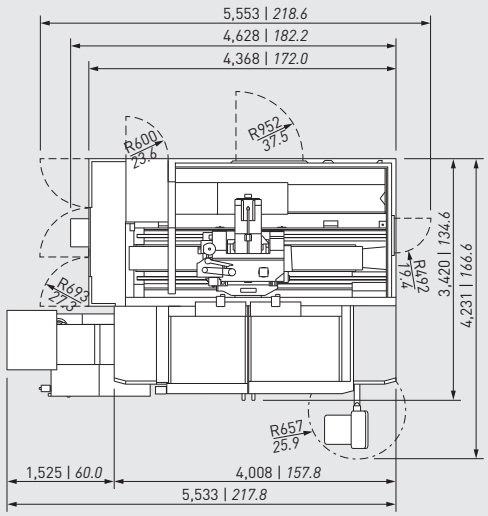
DMF 180|7 *linear* with 30 tools and a chip conveyor

New machine design

Front view
(mm | *in*)



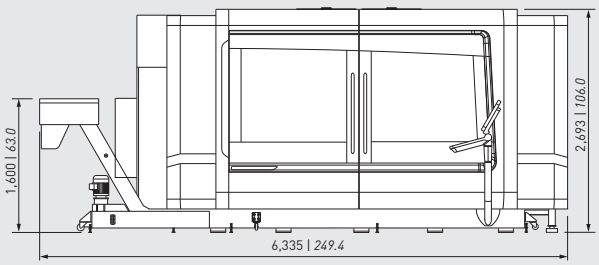
Top view
(mm | *in*)



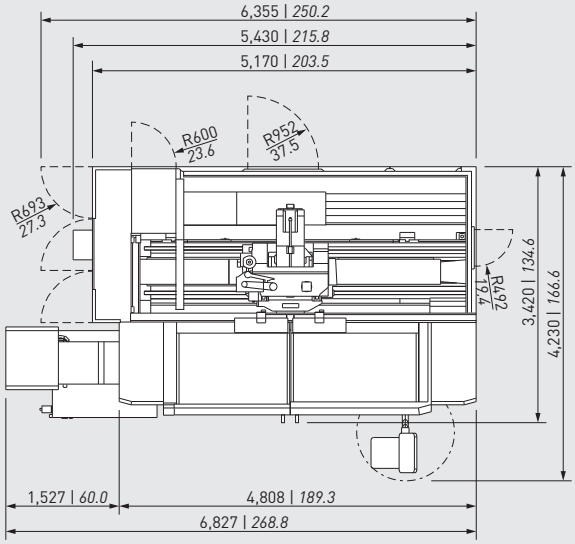
DMF 260|7 *linear* with 30 tools and a chip conveyor (Y = 700 mm | *27.6 in*)

New machine design

Front view
(mm | *in*)



Top view
(mm | *in*)

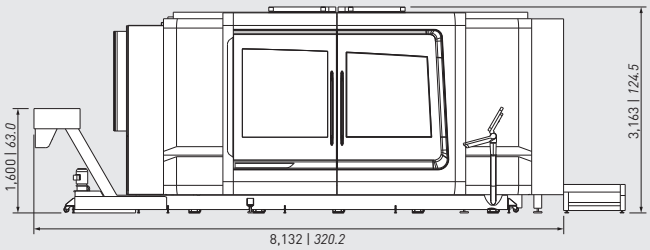


DMF 260|11 *linear* with 30 tools and a chip conveyor (Y = 1,100 mm | *43.3 in*)

New machine design

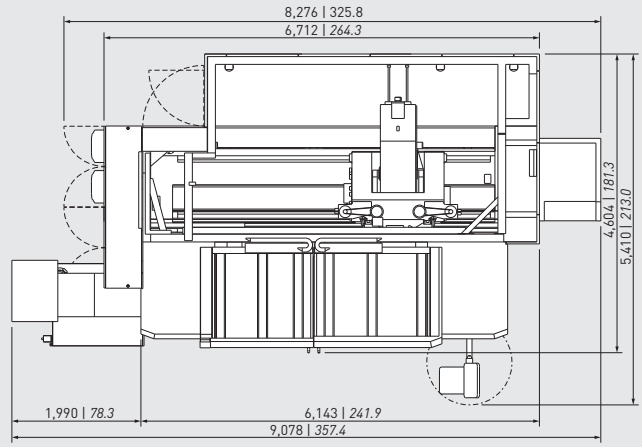
Front view

(mm | *in*)



Top view

(mm | *in*)

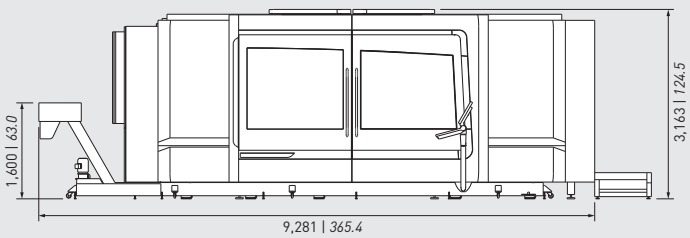


DMF 360|11 *linear* with 30 tools and a chip conveyor (Y = 1,100 mm | *43.3 in*)

New machine design

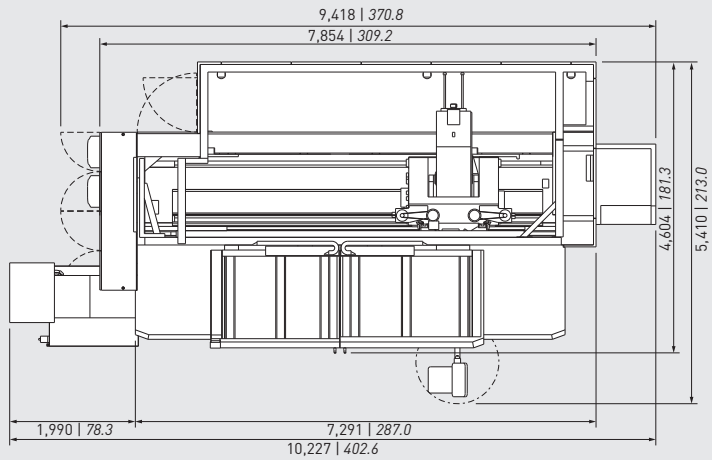
Front view

(mm | *in*)



Top view

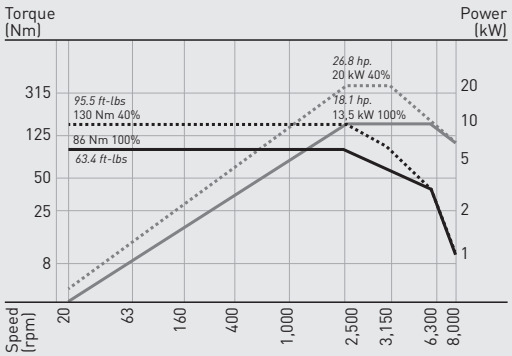
(mm | *in*)



Performance Diagrams

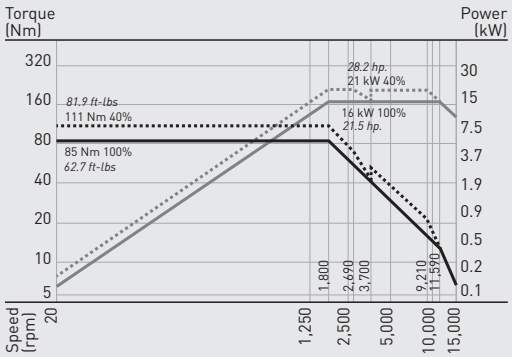
Standard 8,000 rpm

SK40



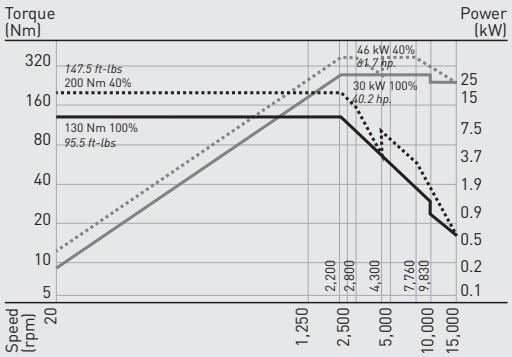
speedMASTER® 15,000 rpm / 21 kW | *28.2 hp* / 111 Nm | *81.9 ft-lbs*

SK40/HSK-A63



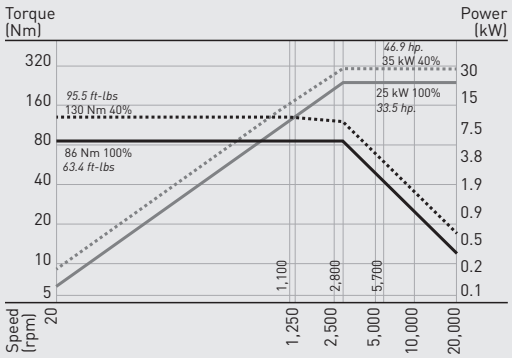
speedMASTER® 15,000 rpm / 46 kW | *61.7 hp* / 200 Nm | *147.5 ft-lbs*

SK40/HSK-A63



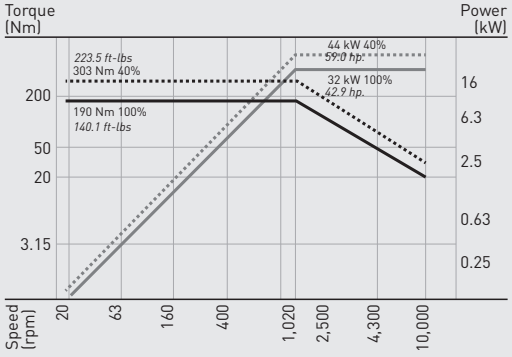
speedMASTER® 20,000 rpm / 35 kW | *46.9 hp* / 130 Nm | *95.9 ft-lbs*

SK40/HSK-A63



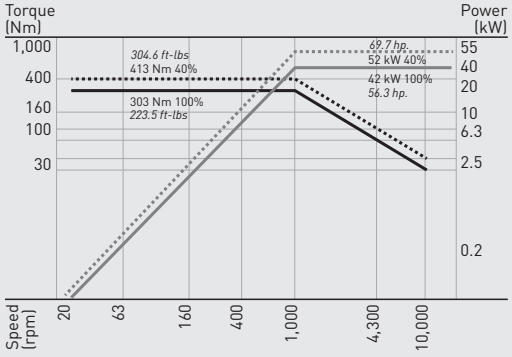
Option 10,000 rpm *

SK50/HSK-A100

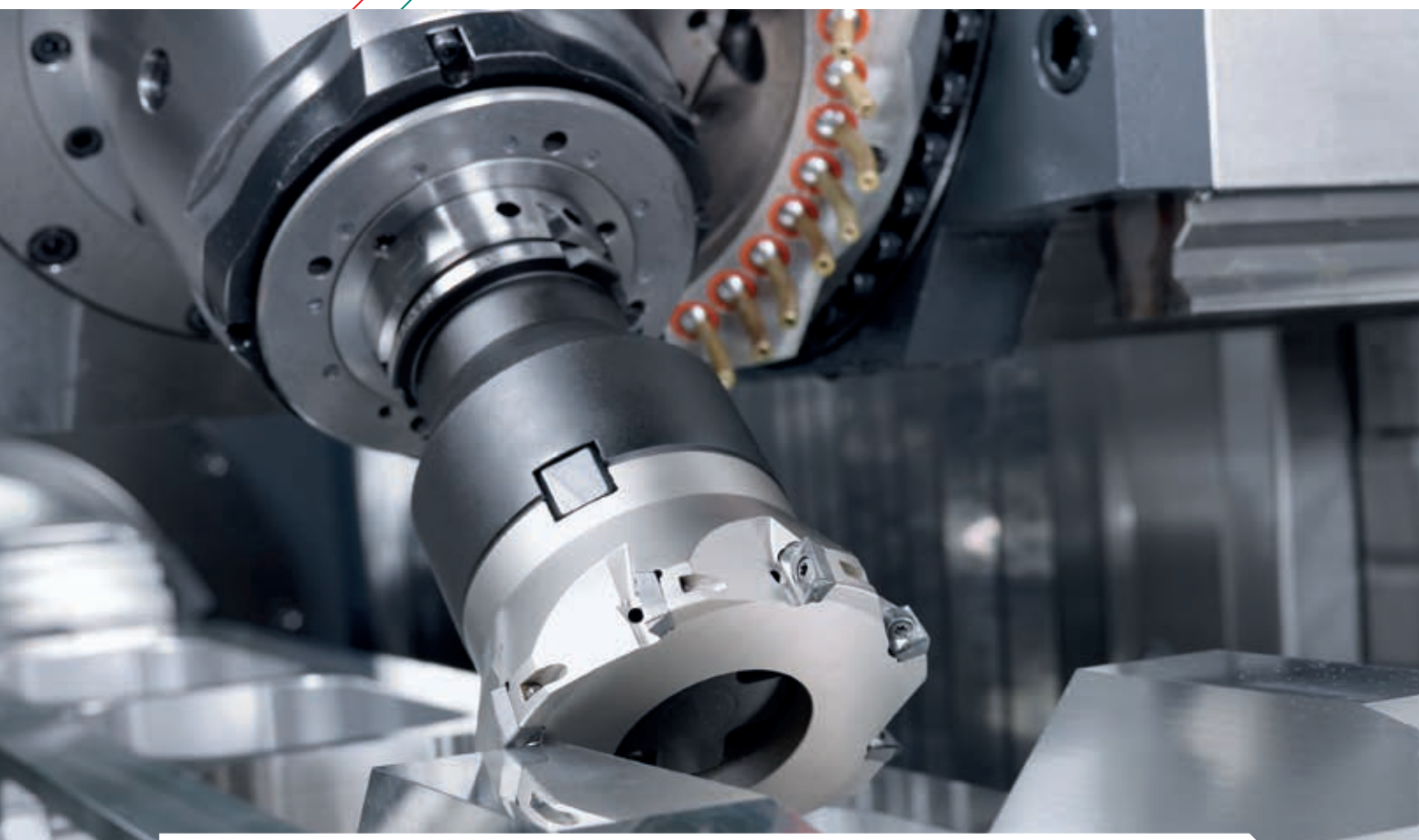


Special option 10,000 rpm *

SK50/HSK-A100



* Available for the large series with Y = 1,100 mm | *43.3 in.*



ENERGY EFFICIENCY FOR DMG MORI MACHINES

Up to 30 % energy savings

As co-founder of the Blue Competence Initiative, sustainable manufacturing technology and resource-saving product designs are already standard on DMG MORI machine tools. Thanks to intelligent technology, our machine tools consume on average 20 % less energy over their life cycle.

DMG MORI ENERGY SAVING

Intelligent control technology

+ **DMG AUTOshutdown** – Intelligent standby control for minimal energy consumption during downtime
+ **DMG GREENmode** – Faster processing speed and energy savings through intelligent feed control
+ **Simulation with DMG MORI Virtual Machine** – Fast set-up and reduced downtime with simulation

Intelligent electronics and drive technology

+ Optimal drive configuration
+ Accumulator technology for motor control
+ Drives are capable of recovering energy

Optimised mechanics

+ Reduced moving masses and weight balance
+ Minimised friction

DMF SERIES

Technical data

		DMF 180|7
Working area		
X / Y / Z travels	mm | *in*	1,800 / 700 / 700 | *70.9 / 27.6 / 27.6*
Linear axes (X / Y / Z)		
Feedrate	mm/min | *ipm*	40,000 | *1,575*
Rapid traverse (dynamic version)	m/min | *ipm*	40 (80) | *1,575 (3,150)*
Acceleration (dynamic version)	g	4 (8)
Feed thrust (X / Y / Z)	kN | *lbf*	8 / 8 / 8 | *1,798 / 1,798 / 1,798*
Positioning Accuracy		
Pmax. (X / Y / Z) – VDI DGQ 3441 / ISO 230-2	µ	10 / 10 / 10
Table		
Table dimension fixed table	mm | *in*	2,100 × 700 | *82.7 × 27.6*
Max. load fixed table	kg | *lbs*	1500 | *3,307*
Loading height (upper table edge)	mm | *in*	875 | *34.4*
Integrated NC Table		
Diameter integrated NC table	mm | *in*	750 | *29.5*
Max. load NC table	kg | *lbs*	500 | *102.3*
Main drive (standard)		
Rotational speed	rpm	8,000
Torque (40 / 100 %)	Nm | *ft-lbs*	130 / 86 | *95.5 / 63.4*
Power (40 / 100 %)	kW | *hp*	20 / 13.5 | *26.8 / 18.1*
Tool holder		SK40
Main drive (option)		
Rotational speed	rpm	15,000
Torque (40 / 100 %)	Nm | *ft-lbs*	111 / 85 | *81.9 / 62.7*
Power (40 / 100 %)	kW | *hp*	21 / 16 | *28.2 / 21.5*
Tool holder		SK40 / HSK A63
Main drive (option)		
Rotational speed	rpm	15,000
Torque (40 / 100 %)	Nm | *ft-lbs*	200 / 130 | *147.5 / 95.9*
Power (40 / 100 %)	kW | *hp*	46 / 30 | *61.7 / 40.2*
Tool holder		SK40 / HSK A63
Main drive (option)		
Rotational speed	rpm	20,000
Torque (40 / 100 %)	Nm | *ft-lbs*	130 / 86 | *95.5 / 63.4*
Power (40 / 100 %)	kW | *hp*	35 / 25 | *46.9 / 33.5*
Tool holder		SK40 / HSK A63
Main drive (option)		
Rotational speed	rpm	
Torque (40 / 100 %)	Nm | *ft-lbs*	
Power (40 / 100 %)	kW | *hp*	
Tool holder		
Main drive (option)		
Rotational speed	rpm	
Torque (40 / 100 %)	Nm | *ft-lbs*	
Power (40 / 100 %)	kW | *hp*	
Tool holder		
Tool Magazine		
Tool holder		SK40 / HSK A63
Capacity	pockets	30 / 60* / 120*
Diameter	mm | *in*	80 | *3.1*
Diameter with free adjacent pockets	mm | *in*	130 | *5.1*
Max. length	mm | *in*	300 | *11.8*
Weight	kg | *lbs*	6 | *13.2*
Chip-to-chip time	sec.	7.6
Controls		
DMG MORI ERGO*line*® Control with 21.5″ Monitor and CELOS with SIEMENS 840 D solutionline		•
DMG MORI ERGO*line*® Control with 19″ Monitor and 3D control system SIEMENS 840D solutionline		•
DMG MORI ERGO*line*® Control with 19″ Monitor and 3D control system HEIDENHAIN TNC 640		•

* Optional ** SK50/HSK-A100"

	DMF 260|7	DMF 260|11	DMF 360|11
	2,600/700/700 | *102.4/27.6/27.6*	2,600/1,100/900 | *102.4/43.3/35.4*	3,600/1,100/900 | *141.7/43.3/35.4*
	40,000 | *1,575*	40,000 | *1,575*	40,000 | *1,575*
	40 (80) | *1,575 (3,150)*	40 (80/60/60) | *1,575 (3,150/2,362/2,362)*	40 (80/60/60) | *1,575 (3,150/2,362/2,362)*
	4 (8)	4 (5/6/6)	4 (5/6/6)
	8/8/8 | *1,798/1,798/1,798*	12/10/12 | *2,698/2,248/2,698*	12/10/12 | *2,698/2,248/2,698*
	10/10/10	10/10/10	12/10/10
	2,900×700 | *114.2×27.6*	3,200×1,100 | *126×43.3*	4,200×1,100 | *165.4×43.3*
	2,150 | *4,740*	4,000 | *8,818.4*	5000 | *11,023*
	875 | *34.4*	972 | *38.3*	972 | *38.3*
	750 | *29.5*	1,050 | *41.3*	1,050 | *41.3*
	500 | *102.3*	1,200 | *2,645.5*	1,200 | *2,645.5*
	8,000	8,000	8,000
	130/86 | *95.5/63.4*	130/86 | *95.5/63.4*	130/86 | *95.5/63.4*
	20/13.5 | *26.8/18.1*	20/13.5 | *26.8/18.1*	20/13.5 | *26.8/18.1*
	SK40	SK40	SK40
	15,000	15,000	15,000
	111/85 | *81.9/62.7*	111/85 | *81.9/62.7*	111/85 | *81.9/62.7*
	21/16 | *28.2/21.5*	21/16 | *28.2/21.5*	21/16 | *28.2/21.5*
	SK40/ HSK A63	SK40/ HSK A63	SK40/HSK A63
	15,000	15,000	15,000
	200/130 | *147.5/95.9*	200/130 | *147.5/95.9*	200/130 | *147.5/95.9*
	46/30 | *61.7/40.2*	46/30 | *61.7/40.2*	46/30 | *61.7/40.2*
	SK40/ HSK A63	SK40/ HSK A63	SK40/HSK A63
	20,000	20,000	20,000
	130/86 | *95.5/63.4*	130/86 | *95.5/63.4*	130/86 | *95.5/63.4*
	35/25 | *46.9/33.5*	35/25 | *46.9/33.5*	35/25 | *46.9/33.5*
	SK40/HSK A63	SK40/ HSK A63	SK40/HSK A63
		10,000	10,000
		303/190 | *223.5/140.1*	303/190 | *223.5/140.1*
		44/32 | *59/42.9*	44/32 | *59/42.9*
		SK50/HSK A100	SK50/HSK A100
		10,000	10,000
		413/303 | *304.6/223.5*	413/303 | *304.6/223.5*
		52/42 | *69.7/56.3*	52/42 | *69.7/56.3*
		SK50/HSK A100	SK50/HSK A100
	SK40/ HSK A63	SK40/HSK A63 (SK50/ HSK A100)	SK40/HSK A63 (SK50/HSK A100)
	30/60*/120*	30/60*/120*	30/60*/120*
	80 | *3.1*	80 (115)** | *3.1 (4.5)***	80 (115)** | *3.1 (4.5)***
	130 | *5.1*	130 (160)** | *5.1 (6.3)***	130 (160)** | *5.1 (6.3)***
	300 | *11.8*	300 (410)** | *11.8 (16.1)***	300 (410)** | *11.8 (16.1)***
	6 | *13.2*	6 (15)** | *13.2 (33.1)*	6 (15)** | *13.2 (33.1)*
	7.6	9	9
	•	•	•
	•	•	•
	•	•	•

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