

Five-axis universal milling machines

# DMU / DMC monoBLOCK® series

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DMU 65 / 85 / 105 / 125 monoBLOCK®

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DMU 65 / 85 / 105 / 125 FD monoBLOCK®

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DMC 65 / 85 monoBLOCK®

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DMC 65 / 85 FD monoBLOCK®

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DMU / DMC monoBLOCK® series

## monoBLOCK® – The benchmark in all sectors.



The monoBLOCK® series has a machine concept for every sector: Be it 5-axis simultaneous machining, highly dynamic high-speed milling, integrated mill-turning, high-torque cutting or the broad field of productive parts machining in 3–5 axes. With the new monoBLOCK® machines, every component produced becomes an impressive masterpiece.



Automotive

Radiator grille for the Audi S6



## Mould making

Tyre mould in tool steel



## Machine construction

CK45 planet carrier



## Aerospace

Titanium blisk



## Energy

Impeller in aluminium



## Medical

Titanium knee joint



## Tooling

Specialised side milling cutter  
in tool steel



DMU / DMC monoBLOCK® series

# The all-rounder!

Be it individual or universal, the machine concept of monoBLOCK® machines with their comprehensive range of options provides a solution for every application. A wide range of table solutions from 3-axis machining to highly dynamic 5-axis machining with Direct Drive and the widest selection of spindles are the basis for the optimal configuration of your machine. Large door openings with unique access to the working area give the operator impressive freedom and perfect handling.

04



Over 30 years of  
5-axis expertise

**Please note:** The results of machining and performance trials listed in this catalogue are to be taken as examples. The results may vary slightly due to the site conditions and cutting conditions.

## Ergonomic

- + Large door opening with unique access to the working area, even with a pallet changer
- + Unrestricted crane loading of up to 6,000 kg
- + The most compact machine on the market with a footprint of just 7.5 m<sup>2</sup> (DMU 65 monoBLOCK®)
- + Quick and easy to set up thanks to its three-point support

## Precise

- + Comprehensive cooling measures, high-performance coolant unit and multi-sensor compensation as standard
- + Up to 25 % higher precision with the optional precision package
- + Stiff construction with high static masses and balanced moving parts
- + 55 mm roller guideways in all axes (45 mm on the 65)



monoBLOCK®

Ergonomic  
Precise  
Versatile  
CELOS®

05

| CELOS®

### Versatile

- + 3-axis machining up to 6 tonnes
- + Universal – swivelling rotary table with single or twin drive
- + Dynamic – Direct Drive on the A and C axes
- + Milling and turning – complete machining at up to 5,400 Nm
- + Productive – with up to six pallets in the system

### CELOS®

- + CELOS® from DMG MORI allows consistent administration, documentation and visualisation of order, process and machine data
- + CELOS® can be extended with apps and is also compatible with your company's existing infrastructures and programs

DMU / DMC monoBLOCK® series

## Unique ergonomics!

With a footprint of less than 8 m<sup>2</sup>, the monoBLOCK® is the most compact machine in its class on the market. The perfect accessibility and visibility of the working area also provide maximum user satisfaction! The working area can also be loaded from above.

### **Three-point support**

with the inherently rigid monoBLOCK® and crane hook design for rapid start-up

### **Palletisation option**

with unrestricted access to the working area

### **Optimal chip removal**

and chip disposal from the machine to the rear – 1,385 × 1,000 mm large chip aperture (65: 860 × 640 mm, 85: 1,080 × 800 mm, 105: 1,180 × 1,000 mm)

### **Stainless-steel covers in working area**

### **The most compact machine on the market**

just 7.5 m<sup>2</sup> of space required for the DMU 65 monoBLOCK® (12 m<sup>2</sup> for the 85, 18.2 m<sup>2</sup> for the 105 and 28.5 m<sup>2</sup> for the 125)

### **CELOS®**

simplifies and speeds the process from the idea to the finished product

### **Improved functionality**

The safety glass can be removed from outside the machine

### **Retention of value / long-life surfaces**

Premium range built to a high standard for superior scratch resistance and protection against damage





Unrestricted  
crane loading of  
up to 6,000 kg

Ergonomic  
Precise  
Versatile  
CELOS®



## Highlights

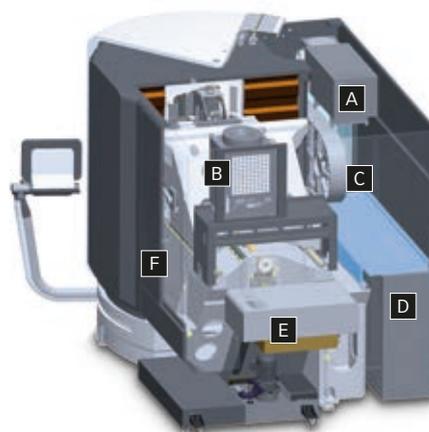
- + Large door opening with unique access to the working area for quick and ergonomic set-up of workpiece and tools
- + Crane loading **from above to over the table centre**
- + **Door opening of up to 1,900 mm** (1,310 / 1,500 / 1,650 mm on the DMU 65 / 85 / 105 monoBLOCK®)
- + **Full accessibility** to the working area and tool magazine, even with automation

07

## Ease of maintenance

- Oil mist extraction through the magazine\*
- Coolant unit
- Magazine with swivelling tool changer for up to 180 tools
- Control cabinet under the tool magazine
- Chip disposal to the rear\*
- Central Fluidbox for lubrication, hydraulics and pneumatics on the side of the column

\* Optional



CELOS®

DMU / DMC monoBLOCK® series

## Precise and stable – for perfect machining results.

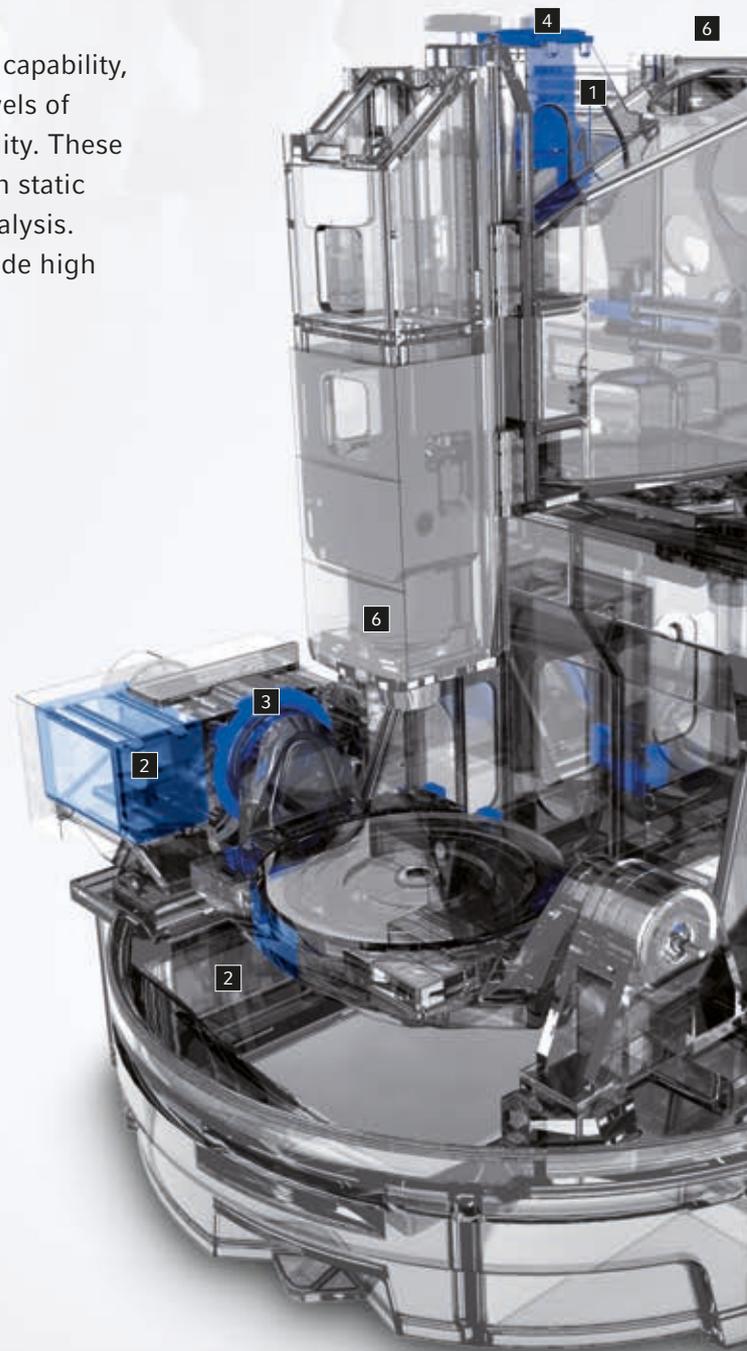
The monoBLOCK® series produces optimal milling capability, the best machining performance and excellent levels of precision thanks to its extreme stiffness and stability. These top levels of performance are achieved by the high static masses of the monoBLOCK® and detailed FEM analysis. The weight-optimised GGG-60 moving parts provide high process dynamics.

### Standard cooling measures

- Cooled Z axis motor
- Cooled A and C axis motors
- Cooled C axis gear
- Cooled motor mounting plates in the X and Z axes
- Internally cooled ball screw in the X axis
- Multi-sensor compensation with four sensors: Spindle, cabinet, Y-axis slideway, machine base

3.3 kW coolant unit

Comprehensive  
cooling measures  
for maximum  
long-term accuracy  
as standard



Ergonomic  
Precise  
Versatile  
CELOS®

## monoBLOCK® – Maximum stability from one casting

### Stiff monoBLOCK® concept

- + One-piece column with large, stable slideways, 55 mm roller guideways in all axes (45 mm on the 65)
- + Maximum stability thanks to the large YRT bearing in the swivelling rotary table and large ball screws in all axes, e.g. 460 mm YRT and up to 63 mm ball screws on the DMU 105 / 125 monoBLOCK®
- + FEM optimisation of all components
- + Clamping of the swivelling rotary table

## Up to 25 % higher accuracy with the optional precision package\*

- + Cooled motors in the X / Y / Z / A / C axes
- + Internally cooled ball screws in the X / Y / Z axes
- + Multi-sensor compensation with four sensors: Spindle, cabinet, Y-axis slideway, machine base
- + Increased number of interpolation points in the A and C axes
- + Selected components and 3.3 kW coolant unit

\* Only in conjunction with the measuring sensor option



**Workpiece:**  
Bobby Car mould,  
surface finish of Ra < 0.4 µm



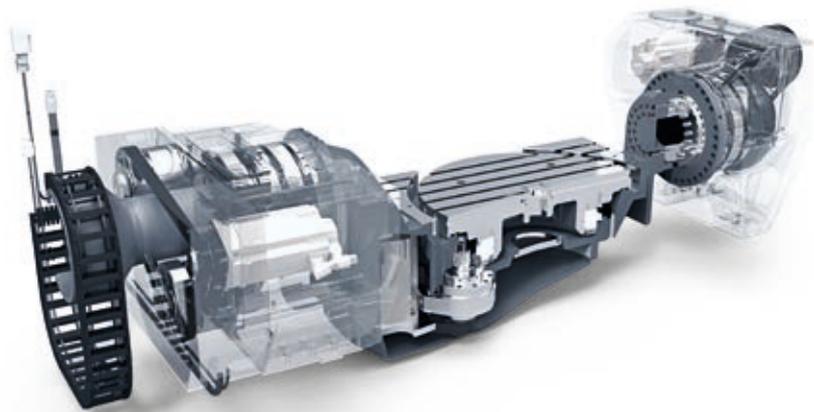
DMU / DMC monoBLOCK® series

## Individual or universal – a solution for every application.



### Universal // Swivelling rotary table with single or twin drive

5-axis simultaneous machining  
up to 2,600 kg and machining of  
negative angles



### Dynamic //

### Direct Drive on the A and C axes

Highly dynamic Direct Drive technology on  
the C and A axes (tandem) for the highest  
levels of precision and dynamics



### 3-axis machining of large workpieces – weighing up to 6 tonnes

Large working volume, up to 2 m<sup>2</sup> clamping  
area and an unbeatable maximum table load  
for demanding 3-axis machining



## From power to high speed – The widest range of spindles on the market

- + Up to 24,000 rpm and up to 430 Nm torque
- + speedMASTER® – High-tech motor spindles with the best performance and accuracy
- + Modular technology for the quickest and most cost-effective repairs
- + SK50 / HSK-A100 available from the DMU / DMC 85 monoBLOCK® upwards

Ergonomic  
Precise  
Versatile  
CELOS®



### Milling and turning //

#### Complete machining rated at up to 5,400 Nm

Maximum productivity through complete machining on one machine with speeds up to 1,200 rpm



### Productive //

#### With up to six pallets in the system

Best accessibility and ergonomics on the market: Palletisation option with unrestricted access to the working area with RS3 or RS6 rotary storage



Ergonomic  
Precise  
Versatile  
CELOS®

# CELOS®

Simplified machine operation.  
Seamless integration of machine  
and company.

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

## ERGoline® 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, docu-  
mentation and visualisation of  
order, process and machine data.

### Compatible

Compatible with PPS and ERP  
systems. Can be networked with  
CAD/CAM products. Open to trend-  
setting CELOS® APP extensions.



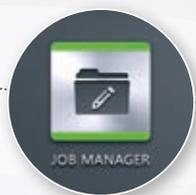
**SMARTkey®**  
Customised user  
authorisation. Individ-  
ually adapted access  
privileges to the control  
system and the machine.

DMU / DMC monoBLOCK® 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 on a unique 21.5" multi-touch monitor. They also simplify, standardise and automate the operation of the machine. 16 standard APPs help the machine operator prepare, optimise and systematically process production jobs.

## CELOS® APPs – 3 examples:



### JOB MANAGER

*Systematic planning, administration and preparation of work orders.*

- + Machine related creation and configuration of new work 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 conversational 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



## Exclusive, optionally available DMG MORI technology cycles



### **MPC – Machine Protection Control**

#### **Protecting machines with an emergency shut-off function**

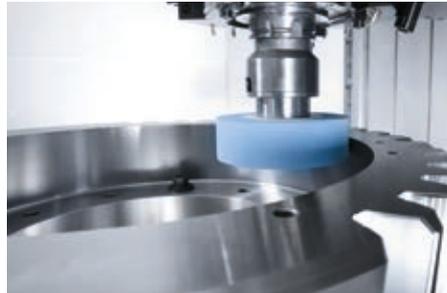
Vibration sensors on the milling spindle

Emergency shut-off with teach function

Process monitoring by means of a bar graph

Milling spindle bearing diagnostics

**MPC** Machine Protection Control



### **Grinding\***

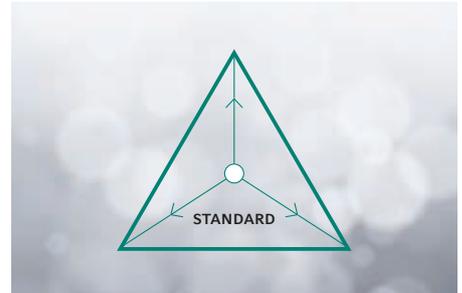
#### **Machining with the highest surface precision**

Grinding on a universal milling machine

Internal cylindrical, external cylindrical and surface grinding

Cycles for truing the grinding wheel

\* Only in conjunction with the mill-turn package



### **ATC – Application Tuning Cycle**

#### **Process optimisation at the push of a button**

Process-orientated feed drive tuning

Minimised machining time with maximised component quality, taking into account the workpiece weight

**ATC** Application Tuning Cycle



### **3D quickSET®**

#### **Quick and easy for the highest precision**

Tool kit for checking and correcting the kinematic precision of 4- and 5-axis machine configurations

All head variants and all table axes

**3D quickSET**



### **L measuring sensor package**

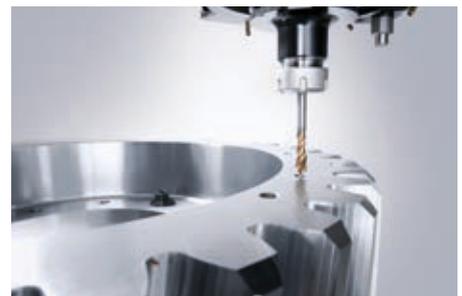
#### **Enhanced measuring options with the L measuring sensor**

Scanning measurement of slots and grooves

Measurement in hard-to-reach areas

Measurement of individual points

Package with manual and automatic calibration



### **Efficient production package**

#### **Safe and efficient production – optimisation of production potential**

Extended milling strategies

Simple programming of repeating machining steps

Safe retraction from all potential collisions

Reduced programming times

Reduction of errors based on program termination



## HEIDENHAIN TNC 640

- + Unique, highly detailed 3D simulation display
- + New optimised TNC user interface
- + HSCI – HEIDENHAIN Serial Controller Interface
- + Rapid program generation with plain text programming
- + CollisionMonitoring (DCM)
- + ATC\*, 3D quickSET®\*
- + Powerful processor (Intel i7-3, 2 cores)
- + New optimised ADP movement guide for improved surfaces and quicker machining (block processing time of just 0.5 ms)

\* Optional

## SIEMENS 840D solutionline

- + Highly simplified interactive programming with identical “look & feel” for turning and milling
- + SINUMERIK Operate user interface
- + Quick-view simulation of complex part programs
- + Efficient tool management
- + Wide range of 5-axis functions with numerous correction and intervention options
- + Advanced Surface – the option for the best surface finishes\* and an ideal complement to tool and mould making

\* Optional (not available for the DMC 65 / 85)

DMG MORI ERGOline® Control

# High-end CNCs for safe processes 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.

DMU / DMC monoBLOCK® series

## monoBLOCK® – A large working area in the smallest space.

True greatness comes from within. In a footprint of less than 8 m<sup>2</sup> (DMU 65 monoBLOCK®) the new monoBLOCK® series can accommodate workpieces up to 1,600 mm in length and 6,000 kg in weight for 3-axis machining (DMU 125 monoBLOCK®). The 5-axis version allows machining of high-tech workpieces up to 1,400 mm in diameter and 2,600 kg in weight. The working area can be loaded from above with no restrictions and, partly thanks to the standard stainless steel cladding of the working area, the machines retain their value.

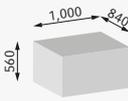
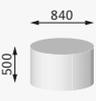
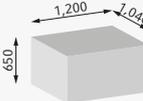
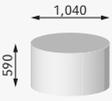
Footprint  
of just 8 m<sup>2</sup>



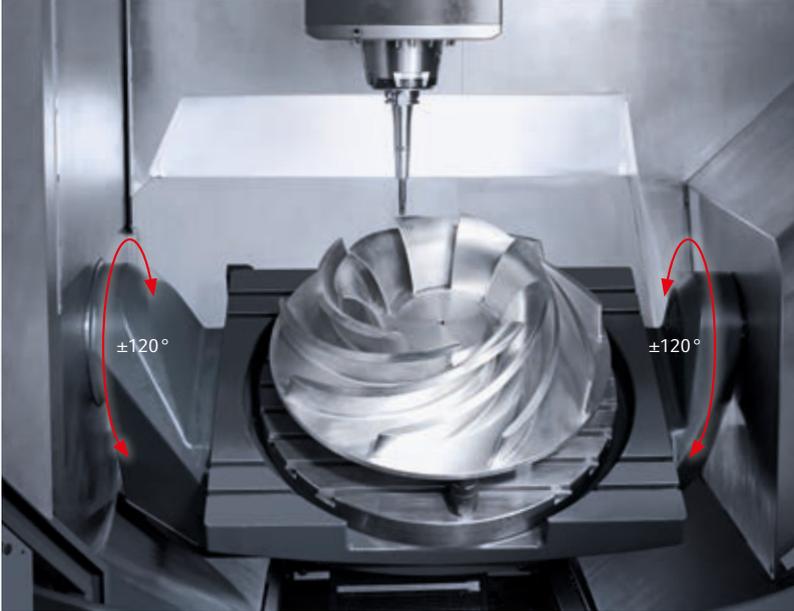
Footprint  
of just 12.3 m<sup>2</sup>



### Working area

		DMU 65 monoBLOCK®		DMU 85 monoBLOCK®	
		Rigid table	Swivelling rotary table*	Rigid table	Swivelling rotary table*
Travel X / Y / Z	mm	735 / 650 / 560	735 / 650 / 560	935 / 850 / 650	935 / 850 / 650
Table size	mm	1,000 × 650	ø 650	1,200 × 850	ø 850 × 750
Maximum load	kg	3,000	600 / 1,000**	4,000	1,000 / 1,500**
Workpiece dimensions	mm				

\* more detailed dimensional drawings available on request, restrictions dependent on swivel angle, \*\* swivelling rotary table with bilateral drive



**Globally unique – the highest maximum load**

5-axis simultaneous machining with a swivelling rotary table for components weighing up to 2,600 kg



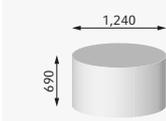
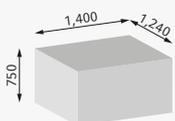
Footprint of just 18.2 m<sup>2</sup>



Footprint of just 28.5 m<sup>2</sup>

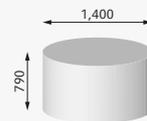
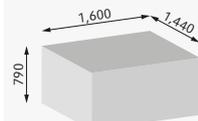
**DMU 105 monoBLOCK®**

Rigid table	Swivelling rotary table*
1,135 / 1,050 / 750	1,135 / 1,050 / 750
1,400 × 1,050	∅ 1,050 × 850
5,000	1,500 / 2,000**



**DMU 125 monoBLOCK®**

Rigid table	Swivelling rotary table*
1,335 / 1,250 / 900	1,335 / 1,250 / 900
1,600 × 1,250	∅ 1,250 × 1,000
6,000	2,000 / 2,600**



Applications and parts

Highlights

Control technology

**Overview**

▸ Table variants

▸ Modular system

Technical data

DMU / DMC monoBLOCK® series

# Table variants for every application.



		DMU 65 monoBLOCK®	DMU 85 monoBLOCK®	DMU 105 monoBLOCK®	DMU 125 monoBLOCK®
<b>Rigid table</b>					
Table size (L x B)	mm	1,000 x 650	1,200 x 850	1,400 x 1,050	1,600 x 1,250
Max. load	kg	3,000	4,000	5,000	6,000



<b>Swivelling rotary table – drive from one side</b>					
Table diameter	mm	ø 650 in 800 x 650	ø 850 x 750 in 1,000 x 750	ø 1,050 x 850 in 1,200 x 850	ø 1,250 x 1,000 in 1,400 x 1,000
Max. load	kg	600	1,000	1,500	2,000
C axis torque*	Nm	2,000	3,550	7,200	6,300
C axis speed	rpm	40	30	30	30
A axis torque*	Nm	3,400	4,900	8,300	15,800
A axis speed	rpm	20	15	15	15



<b>Swivelling rotary table with Tandem Drive – drive from both sides</b>					
Table diameter	mm	ø 650 in 800 x 650	ø 850 x 750 in 1,000 x 750	ø 1,050 x 850 in 1,200 x 850	ø 1,250 x 1,000 in 1,400 x 1,000
Max. load	kg	1,000	1,500	2,000	2,600
C axis torque*	Nm	3,600	5,000	7,200	6,300
C axis speed	rpm	50	40	30	30
A axis torque*	Nm	5,700	9,200	17,400	25,300
A axis speed	rpm	20	15	15	15



Direct Drive

<b>Mill-turn swivelling rotary table with single / twin Direct Drive technology</b>					
Table diameter	mm	680	850	1,050	1,250
Max. load	kg	600 / 600	1,000 / 1,200	1,500 / 2,000	2,000 / 2,600
C axis torque*	Nm	1,000	2,050	4,000	5,400
C axis speed	rpm	1,200	800	500	500
A axis torque*	Nm	3,400 / 5,700	4,900 / 9,200	8,300 / 17,400	15,800 / 25,300
A axis speed	rpm	20	15	15	15



Direct Drive dynamic

<b>Swivelling rotary table with Direct Drive technology on the A (tandem) and C axes (available for DMU and DMC)</b>					
Table diameter	mm	ø 600	–	–	–
Max. load	kg	600	–	–	–
C axis torque*	Nm	900	–	–	–
C axis speed	rpm	80	–	–	–
A axis torque*	Nm	1,900	–	–	–
A axis speed	rpm	20	–	–	–



<b>Swivelling rotary table for single / twin pallet changer (DMC monoBLOCK®)</b>					
Pallet size	mm	500 x 500	630 x 630	–	–
Max. load	kg	500 / 500 (600)**	800 / 800 (1,500)**	–	–
C axis torque*	Nm	2,000 / 3,600	3,550 / 5,000	–	–
C axis speed	rpm	40	30	–	–
A axis torque*	Nm	2,800 / 5,000	6,600 / 13,700	–	–
A axis speed	rpm	20	15	–	–

\* torque = 100% DC, \*\* crane loading in the working area, – not available

# Modular system.

Spindles								(torque and output = 40 % DC)
								
15,000 rpm 111 Nm / 21 kW SK40 / HSK-A63	20,000 rpm 130 Nm / 35 kW SK40 / HSK-A63	18,000 rpm 130 Nm / 35 kW HSK-A63*	24,000 rpm 100 Nm / 24 kW HSK-A63	15,000 rpm 200 Nm / 46 kW SK40 / HSK-A63	10,000 rpm 288 Nm / 44 kW SK50 / HSK-A100	12,000 rpm 288 Nm / 44 kW SK50 / HSK-A100	12,000 rpm 430 Nm / 52 kW SK50 / HSK-A100	

Tool magazines	Production		
			
60 / 90 / 120 / 180 tools (SK40 / HSK-A63)			
	30 tools	Coolant system and production package	Chip conveyor
60 / 90 / 120 tools (SK50 / HSK-A100)			

Tables		
		
Rigid table	Swivelling rotary table with single drive	Tandem Drive swivelling rotary table with twin drive
		
Mill-turn swivelling rotary table with Direct Drive technology on the C axis	Swivelling rotary table with Direct Drive on the A (tandem) and C axes**	Swivelling rotary table for pallet changer

\* only available as a mill-turn spindle, \*\* available for the DMU / DMC 65 monoBLOCK®

Applications and parts

Highlights

Control technology

**Overview**

► Automation

Technical data

1: Pallet changer for three pallets in a footprint of less than 4 m<sup>2</sup> with the best accessibility



DMC 65 / 85 monoBLOCK®

## More productivity with a pallet changer.

DMC 65 / 85 monoBLOCK® – Automatic pallet changer with three pallets as standard



Footprint of just 17 m<sup>2</sup>

### Highlights – standard

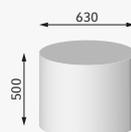
- + Full package including swivelling rotary table and chip conveyor
- + Automatic pallet changer for a total of three pallets
- + Crane loading into the working area for workpieces weighing up to 1,500 kg
- + 800 kg maximum load and workpieces up to 800 mm in diameter per pallet
- + Best accessibility and ergonomics on the market: Unrestricted accessibility from the front to the working area and crane loading from above to the centre of the table
- + Space requirement of just 16.4 m<sup>2</sup> (including chip conveyor and coolant system on the DMC 65 monoBLOCK®)

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Travel X / Y / Z	mm
Pallet size	mm
Maximum load	kg
Workpiece dimensions	mm

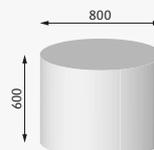
#### DMC 65 (FD) monoBLOCK®

735 / 650 / 560
500 × 500
500 / 600*



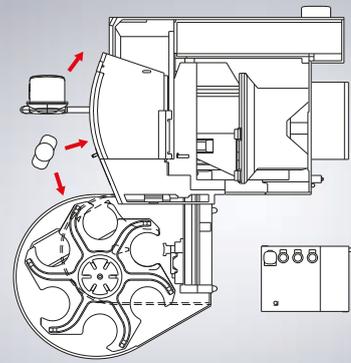
#### DMC 85 (FD) monoBLOCK®

935 / 850 / 650
630 × 630
800 / 1,500*



Machine interior with shuttle unit

\* crane loading in the working area



## DMC 65 monoBLOCK® with RS 6 rotary storage – The compact 21 m<sup>2</sup> solution



### Highlights – machine with RS 6

- + Six pallets in the system
- + Available for the DMC 65 monoBLOCK®
- + Minimal footprint of just 21 m<sup>2</sup> (including chip conveyor and coolant system)
- + Pallet size 500 × 500 mm
- + Maximum workpiece measurements ø 630 × 500 mm and 500 kg
- + Also available as a mill-turn model

## DMU 65 monoBLOCK® with PH 150 pallet handling – Integration of simple automation



### Highlights – machine with PH 150

- + Simple and cost-effective automation solution for up to 12 pallets
- + Maximum workpiece dimensions of 400 × 400 × 400 mm
- + Full accessibility is maintained to the working area from the front and from above
- + Space requirement of just 16 m<sup>2</sup> (including chip conveyor and internal coolant supply)

Pallet size	Number	Maximum load
400 × 400 mm	6	250 kg
320 × 320 mm	10	250 kg
ø 210 mm	12	150 kg

DMU 65 / 85 / 105 / 125 FD monoBLOCK® and DMC 65 / 85 FD monoBLOCK®

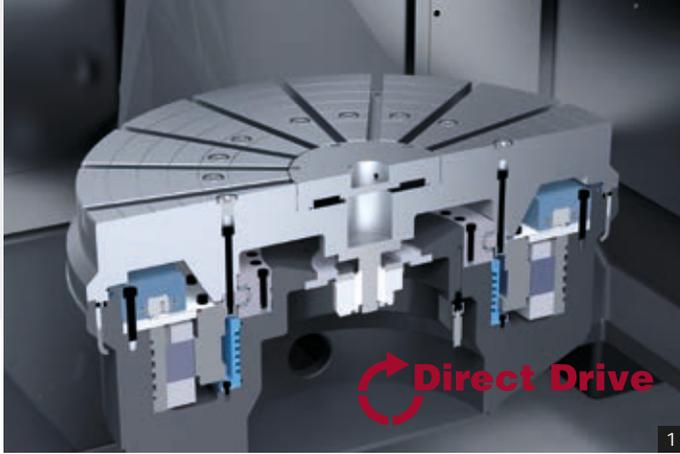
## Mill-turn technology for complete machining.



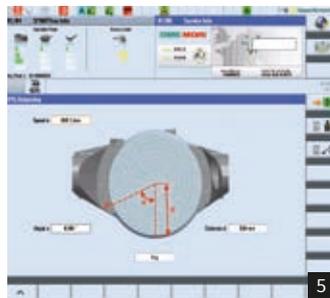
### Highlights of the DMU / DMC FD monoBLOCK®

- + **Complete machining, including milling and turning, on one machine** in one clamping with Direct Drive technology up to 1,200 rpm
- + Less investment and **lower space requirement** with the use of just one machine
- + Quick machining and lower logistics costs thanks to the elimination of both idle periods and additional operations – lower unit production costs and higher precision
- + **2,600 kg maximum workpiece weight** with the DMU 125 FD monoBLOCK®
- + Swivelling rotary table also available with **Tandem Drive with twin drive** for even more stability and better dynamics
- + **Powerful HSK-A100 motor spindle rated at 44 kW and 288 Nm** on the DMU 85 FD monoBLOCK®

		DMU / DMC 65 FD monoBLOCK®	DMU / DMC 85 FD monoBLOCK®	DMU 105 FD monoBLOCK®	DMU 125 FD monoBLOCK®
Maximum speed	rpm	1,200	800	500	500
Output (100 % DC)	kW	37	36	35	35
Torque (100 % DC)	Nm	1,000	2,050	4,400	5,400
Maximum holding torque	Nm	4,125	4,125	6,200	6,200
<b>Sample application of mill-turn machining</b>					
Material		CK45	CK45	CK45	CK45
Material removal rate	cm <sup>3</sup> /min	405	720	800	900
Depth of cut	mm	4.5	6	8	9
Feed	mm/rev	0.45	0.6	0.5	0.5
Cutting diameter	mm	500	500	900	900
Cutting speed	m/min	200	200	200	200
Speed	rpm	127	127	71	71

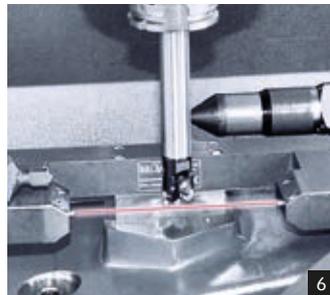


1: Mill-turn table with Direct Drive technology for speeds up to 1,200 rpm



2: Turning with an inclined tool using the A axis\* 3: Use of multi-edged tools (up to nine cutting edges)\* 4: Measurement cycles for in-process workpiece measurement\* 5: Electronic balancing 6: Measurement of turning and milling tools\*

\* Optional



## Mill-turn cycles for all requirements

### Exclusive mill-turn cycles, only at DECKEL MAHO\*

- + **Alternating spindle speeds**, process reliability thanks to the avoidance of vibrations
- + **L measuring sensor packages, measurement cycles for (L) measuring sensors**: Calibrate the measuring sensor in the working area, measure recesses and undercuts etc., store, display and transfer measurement data
- + **Grinding cycles**, e.g. positioning the dressing station and dressing the grinding wheel
- + **Multi-tool**: Use of multi-edged tools (up to nine cutting edges on one tool)
- + **Milling and turning tool measurement**

### Standard mill-turn cycles

- + Detect, control and monitor **imbalances**
- + **Grooving, undercutting, chip removal, thread cutting etc.**
- + **Turning with an inclined tool** using the A axis

\* Optional

### DMU mill-turn / DMC mill-turn machines – full machining process

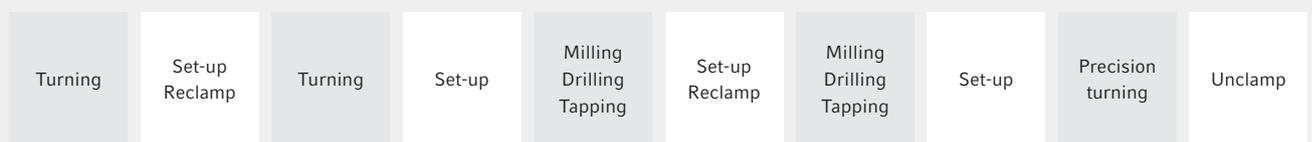


Machine 1

**Complete machining process:**  
1 machine  
4 machining steps  
300 % higher productivity

**Conventional machining process:**  
3 machines  
10 machining steps

### Single-purpose machines – conventional machining process



Machine 1

Machine 2

Machine 3



Applications and parts

Highlights

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Overview

**Technical data**

› Tool magazines

## Quick and innovative for high standards

**Vertical chain magazine for 30 tools (optionally 60 / 90 / 120 / 180)**

**Rapid cam-controlled double gripper for short chip-to-chip times (4.9 seconds for the DMU 65 monoBLOCK®)**

**SK50 / HSK-A100 for the DMU 85 / 105 / 125 monoBLOCK® with 30 tools as standard (optionally 60, 90, 120)**





1: Double gripper  
2: Vertical chain magazine with 120 stations with no additional space requirements

DMU / DMC monoBLOCK® series

# Universal workpiece handling – SK50 / HSK-A100 starting from the DMU 85 monoBLOCK®.

	DMU / DMC 65 monoBLOCK®	DMU / DMC 85 monoBLOCK®	DMU 105 monoBLOCK®	DMU 125 monoBLOCK®
<b>Tool magazine with SK40 / CAT 40 / HSK-A63</b>				
Vertical single chain, 30 stations	•	•	•	•
Vertical single chain, 60 stations	◦	◦	◦	◦
Vertical single chain, 90 stations	◦	◦	◦	◦
Vertical single chain, 120 stations	◦	◦	◦	◦
Vertical single chain, 180 stations	◦	◦	◦	◦
<b>Tool magazine with SK50 / CAT 50 / HSK-A100</b>				
Wheel magazine, 30 stations	–	◦	◦	◦
Vertical single chain, 60 stations	–	◦	◦	◦
Vertical single chain, 90 stations	–	◦	◦	◦
Vertical single chain, 120 stations	–	◦	◦	◦

		DMU / DMC 65 monoBLOCK®	DMU / DMC 85 monoBLOCK®	DMU 105 monoBLOCK®	DMU 125 monoBLOCK®
<b>SK40 / CAT 40 // HSK-A63</b>					
Magazine type / maximum stations	chain	180 stations	180 stations	180 stations	180 stations
Tool diameter	mm	160	160	160	160
Tool length	mm	315	365 // 420	365 // 420	470 // 500
Weight	kg	8	8	8	8
Chip-to-chip time	sec.	4.9	5.9	5.9	6.5
<b>SK50 / CAT 50 // HSK-A100</b>					
Magazine type / stations up to	chain	–	120 stations	120 stations	120 stations
Tool diameter	mm	–	200	250	250
Tool length	mm	–	315 // 395	315 // 395	420 // 500
Weight	kg	–	20	20	20
Chip-to-chip time	sec.	–	7.3	7.3	7.9

• standard, ◦ optional, – not available

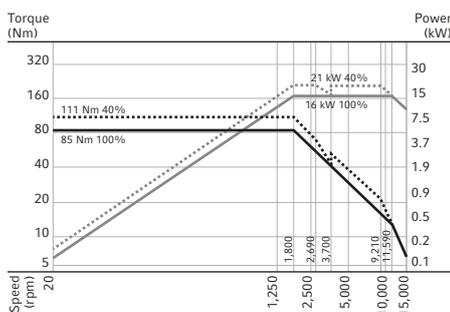
DMU / DMC monoBLOCK® series

# The largest and latest range of spindles.

**speedMASTER® motor spindles**

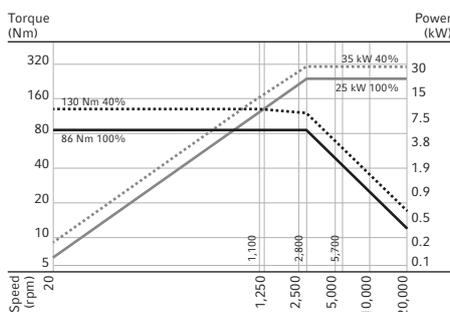
**SK40 / HSK-A63**

15,000 rpm / 21 kW / 111 Nm



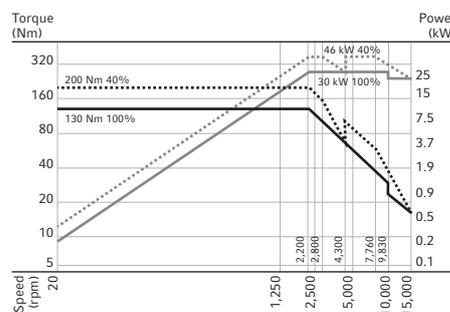
**SK40 / HSK-A63**

20,000 rpm / 35 kW / 130 Nm



**SK40 / HSK-A63**

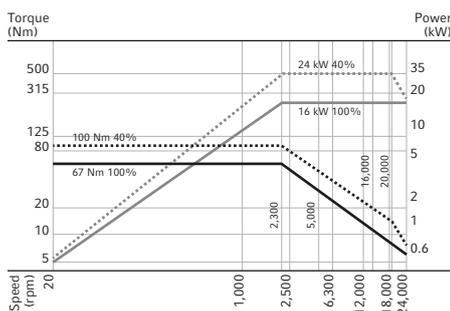
15,000 rpm / 46 kW / 200 Nm



**Motor spindle**

**HSK-A63**

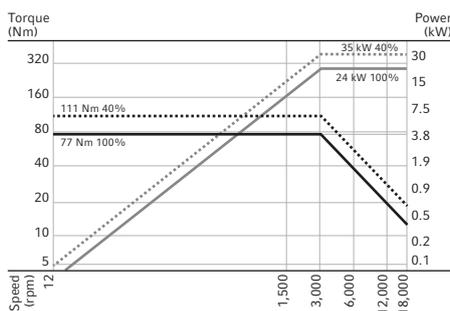
24,000 rpm / 24 kW / 100 Nm



**Mill-turn motor spindles**

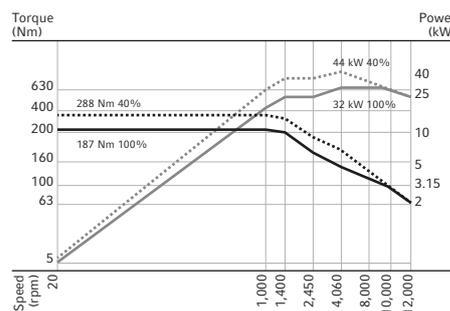
**HSK-A63**

18,000 rpm / 35 kW / 111 Nm



**HSK-A100**

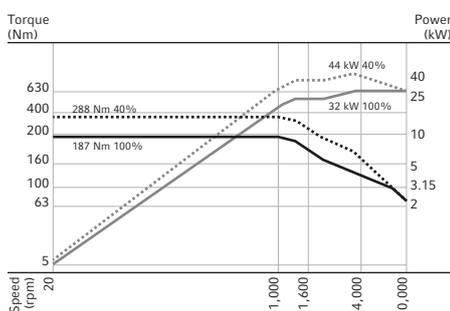
12,000 rpm / 44 kW / 288 Nm



**Motor spindles**

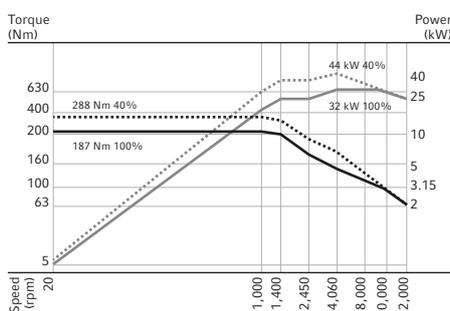
**SK50 / HSK-A100**

10,000 rpm / 44 kW / 288 Nm



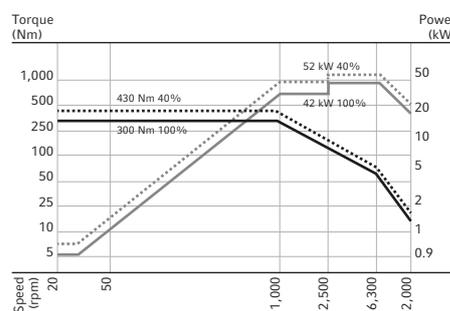
**SK50 / HSK-A100**

12,000 rpm / 44 kW / 288 Nm



**SK50 / HSK-A100**

12,000 rpm / 52 kW / 430 Nm





### Spindle range

Speed // tool holder Output (40 % DC) Torque (40 % DC): Spindle run-up time	DMU / DMC 65 monoBLOCK®	DMU / DMC 85 monoBLOCK®	DMU 105 monoBLOCK®	DMU 125 monoBLOCK®
<b>15,000 rpm</b> // SK40 / HSK-A63* 21 kW, 111 Nm 0–15,000 rpm: 1.7 seconds	•	•	•	•
<b>20,000 rpm</b> // SK40 HSK-A63* 35 kW, 130 Nm 0–20,000 rpm: 2.6 seconds	◦	◦	◦	◦
<b>15,000 rpm</b> // SK40 HSK-A63* 46 kW, 200 Nm 0–15,000 rpm: 1.7 seconds	◦	◦	◦	◦
<b>24,000 rpm</b> // SK40 HSK-A63* 24 kW, 100 Nm 0–24,000 rpm: 3.5 seconds	◦	◦	◦	◦
<b>10,000 rpm</b> // SK50 / HSK-A100* 44 kW, 288 Nm 0–10,000 rpm: 3.5 seconds	–	◦	◦	◦
<b>12,000 rpm</b> // SK50 / HSK-A100* 44 kW, 288 Nm 0–10,000 rpm: 3.6 seconds	–	◦	◦	◦
<b>12,000 rpm</b> // SK50 / HSK-A100* 52 kW, 430 Nm 0–10,000 rpm: 4.5 seconds	–	◦	◦	◦

### Range of mill-turn spindles

Speed // tool holder Output (40 % DC) Torque (40 % DC): Spindle run-up time	DMU / DMC 65 FD monoBLOCK®	DMU / DMC 85 FD monoBLOCK®	DMU 105 FD monoBLOCK®	DMU 125 FD monoBLOCK®
<b>18,000 rpm</b> // HSK-A63 35 kW, 119 Nm 0–18,000 rpm: 2.2 seconds	•	•	–	–
<b>12,000 rpm</b> // HSK-A100 44 kW, 288 Nm 0–12,000 rpm: 4.3 seconds	–	◦	•	•

• standard, ◦ optional, – not available, \* optional

1: Ra < 0.4 µm 2: speedMASTER® – Motor spindles with the highest running accuracy  
3: Spindle load display (optional) to allow regular status checks by the operator



### Highlights

- + **The largest modular spindle** rated at up to 24,000 rpm and 430 Nm torque
- + speedMASTER® – High-tech motor spindles with high performance and running accuracy
- + **SK50 / HSK-A100** available from the DMU 85 monoBLOCK® upwards
- + Motor spindle with **modular technology** for the quickest and most cost-effective repairs
- + **12,000 rpm SK50 / HSK-A100 spindle** rated at 52 kW and 430 Nm available from the DMU / DMC 85 monoBLOCK® upwards



DMU / DMC monoBLOCK® series

## Example applications.



### Complete machining of a GGG60 machine component Productive cast iron machining with the standard spindle

Sector	Machine construction	Spindle	15,000 rpm
Tool	Face mill ø 63 mm	Power	21 kW
Material	GGG60	Torque	111 Nm

Machining focus: Roughing and finishing of surfaces; drilling, tapping and milling individual cavities; 5-sided machining with swivelling rotary table; complete machining in two clampings



### Complete machining of a hydraulic aluminium railway component 40 % higher productivity for drilling and finishing

Sector	Hydraulics / railway	Spindle	20,000 rpm
Tool	PCD reamer ø 18 mm	Power	35 kW
Material	Aluminium die casting	Torque	130 Nm

Machining focus: Face milling of the outer contours; 5-sided machining with swivelling rotary table; complete machining in two clampings



### Complete machining of a CK45 machine component High-end machining in the SK40 class

Sector	Mechanical engineering	Spindle	15,000 rpm
Tool	Solid drill ø 54 mm	Power	46 kW
Material	CK45	Torque	200 Nm

Machining focus: 5-sided machining with roughing; drilling and M24 tapping on the same machine and in the same clamping



### Complete machining of a forging die for a tool steel connecting rod Hard machining (60 HRC) and excellent surface finish of Ra 0.2 µm

Sector	Mould making	Spindle	24,000 rpm
Tool	Ball nose end mill ø 3 mm	Power	24 kW
Material	Tool steel	Torque	100 Nm

Machining focus: 5-axis simultaneous machining for shorter machining times and better surface finishes; HSC machining with the 24,000 rpm motor spindle, Ra < 0.2 µm surface finish



### Complete machining of a CK45 pump housing High-performance milling of CK45 with a material removal rate of over 800 cm³

Sector	Mechanical engineering / fluidics	Spindle	10,000 rpm / SK50
Tool	Milling head ø 100 mm	Power	44 kW
Material	CK45	Torque	288 Nm

Machining focus: Face milling with a powerful, high-torque motor spindle; 5-sided machining with swivelling rotary table; complete machining in two clampings

Applications and parts

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**Technical data**

▸ Machining examples

DMU / DMC monoBLOCK® series

# High-performance milling, drilling and tapping.



1



2



3

speedMASTER® motor spindle rated at 15,000 rpm / 21 kW / 111 Nm

	High-performance milling	High-performance drilling	Tapping
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Material removal rate	460 cm <sup>3</sup> /min	473.6 cm <sup>3</sup> /min	–
Tool	Face mill ø 63 mm	Solid drill ø 41 mm	M16 tap
Spindle speed	1,600 rpm (Vc = 316 m/min)	1,800 rpm (Vc = 231 m/min)	700 rpm (Vc = 35 m/min)
Feed	3,670 mm/min (Fz = 0.45 mm)	359 mm/min (Fu = 0.2 mm)	1,400 mm/min
Cutting depth / width	2.5 / 50.4 mm	–	–



**speedMASTER® motor spindle rated at 20,000 rpm / 35 kW / 130 Nm**

	<b>High-performance milling</b>	<b>High-performance drilling</b>	<b>Tapping</b>
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Material removal rate	520 cm <sup>3</sup> /min	435 cm <sup>3</sup> /min	-
Tool	Face mill ø 63 mm	Indexable insert drill ø 54 mm	M24 tap
Spindle speed	1,800 rpm	1,650 rpm	464 rpm (Vc = 35 m/min)
Feed	2,600 mm/min (Fz = 0.24 mm)	190 mm/min (Fu = 0.115 mm)	1,400 mm/min
Cutting depth / width	4 / 50 mm	-	-

**Motor spindle rated at 24,000 rpm / 24 kW / 100 Nm**

	<b>High-performance milling</b>	<b>High-performance drilling</b>	<b>Tapping</b>
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Material removal rate	236.5 cm <sup>3</sup> /min	201 cm <sup>3</sup> /min	-
Tool	Face mill ø 56 mm	Solid drill ø 40 mm	M20 tap
Spindle speed	1,400 rpm (Vc = 250 m/min)	1,000 rpm (Vc = 125 m/min)	240 rpm (Vc = 15 m/min)
Feed	2,200 mm/min (Fz = 0.32 mm)	160 mm/min (Fz = 0.16 mm)	600 mm/min
Cutting depth / width	2.5 / 43 mm	-	-

DMU / DMC monoBLOCK® series

# High-performance milling, drilling and tapping.



**speedMASTER® motor spindle rated at 15,000 rpm / 46 kW / 200 Nm**

	High-performance milling	High-performance drilling	Tapping
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Material removal rate	500 cm <sup>3</sup> /min	794 cm <sup>3</sup> /min	–
Tool	Face mill ø 80 mm	Indexable insert drill ø 54 mm	M24 tap
Spindle speed	955 rpm	1,650 rpm	530 rpm (Vc = 40 m/min)
Feed	2,741 mm/min (Fz = 0.41 mm)	347 mm/min (Fu = 0.21 mm)	1,600 mm/min
Cutting depth / width	3.5 / 52 mm	–	–

**Torque spindle rated at 10,000 rpm / 44 kW / 288 Nm**

	High-performance milling	High-performance drilling	Tapping
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Material removal rate	812 cm <sup>3</sup> /min	708 cm <sup>3</sup> /min	–
Tool	Face mill ø 100 mm	Indexable insert drill ø 70 mm	M30 tap
Spindle speed	1,255 rpm (Vc = 394 m/min)	1,023 rpm (Vc = 225 m/min)	106 rpm (Vc = 10 m/min)
Feed	2,900 mm/min (Fz = 0.33 mm)	186 mm/min (Fz = 0.18 mm)	371 mm/min (Fz = 3.5 mm)
Cutting depth / width	3.5 / 80 mm	–	–


**Torque spindle rated at 12,000 rpm / 52 kW / 430 Nm**

	<b>High-performance milling</b>	<b>High-performance drilling</b>	<b>Tapping</b>
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Material removal rate	1,000 cm <sup>3</sup> /min	830 cm <sup>3</sup> /min	–
Tool	Mill ø 160 mm (9 cuts)	Indexable insert drill ø 80 mm	M42 tap
Spindle speed	1,000 rpm (Vc = 500 m/min)	900 rpm (Vc = 255 m/min)	46 rpm (Vc = 6 m/min)
Feed	1,800 mm/min (Fz = 0.2 mm)	165 mm/min (Fz = 0.183 mm)	207 mm/min (Fz = 4.5 mm)
Cutting depth / width	4.5 / 120 mm	–	–

**Torque spindle rated at 12,000 rpm / 44 kW / 288 Nm**

	<b>High-performance milling</b>	<b>High-performance drilling</b>	<b>Tapping</b>
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Material removal rate	812 cm <sup>3</sup> /min	708 cm <sup>3</sup> /min	–
Tool	Mill ø 100 mm (7 cuts)	Indexable insert drill ø 70 mm	M30 tap
Spindle speed	1,255 rpm (Vc = 394 m/min)	1,023 rpm (Vc = 225 m/min)	106 rpm (Vc = 10 m/min)
Feed	2,900 mm/min (Fz = 0.33 mm)	186 mm/min (Fz = 0.18 mm)	371 mm/min (Fz = 3.5 mm)
Cutting depth / width	3.5 / 80 mm	100 / – mm	Thread depth 30 mm

Applications and parts

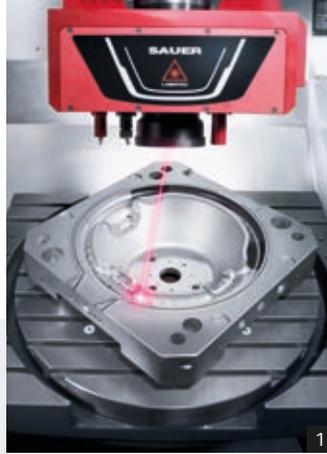
Highlights

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**Technical data**

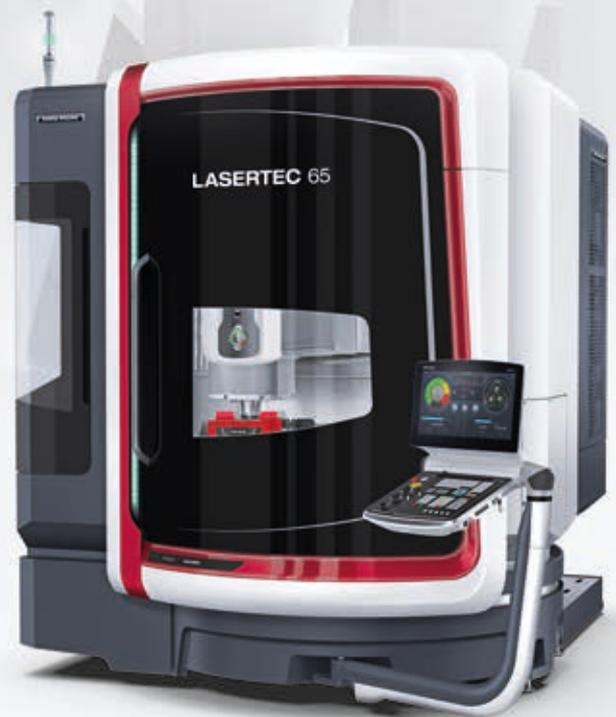
› Technology integration



- 1: Flexible integration of a laser head via the HSK-A63 interface on the spindle
- 2: Laser texturing a honeycomb structure on a steering wheel cap injection mould
- 3: Injection mould for a glove compartment cover with leather texture

### Advantages of LASERTEC

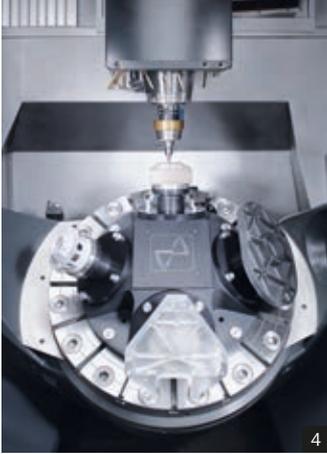
- + **Freeform 5-axis milling and laser surface texturing for tool and mould making** in one clamping on one machine
- + Moulds for **automotive** (e. g. armatures), **electronics** (e. g. phone cases), **lifestyle** (e. g. shoe soles) and general **tool and mould making**
- + **Can be integrated into the DMU 65 / 125 monoBLOCK® by adapting a fibre laser source via the HSK interface on the spindle head**
- + **SIEMENS 840D solutionline with special cross-process LASERSOFT 3D texturing software** for organic and technical surface structures



LASERTEC Shape

## 2 in 1: 5-axis milling and laser surface texturing – a design offensive in mould making.

For the first time, the flexible integration of a fibre laser scanning head in the spindle head by means of the HSK interface enables 5-axis milling of mould components with laser surface texturing on one machine and in one clamping. In this way, for example, moulds for automotive armatures, household appliances, phone and camera cases, shoe soles and other plastic injection moulding tools can be pre-milled in order to produce a geometrically defined, tailored, textured surface through laser machining.



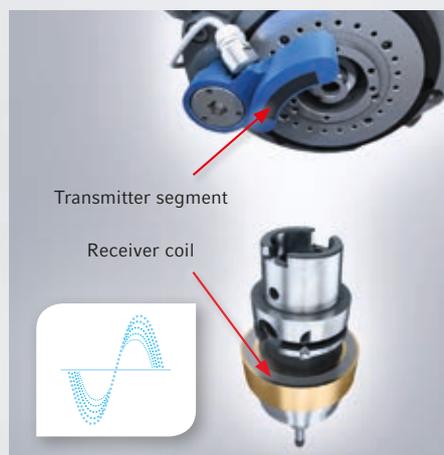
4: Flexible ULTRASONIC technology integration through the HSK-A63 / HSK-A100 interface  
 5: Thin-walled, lightweight structures in optical components, e.g. made of Zerodur  
 6: Silicon nitride camera housing for aerial surveillance

## ULTRASONIC

# Unbeatable range of materials thanks to ULTRASONIC and milling on one machine.

The latest generation of the ULTRASONIC HSK actuator system combines ULTRASONIC hard machining of advanced materials (e.g. Zerodur lightweight structures, carbide embossing tools and ceramic wear parts for the pump, textile and electric motor industries) with conventional 5-axis milling using an HSK-A63 / HSK-A100 interface. The conventional tool rotation is inductively overlaid with an additional ULTRASONIC oscillation along the axis.

## The operating principle – flexible ULTRASONIC integration via HSK



When changing to the HSK tool holder, inductive transmission of the ULTRASONIC frequency takes place from the fixed transmitter segment at the spindle tip to the rotating coil on the HSK holder.

### Advantages of ULTRASONIC

- + Reduced process forces for outstanding surface finishes  $R_a < 0.2 \mu\text{m}$ , minimised micro-cracks in the material, longer tool service lives
- + Up to double the material removal rates compared to conventional grinding
- + The cutting edge sharpens itself thanks to micro-splinters in the diamond grains
- + Optimised particle flushing in the active zone

## DMU / DMC monoBLOCK® series

# Technical data

		DMU 65 monoBLOCK®
<b>Working area</b>		
X / Y / Z travels	mm	735 / 650 / 560
Working volume	dm <sup>3</sup>	268
<b>Swivelling rotary table</b>		
Pallet / table	mm	• ø 650 / 800 × 650
Max. load	kg	600 / 1,000
Maximum workpiece dimensions	mm	ø 840
Maximum workpiece height	mm	500
<b>Main drive (standard)</b>		
Rotational speed	rpm	15,000
Torque (S6 40 %)	Nm	111
Power (S6 40 %)	kW	21
<b>Tool changer</b>		
Tool holder		SK40 / HSK-A63
Tool magazine	stations	30 / chain
Diameter (free adjacent positions)	mm	160
Max. length	mm	315
Weight	kg	8
Chip-to-chip time	sec.	4.9*
<b>Tool changer</b>		
Tool holder		–
Tool magazine	stations	–
Diameter (free adjacent positions)	mm	–
Length	mm	–
Weight	kg	–
<b>Linear axes (X / Y / Z)</b>		
Feed	mm/min	40,000
Rapid traverse	m/min	40
Acceleration	m/s <sup>2</sup>	6
Feed thrust (X / Y / Z)	kN	7 / 13 / 10
Roller guideways (X / Y / Z)	mm	45
Ball screws (X / Y / Z)	mm	40 / 50 / 40
P <sub>max.</sub> (X / Y / Z) – VDI DGQ 3441 / ISO 230-2	µm	8
P <sub>smax.</sub> (X / Y / Z) – VDI DGQ 3441 / ISO 230-2	µm	5
<b>Machine data</b>		
Space requirements of the base machine without chip conveyor or internal coolant supply	approx. m <sup>2</sup>	7.5
Machine height (standard machine)	mm	2,897
Machine weight	kg	12,100
<b>Controls</b>		
DMG MORI ERGOline® Control with 19" monitor and 3D control system		
HSK-A values, • standard, ◦ optional, – not available		

DMU 85 monoBLOCK®	DMU 105 monoBLOCK®	DMU 125 monoBLOCK®	DMC 65 monoBLOCK®	DMC 85 monoBLOCK®
935 / 850 / 650	1,135 / 1,050 / 750	1,335 / 1,250 / 900	735 / 650 / 560	935 / 850 / 650
517	894	1,502	268	517
•	•	•	•	•
ø 850 × 750 / 1,000 × 750	ø 1,050 × 850 / 1,200 × 850	ø 1,250 × 1,000 / 1,400 × 1,000	500 × 500	630 × 630
1,000 / 1,500	1,500 / 2,000	2,000 / 2,600	500	800
ø 1,040	ø 1,240	ø 1,400	ø 630	ø 800
590	690	790	500	590
15,000	15,000	15,000	15,000	15,000
111	111	111	111	111
21	21	21	21	21
SK40 / HSK-A63	SK40 / HSK-A63	SK40 / HSK-A63	SK40 / HSK-A63	SK40 / HSK-A63
30 / chain	30 / chain	30 / chain	30 / chain	30 / chain
160	160	160	160	160
365 / 420	365 / 420	470 / 500	315	365 / 420
8	8	8	8	8
5.9*	5.9*	6.5*	4.9*	5.9*
SK50 / HSK-A100	SK50 / HSK-A100	SK50 / HSK-A100	–	SK50 / HSK-A100
30 / wheel	30 / wheel	30 / wheel	–	30 / wheel
200	250	250	–	200
315 / 395	315 / 395	420 / 500	–	315 / 395
20	20	20	–	20
40,000	40,000	40,000	40,000	40,000
40	40	40	40	40
6	5	5	6	6
14 / 20 / 14	14 / 20 / 14	16 / 20 / 16	7 / 13 / 10	14 / 20 / 14
55	55	55	45	55
50 / 50 / 50	50 / 63 / 50	50 / 63 / 50	40 / 50 / 40	50 / 63 / 50
8	8	8	8	8
5	5	5	5	5
12	18.2	28.5	16.4	25.7
3,205	3,382	3,910	2,924	3,218
14,600	17,900	26,000	16,800	19,000

## DMU / DMC FD monoBLOCK® series

# Technical data

		DMU 65 FD monoBLOCK®
<b>Working area</b>		
X / Y / Z travels	mm	735 / 650 / 560
Working volume	dm <sup>3</sup>	268
<b>Swivelling rotary table (mill-turn with C axis speed)</b>		
Pallet / table	mm	• (1,200) ø 680
Maximum load (single drive / twin drive)	kg	600 / 800
Maximum workpiece dimensions	mm	ø 840
Maximum workpiece height	mm	500
<b>Main drive (standard)</b>		
Rotational speed	rpm	18,000
Torque (S6 40%)	Nm	111
Power (S6 40%)	kW	35
<b>Tool changer</b>		
Tool holder		HSK-A63
Tool magazine	stations	30 / chain
Diameter (free adjacent positions)	mm	160
Max. length	mm	315
Weight	kg	8
Chip-to-chip time	sec.	4.9
<b>Linear axes (X / Y / Z)</b>		
Feed	mm/min	40,000
Rapid traverse	m/min	40
Acceleration	m/s <sup>2</sup>	6
Feed thrust (X / Y / Z)	kN	7 / 13 / 10
Roller guideways (X / Y / Z)	mm	45
Ball screws (X / Y / Z)	mm	40 / 50 / 40
P <sub>max.</sub> (X / Y / Z) – VDI DGQ 3441 / ISO-230-2	µm	8
P <sub>smax.</sub> (X / Y / Z) – VDI DGQ 3441 / ISO-230-2	µm	5
<b>Machine data</b>		
Space requirements of the base machine without chip conveyor or internal coolant supply	approx. m <sup>2</sup>	8
Machine height (standard machine)	mm	2,897
Machine weight	kg	12,300
<b>Control system</b>		
DMG MORI ERGOline® Control with 19" monitor and 3D control system		
• standard, ◦ optional, – not available		

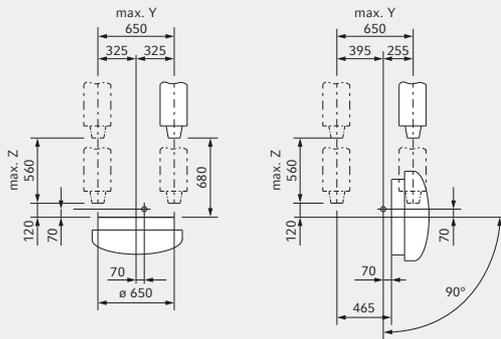
DMU 85 FD monoBLOCK®	DMU 105 FD monoBLOCK®	DMU 125 FD monoBLOCK®	DMC 65 FD monoBLOCK®	DMC 85 FD monoBLOCK®
935 / 850 / 650	1,135 / 1,050 / 750	1,335 / 1,250 / 900	735 / 650 / 560	935 / 850 / 650
517	894	1,502	268	517
• (800)	• (500)	• (500)	• (1,200)	• (800)
ø 850	ø 1,050	ø 1,250	ø 680	ø 850
1,000 / 1,200	1,500 / 2,000	2,000 / 2,600	500 / 500	800 / 800
ø 1,040	ø 1,250	ø 1,400	ø 630	ø 850
590	690	790	500	590
18,000	12,000	12,000	18,000	18,000
111	288	288	111	111
35	44	44	35	35
HSK-A63 // HSK-A100	HSK-A100	HSK-A100	HSK-A63	HSK-A63 / HSK-A100
30 / chain	30 / wheel	30 / wheel	30 / chain	30 / chain
160 // 200	250	250	160	160 // 200
420 // 395	395	500	315	420 // 395
8 // 20	20	20	8	8
5.9 // 7.3	7.3	7.9	4.9	5.9 // 7.3
40,000	40,000	40,000	40,000	40,000
40	40	40	40	40
6	5	5	6	6
14 / 20 / 14	14 / 20 / 14	16 / 20 / 16	7 / 13 / 10	14 / 20 / 14
55	55	55	45	55
50 / 50 / 50	50 / 63 / 50	50 / 63 / 50	40 / 50 / 40	50 / 50 / 50
8	8	8	8	8
5	5	5	5	5
12.3	18.2	28.5	17	26
3,205	3,382	3,910	2,924	3,218
14,800	18,300	27,500	17,800	20,000

DMU / DMU FD monoBLOCK® series

# Floor plans

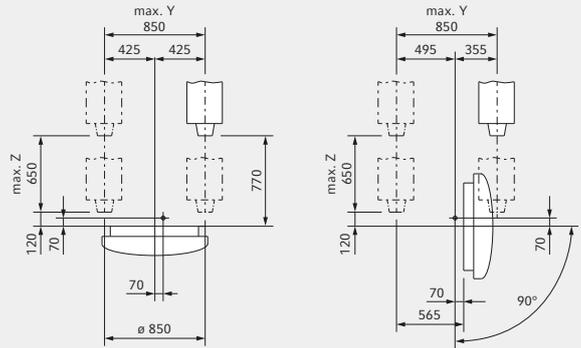
**Working area of the DMU 65 / 65 FD monoBLOCK®**

Swivel range  $\pm 120^\circ$



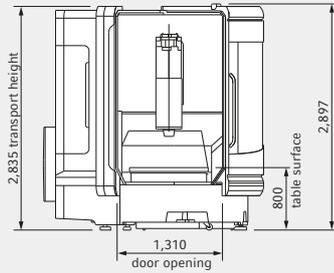
**Working area of the DMU 85 / 85 FD monoBLOCK®**

Swivel range  $\pm 120^\circ$



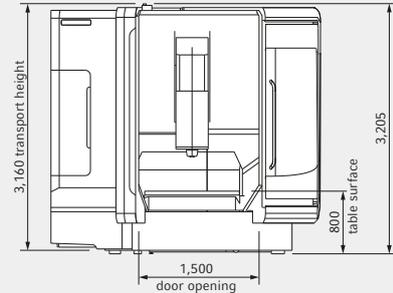
**Floor plan of the DMU 65 / 65 FD monoBLOCK®**

Front view



**Floor plan of the DMU 85 / 85 FD monoBLOCK®**

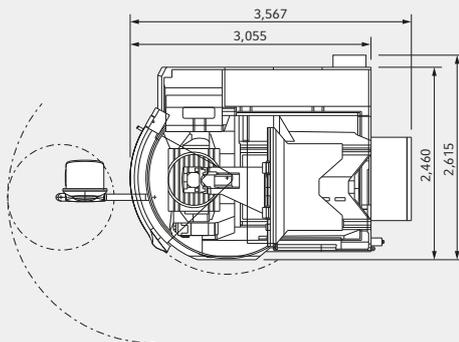
Front view



**Floor plan of the DMU 65 / 65 FD monoBLOCK®**

Plan view with 30-station chain magazine and chip conveyor option

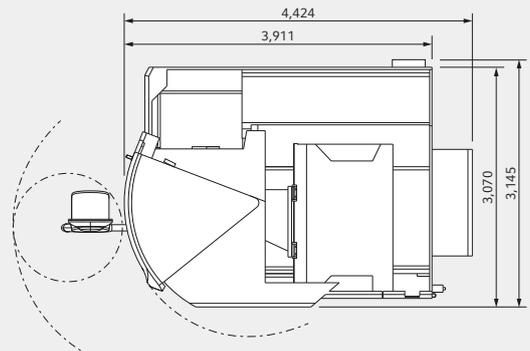
Footprint: 8 m<sup>2</sup> (9.2 m<sup>2</sup> with chip conveyor)



**Floor plan of the DMU 85 / 85 FD monoBLOCK®**

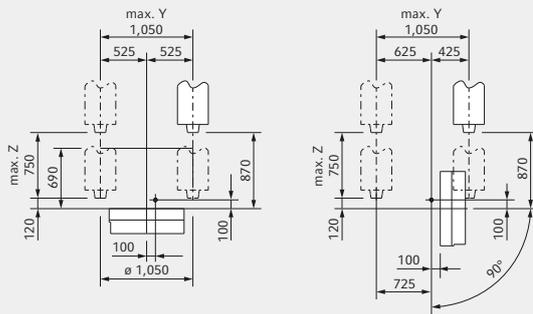
Plan view with 30-station chain magazine and chip conveyor option

Footprint: 12.3 m<sup>2</sup> (13.8 m<sup>2</sup> with chip conveyor)



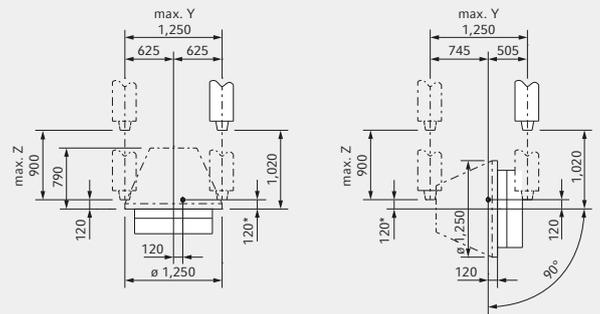
**Working area of the DMU 105 / 105 FD monoBLOCK®**

Swivelling rotary table – swivel angle



**Working area of the DMU 125 / 125 FD monoBLOCK®**

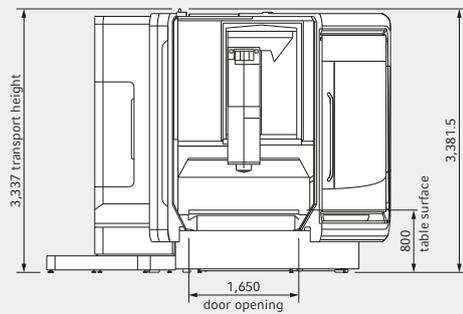
Swivelling rotary table – swivel angle



\* on the FD 100

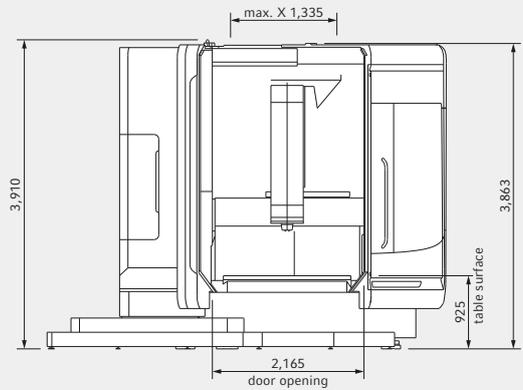
**Floor plan of the DMU 105 / 105 FD monoBLOCK®**

Front view



**Floor plan of the DMU 125 / 125 FD monoBLOCK®**

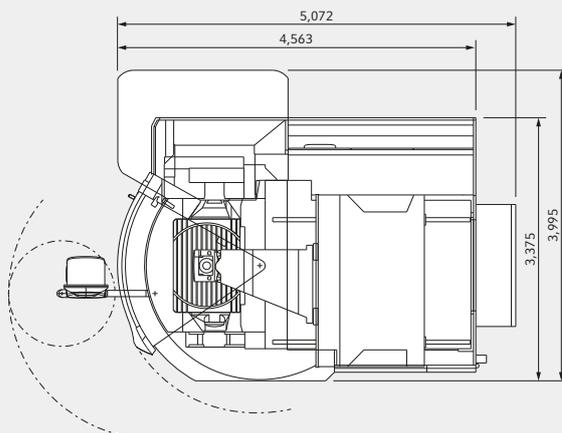
Front view



**Floor plan of the DMU 105 / 105 FD monoBLOCK®**

Plan view with 30-station chain magazine and chip conveyor option

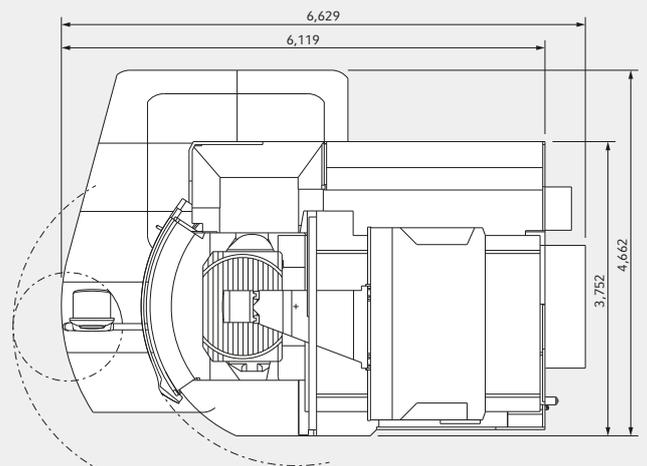
Footprint: 18.2 m<sup>2</sup> (20.2 m<sup>2</sup> with chip conveyor)



**Floor plan of the DMU 125 / 125 FD monoBLOCK®**

Plan view with 30-station chain magazine and chip conveyor option

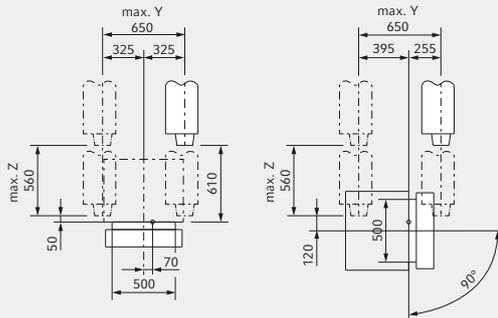
Footprint: 28.5 m<sup>2</sup> (30.9 m<sup>2</sup> with chip conveyor)



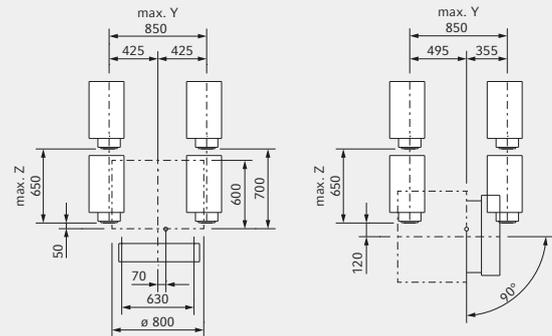
DMC / DMC FD monoBLOCK® series

# Floor plans

Working area of the DMC 65 / 65 FD monoBLOCK®

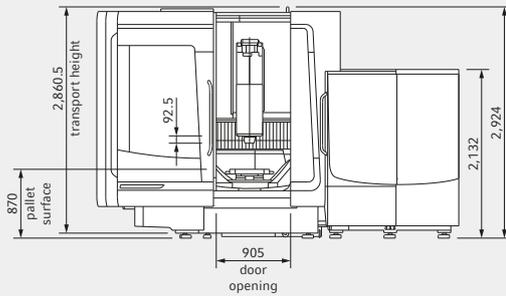


Working area of the DMC 85 / 85 FD monoBLOCK®



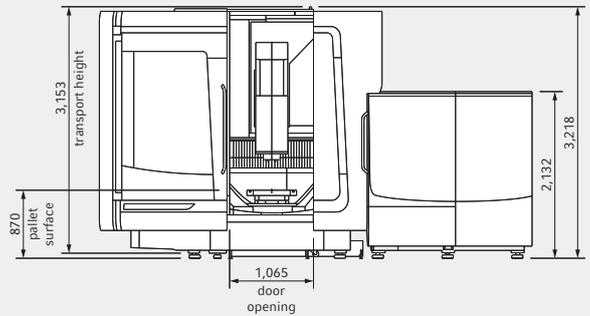
Floor plan of the DMC 65 / 65 FD monoBLOCK®

Front view



Floor plan of the DMC 85 / 85 FD monoBLOCK®

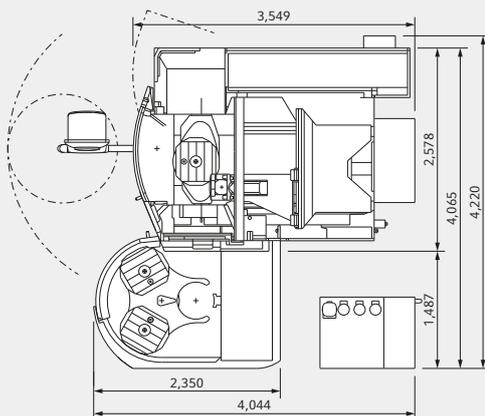
Front view



Floor plan of the DMC 65 / 65 FD monoBLOCK®

Plan view with 30-station chain magazine and chip conveyor option

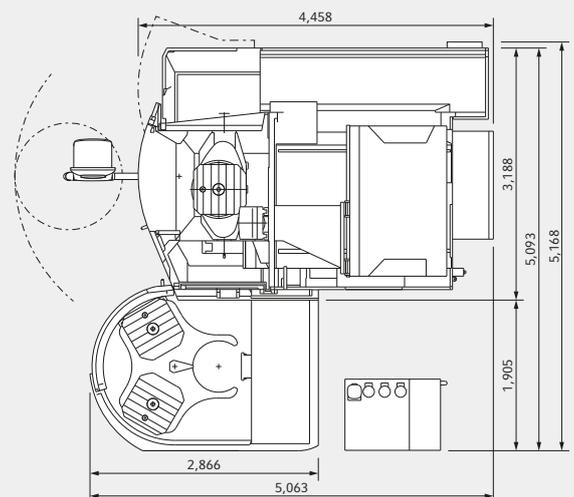
Footprint: 17 m<sup>2</sup> (including chip conveyor and coolant tank)



Floor plan of the DMC 85 / 85 FD monoBLOCK®

Plan view with 30-station chain magazine and chip conveyor option

Footprint: 26 m<sup>2</sup> (including chip conveyor and coolant tank)



Representation of floor plans with optional swivelling rotary table

**DMU 65 / 85 / 105 / 125 FD  
monoBLOCK®:**

Complete machining, including  
milling and turning, on one  
machine in one clamping with  
Direct Drive technology up to  
1,200 rpm

## DMU / DMC monoBLOCK® and DMU / DMC FD monoBLOCK® series

## Options

	DMU 65 monoBLOCK®	DMU 85 monoBLOCK®	DMU 105 monoBLOCK®
<b>Table options</b>			
Swivelling rotary table – drive from one side	●	●	●
Swivelling rotary table Tandem Drive – drive from both sides	○	○	○
Swivelling rotary table with Direct Drive	○	–	–
Mill-turn swivelling rotary table	–	–	–
Hydraulic clamping system, manual or dual-channel proportional control	○	○	○
<b>Main drive</b>			
Spindle output display	○	○	○
SK40 motor spindle speed of up to 20,000 rpm; 35 kW / 130 Nm (40 % DC)	○	○	○
HSK-A63 motor spindle speed of up to 24,000 rpm; 24 kW / 100 Nm (40 % DC)	○	○	○
SK40 motor spindle speed of up to 15,000 rpm; 46 kW / 200 Nm (40 % DC)	○	○	○
SK40 motor spindle speed of up to 18,000 rpm; 35 kW / 135 Nm (40 % DC)*	–	–	–
SK50 motor spindle speed of up to 10,000 rpm; 44 kW / 288 Nm (40 % DC)	–	○	○
SK50 motor spindle speed of up to 12,000 rpm; 44 kW / 288 Nm (40 % DC)	–	○	○
SK50 motor spindle speed of up to 12,000 rpm; 52 kW / 430 Nm (40 % DC)	–	○	○
<b>Tool holder</b>			
HSK-A63 / BT 40 / CAT 40	○ / ○ / ○	○ / ○ / ○	○ / ○ / ○
HSK-A100 / BT 50 / CAT 50	– / – / –	○ / ○ / ○	○ / ○ / ○
<b>Tool magazine</b>			
Vertical chain magazine with 60 / 90 / 120 / 180 magazine stations (SK40 / HSK-A63)	○	○	○
Vertical chain magazine with 60 / 90 / 120 magazine stations (SK50 / HSK-A100)	–	○	○
<b>Automation / measurement / monitoring</b>			
3D quickSET®	○	○	○
MPC – Machine Protection Control	○	○	○
Infrared measuring sensor: HEIDENHAIN TS 649 / Renishaw PP60 (OMP 60)	○	○	○
Blum Laser tool measurement in the working area with 3D axes ACCURACY	○	○	○
Quad-colour signal lights	○	○	○
<b>Coolant / chip disposal</b>			
Compact 500l coolant system, chip conveyor, fabric tape filter	○	○	○
Compact 500l coolant system, 20 bar internal coolant supply, chip conveyor, fabric tape filter	○	○	○
Production package: 40 bar, 600l internal coolant supply, chip conveyor	○	○	○
Production package: 80 bar, 980l internal coolant supply, frequency controlled	○	○	○
Coolant temperature control for the 600 / 980l internal coolant supply	○	○	○
Wash gun with 1-bar pump, 40 litres per minute	○	○	○
Minimal lubrication internally through the spindle centre, externally via nozzles	○	○	○
Oil and emulsion mist delivery equipment	○	○	○
Air blast through the spindle centre	○	○	○
<b>Optional TNC 640 control systems</b>			
ATC – Application Tuning Cycle	○	○	○
Electronic handwheel TNC 640	○	○	○
<b>SIEMENS 840D solutionline options</b>			
Electronic SIEMENS 840D hand wheel	○	○	○
MDynamics package	○	○	○
ATC – Application Tuning Cycle	○	○	○
<b>General options</b>			
Shatter-proof safety glass viewing panel	–	–	–
Operating mode 4 “Process monitoring in production”	○	○	○
Package for increased precision	○	○	○

● standard, ○ optional, – not available, \* 111 Nm for mill-turn variants



## Headquarters

**Germany:****DMG MORI Deutschland**

Riedwiesenstraße 19  
D-71229 Leonberg  
Tel.: +49 (0) 71 52 / 90 90-0  
Fax: +49 (0) 71 52 / 90 90-20 00  
Service Hotline: +49 (0) 180 5 49 00 22

**Europe:****DMG MORI Europe**

Sulzer-Allee 70  
CH-8404 Winterthur  
Tel.: +41 (0) 58 / 611 5000  
Fax: +41 (0) 58 / 611 5001  
Service Hotline: +41 (0) 446 545 670

**Asia:****DMG MORI Japan**

2-3-23 Shiomi Koto-ku, Tokyo  
JP-135-0052, Japan  
Tel.: +81 3-6758-5900  
Fax: +81 3-6758-5919

**America:****DMG MORI USA**

2400 Huntington Blvd.  
Hoffman Estates, IL 60192  
Tel.: +1 (847) 593-5400  
Fax: +1 (847) 593-5433

## Europe

**DMG MORI Austria**

Oberes Ried 11  
A-6833 Klaus  
Tel.: +43 (0) 55 23 / 69 141-0  
Fax: +43 (0) 55 23 / 69 141-100  
Service Hotline: +43 (0) 17 95 / 76 109

**\_ Stockerau**

Josef-Jessernigg-Straße 16  
A-2000 Stockerau  
Tel.: +43 (0) 55 23 / 69 141-0  
Fax: +43 (0) 55 23 / 69 141-100

**DMG MORI Benelux****\_ Netherlands**

Wagenijselaan 48  
NL-3903 LA Veenendaal  
Tel.: +31 (0) 318-55 76-11  
Fax: +31 (0) 318-52 44-29  
Service Hotline: +31 (0) 202 00 81 83

**\_ Belgium**

Hermesstraat 4B  
B-1930 Zaventem  
Tel.: +32 (0) 2 / 7 12 10-90  
Fax: +32 (0) 2 / 7 12 10-99  
Service Hotline: +32 (0) 2 / 2 200 62-52

**DMG MORI Czech**

Kaštanová 8 · CZ-620 00 Brno  
Tel.: +420 545 426 311  
Fax: +420 545 426 310  
Service Hotline: +420 239 000 561

**\_ Planá**

Chýnovská 535  
CZ-39111 Planá nad Lužnicí  
Tel.: +420 381 406 914  
Fax: +420 381 406 915

**\_ Slovakia**

Brnianska 2  
SK-91105 Trenčín  
Tel.: +421 326 494 824

**DMG MORI France**

Parc du Moulin · 1 Rue du Noyer  
B.P. 19326 Roissy-en-France  
F-95705 Roissy CDG Cedex  
Tel.: +33 (0) 1 / 39 94 68 00  
Fax: +33 (0) 1 / 39 94 68 58  
Service Hotline: +33 (0) 8 10 90 20 20

**\_ Lyon**

Parc des Lumières  
1205 Rue Nicéphore Niepce  
F-69800 Saint-Priest  
Tel.: +33 (0) 4 / 78 90 95 95  
Fax: +33 (0) 4 / 78 90 60 00

**\_ Toulouse**

Futuropolis Bat. 2 · 2 Rue Maryse Hilsz  
F-31500 Toulouse  
Tel.: +33 (0) 5 / 34 25 29 95  
Fax: +33 (0) 5 / 61 20 89 19

**\_ Haute-Savoie**

Espace Scionzier · 520 avenue des Lacs  
F-74950 Scionzier  
Tel.: +33 (0) 4 / 50 96 41 62  
Fax: +33 (0) 4 / 50 96 41 30

**DMG MORI Hungary**

Vegyész u. 17-25 · B. Building  
H-1116 Budapest  
Tel.: +36 1 430 16 14  
Fax: +36 1 430 16 15  
Service Hotline: +36 1 777 90 57

**DMG MORI Ibérica**

Pol. Ind. Els Pinetons  
Avda. Torre Mateu 2-8 · Nave 1  
E-08291 Ripollet · Barcelona  
Tel.: +34 93 586 30 86  
Fax: +34 93 586 30 91  
Service Hotline: +34 91-2 75 43 22

**\_ Madrid**

C / Alcañiz 23 · E-28042 Madrid  
Tel.: +34 91 66 99 865  
Fax: +34 91 66 93 834

**\_ San Sebastián**

Edificio Igaraburu  
Pokopandegi 11, Oficina 014  
E-20018 San Sebastián  
Tel.: +34 943 100 233  
Fax: +34 943 226 929  
Service Hotline: +34 91-2 75 43 22

**DMG MORI Italia**

Via G. Donizetti 138  
I-24030 Brembate di Sopra (BG)  
Tel.: +39 035 62 28 201  
Fax: +39 035 62 28 210  
Service Hotline: 199 177 811

**\_ Milano**

Via Riccardo Lombardi 10  
I-20153 Milano (MI)  
Tel.: +39 02 48 94 921  
Fax: +39 02 48 91 44 48

**\_ Padova**

Via E. Fermi 7 · I-35030 Veggiano (PD)  
Tel.: +39 049 900 66 11  
Fax: +39 049 900 66 99

**DMG MORI Middle East**

Jebel Ali Free Zone · JAFZA Towers  
Lob 18, Office 2403, P.O. Box 262 607  
Dubai, U.A.E.  
Tel.: +971-4-88 65 740  
Fax: +971-4-88 65 741

**DMG MORI Polska**

ul. Fabryczna 7 · PL-63-300 Pleszew  
Tel.: +48 (0) 62 / 7428 000  
Fax: +48 (0) 62 / 7428 114  
Service Hotline: +48 (0) 62 / 7428 285

**DMG MORI Romania**

DN 65B, KM. 4+471  
RO-110180 Pitesti  
Tel.: +40 248 610 408  
Fax: +40 248 610 409

**DMG MORI Russia**

ul. Novohohlovskaya 23/1  
RU-109 052 Moscow  
Tel.: +7 495 225 49 60  
Fax: +7 495 225 49 61  
Service Hotline: +7 495 912 50 09

**\_ Jekaterinburg**

ul. Sofi Kowalewskoj 4, litera Z  
RUS-620049 Jekaterinburg  
Tel.: +7 343 379 04 73  
Fax: +7 343 379 04 74

**\_ St. Petersburg**

pr. Obuhovskoy Oborony 271, litera A  
RUS-192012 St. Petersburg  
Tel.: +7 812 313 80 71  
Fax: +7 812 313 80 71

**DMG MORI Scandinavia****\_ DMG MORI Finland & Baltics**

Jasperintie 310  
FI-33960 Pirkkala  
Tel.: +358 10 271 4450  
Service Hotline: +358 10 271 4460

**\_ DMG MORI Sweden**

E A Rosengrens gata 5  
SE-421 31 Västra Frölunda  
Tel.: +46 (0) 771 364 6674  
Fax: +46 (0) 31 476 351  
Service Hotline: +46 (0) 771 365 724

**\_ DMG MORI Denmark**

Robert Jacobsens Vej 6, 2.tv  
DK-2300 København S  
Tel.: +45 70 21 11 11  
Fax: +45 49 17 77 00  
Service Hotline: +45 70 21 11 12

**\_ Norway**

Bergsli Metallmaskiner AS  
Bedriftsveien 64  
NO-3735 Skien  
Tel.: +47 35 50 35 00  
Fax: +47 35 50 35 70

**DMG MORI Schweiz**

Sulzer-Allee 70  
CH-8404 Winterthur  
Tel.: +41 (0) 58 / 611 5000  
Fax: +41 (0) 58 / 611 5001  
Service Direct Line: +41 (0) 58 / 611 5555  
Service Hotline: +41 (0) 446 545 670

**DMG MORI South East Europe**

Ag. Georgiou 5 – Patriarchiko  
Pylaias, Cosmos Offices, PO 60233  
GR-57001 Thessaloniki  
Tel.: +30 2310 474486  
Fax: +30 2310 474487

**DMG MORI Turkey**

Ferhatpaşa Mah. Gazipaşa Cad. No: 11  
TR-34885 Ataşehir · İstanbul  
Tel.: +90 216 471 66 36  
Fax: +90 216 471 80 30  
Service Hotline: +90 216 47 16 636

**DMG MORI UK**

4030 Siskin Parkway East  
Middlemarch Business Park  
Coventry CV3 4PE · GB  
Tel.: +44 (0) 2476 516 120  
Fax: +44 (0) 2476 516 136  
Service Direct Line: +44 (0) 2476 516 130  
Service Hotline: +44 (0) 20 30241514

**DMG MORI Africa****Representative**

WIN-TECH Machinery & Tooling  
90 El Thawra Street  
El Golf Area Heliopolise  
11341 Cairo, Egypt  
Tel.: +202 2 690 36 08  
Fax: +202 2 690 36 09

**DMG MORI Europe AG**

Sulzer-Allee 70, CH-8404 Winterthur  
Tel.: +41 (0) 58 / 611 5000, Fax: +41 (0) 58 / 611 5001  
info@dmgmori.com, www.dmgmori.com