

Five-axis universal milling machines

DMU / DMC monoBLOCK® series

DMU 65 / 85 / 105 / 125 monoBLOCK®

DMU 65 / 85 / 105 / 125 FD monoBLOCK®

DMC 65 / 85 monoBLOCK®

DMC 65 / 85 FD monoBLOCK®



DMU / DMC monoBLOCK® series

monoBLOCK® – The benchmark in all sectors.

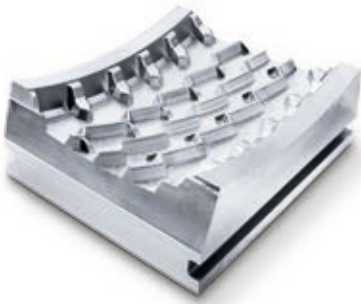


The monoBLOCK® series has a machine concept for every sector: Be it 5-axis simultaneous machining, highly dynamic high-speed milling, integrated mill-turning, high-torque cutting or the broad field of productive parts machining in 3–5 axes. With the new monoBLOCK® machines, every component produced becomes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



Automotive

Radiator grille for the Audi S6



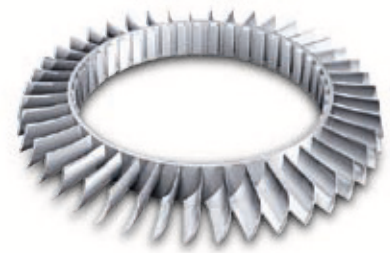
Mould making

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 m² (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 m², 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.

1 **Three-point support**

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

2 **Palletisation option**

with unrestricted access to the working area

3 **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)

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

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

just 7.5 m² of space required for the DMU 65 monoBLOCK® (12 m² for the 85, 18.2 m² for the 105 and 28.5 m² for the 125)

6 **CELOS®**

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

7 **Improved functionality**

The safety glass can be removed from outside the machine

8 **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

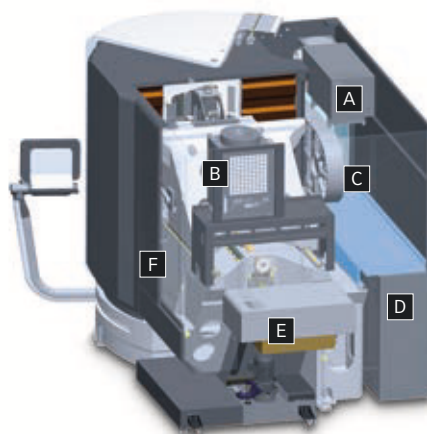
- + Large door opening with unique access to the working area for quick and ergonomic set-up of workpiece and tools
- + Crane loading **from above to over the table centre**
- + **Door opening of up to 1,900 mm** (1,310 / 1,500 / 1,650 mm on the DMU 65 / 85 / 105 monoBLOCK®)
- + **Full accessibility**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

07

Ease of maintenance

- | | |
|--|--|
| A Oil mist extraction through the magazine* | D Control cabinet under the tool magazine |
| B Coolant unit | E Chip disposal to the rear* |
| C Magazine with swivelling tool changer for up to 180 tools | F 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.

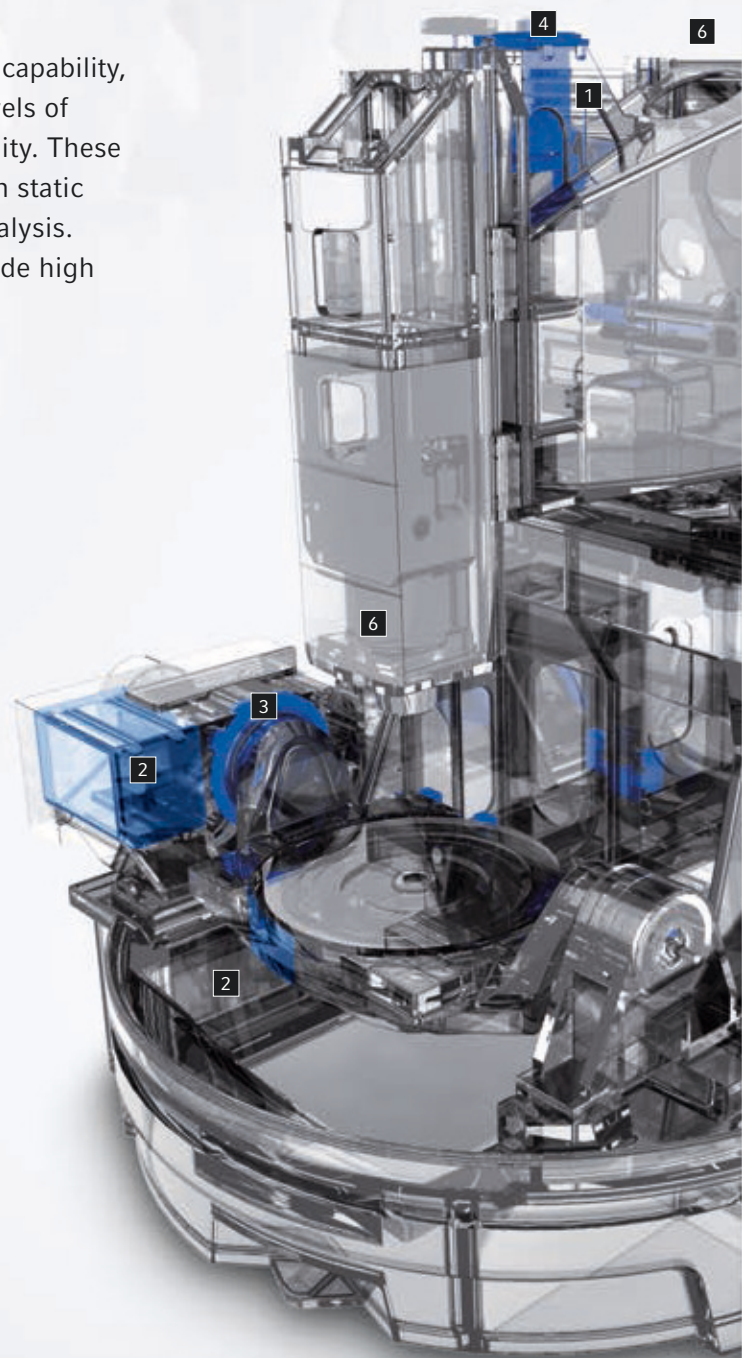
The monoBLOCK® series produces optimal milling capability, the best machining performance and excellent levels of precision thanks to its extreme stiffness and stability. These top levels of performance are achieved by the high static masses of the monoBLOCK® and detailed FEM analysis. The weight-optimised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

Standard cooling measures

- 1** Cooled Z axis motor
- 2** Cooled A and C axis motors
- 3** Cooled C axis gear
- 4** Cooled motor mounting plates in the X and Z axes
- 5** Internally cooled ball screw in the X axis
- 6** 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 $R_a < 0.4 \mu\text{m}$



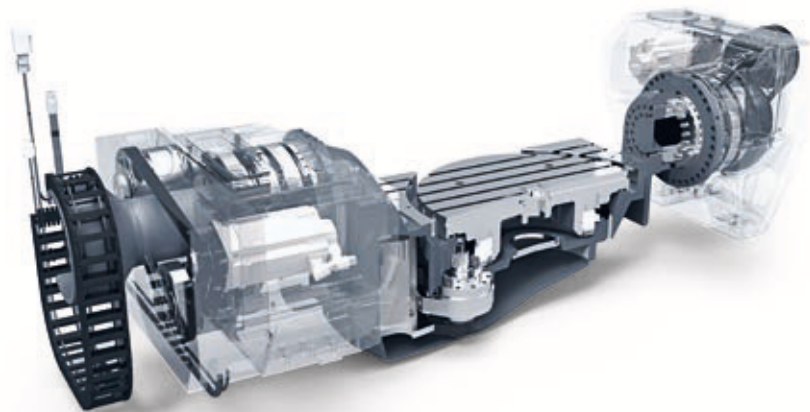
DMU / DMC monoBLOCK® series

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 m² 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®



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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.



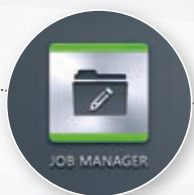
SMARTkey®
Customised user
authorisation. Individ-
ually adapted access
privileges to the control
system and the machine.

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.

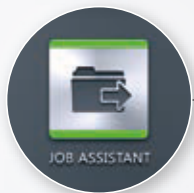
CELOS® APPs – 3 examples:



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

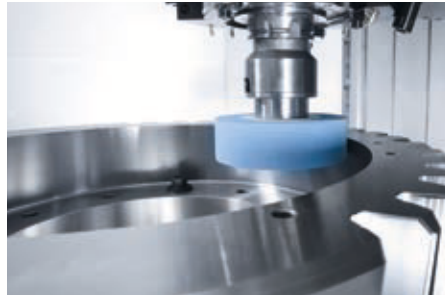
Vibration sensors on the milling spindle

Emergency shut-off with teach function

Process monitoring by means of a bar graph

Milling spindle bearing diagnostics

MPC Machine Protection Control



Grinding*

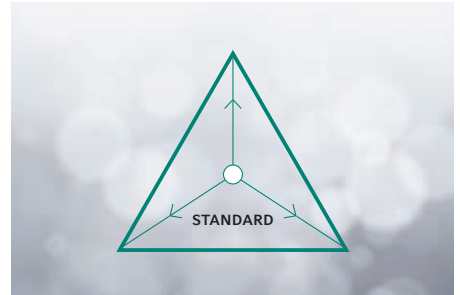
Machining with the highest surface precision

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 m² (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.

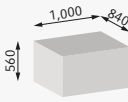
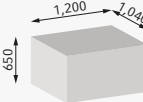
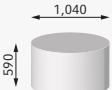


Footprint of just 8 m²

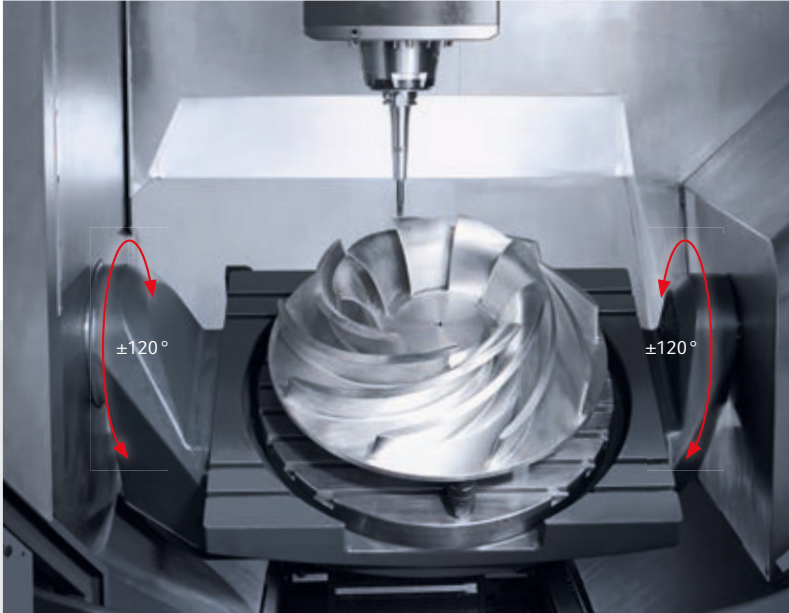


Footprint of just 12.3 m²

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



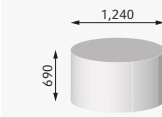
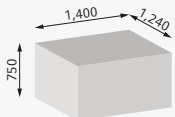
Footprint
of just 18.2 m²



Footprint
of just 28.5 m²

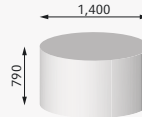
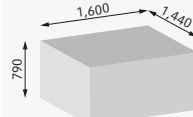
DMU 105 monoBLOCK®

Rigid table	Swivelling rotary table*
1,135 / 1,050 / 750	1,135 / 1,050 / 750
1,400 × 1,050	ø 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	ø 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

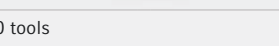
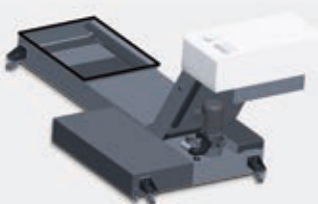
Table variants for every application.

		DMU 65 monoBLOCK®	DMU 85 monoBLOCK®	DMU 105 monoBLOCK®	DMU 125 monoBLOCK®
Rigid table					
Table size (L × B)	mm	1,000 × 650	1,200 × 850	1,400 × 1,050	1,600 × 1,250
Max. load	kg	3,000	4,000	5,000	6,000
Swivelling rotary table – drive from one side					
Table diameter	mm	ø 650 in 800 × 650	ø 850 × 750 in 1,000 × 750	ø 1,050 × 850 in 1,200 × 850	ø 1,250 × 1,000 in 1,400 × 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
Swivelling rotary table with Tandem Drive – drive from both sides					
Table diameter	mm	ø 650 in 800 × 650	ø 850 × 750 in 1,000 × 750	ø 1,050 × 850 in 1,200 × 850	ø 1,250 × 1,000 in 1,400 × 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
Mill-turn swivelling rotary table with single / twin Direct Drive technology					
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
Swivelling rotary table with Direct Drive technology on the A (tandem) and C axes (available for DMU and DMC)					
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	–	–	–
Swivelling rotary table for single / twin pallet changer (DMC monoBLOCK®)					
Pallet size	mm	500 × 500	630 × 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)			
			
60 / 90 / 120 tools (SK50 / HSK-A100)	30 tools	Coolant system and production package	Chip conveyor

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 m² 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



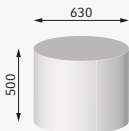
Footprint of just 17 m²

Highlights – standard

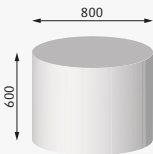
- + Full package including swivelling rotary table and chip conveyor
- + Automatic pallet changer for a total of three pallets
- + Crane loading into the working area for workpieces weighing up to 1,500 kg
- + 800 kg maximum load and workpieces up to 800 mm in diameter per pallet
- + Best accessibility 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 m² (including chip conveyor and coolant system on the DMC 65 monoBLOCK®)

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*

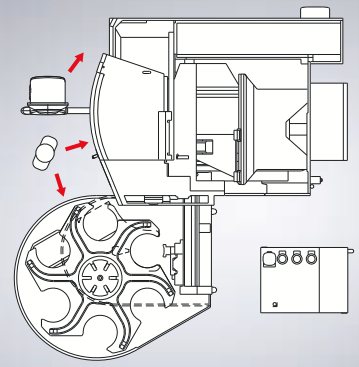


DMC 85 (FD) monoBLOCK®
935 / 850 / 650
630 × 630
800 / 1,500*

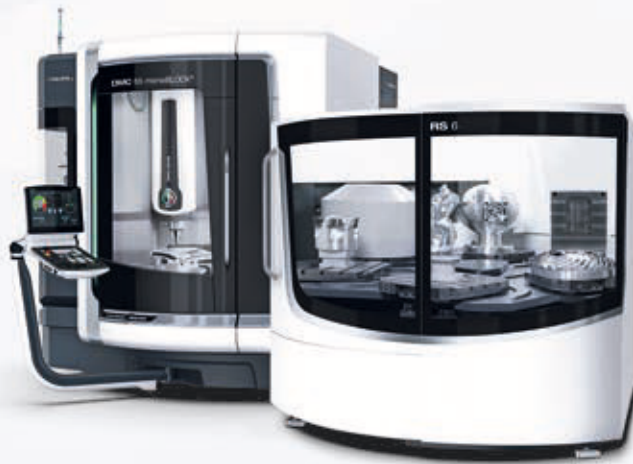


Machine interior with shuttle unit

* crane loading in the working area



DMC 65 monoBLOCK® with RS 6 rotary storage – The compact 21 m² solution



Highlights – machine with RS 6

- + Six pallets in the system
- + Available for the DMC 65 monoBLOCK®
- + Minimal footprint of just 21 m² (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 m² (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.



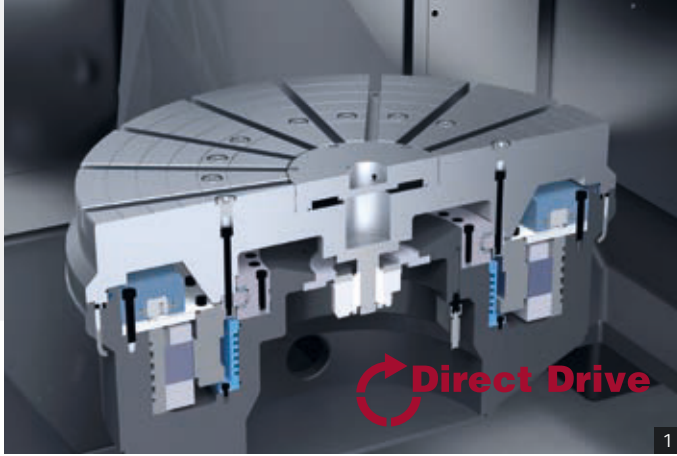
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Highlights of the DMU / DMC FD monoBLOCK®

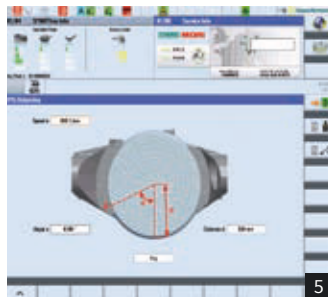
- + **Complete machining, including milling and turning, on one machine** in one clamping with Direct Drive technology up to 1,200 rpm
- + Less investment and **lower space requirement** with the use of just one machine
- + Quick machining and lower logistics costs thanks to the elimination of both idle 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

Sample application of mill-turn machining					
Material		CK45	CK45	CK45	CK45
Material removal rate	cm³/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

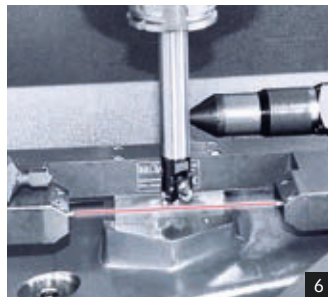


1: Mill-turn table with Direct Drive technology
for speeds up to 1,200 rpm



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*

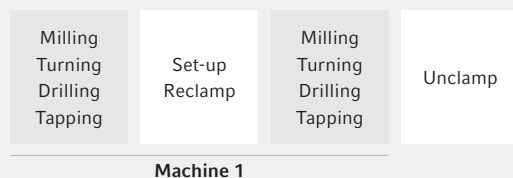
- + **Alternating spindle speeds**, process reliability thanks to the avoidance of vibrations
- + **L measuring sensor packages, measurement cycles for (L) measuring sensors**: Calibrate the measuring sensor in the working area, measure recesses and undercuts etc., store, display and transfer measurement 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

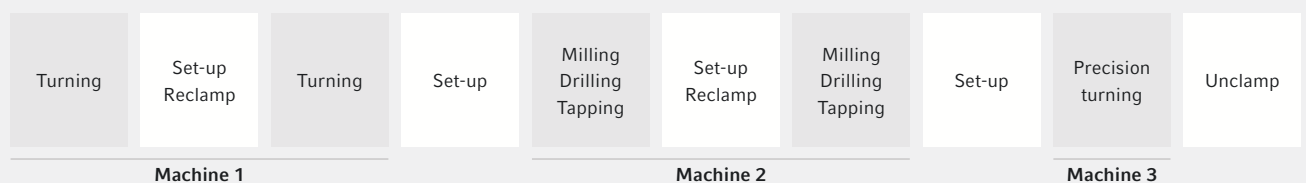
DMU mill-turn / DMC mill-turn machines – full machining process



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



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®
Tool magazine with SK40 / CAT 40 / HSK-A63				
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	◦	◦	◦	◦
Tool magazine with SK50 / CAT 50 / HSK-A100				
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®
SK40 / CAT 40 // HSK-A63					
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
SK50 / CAT 50 // HSK-A100					
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

Technical data

- Performance chart

- Spindle range

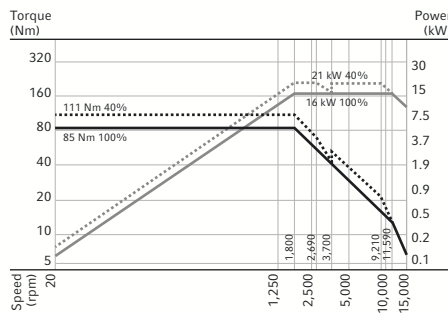
DMU / DMC monoBLOCK® series

The largest and latest range of spindles.

speedMASTER® motor spindles

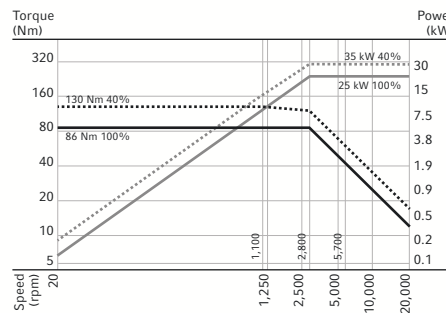
SK40 / HSK-A63

15,000 rpm / 21 kW / 111 Nm



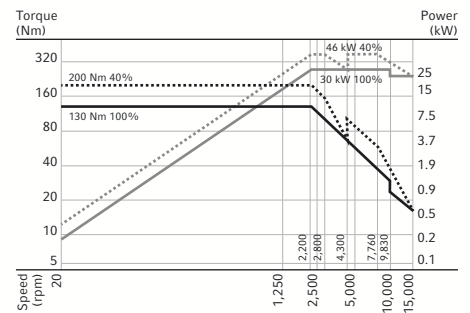
SK40 / HSK-A63

20,000 rpm / 35 kW / 130 Nm



SK40 / HSK-A63

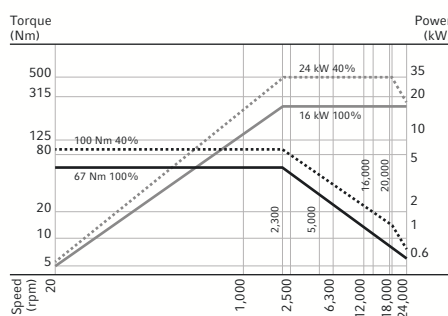
15,000 rpm / 46 kW / 200 Nm



Motor spindle

HSK-A63

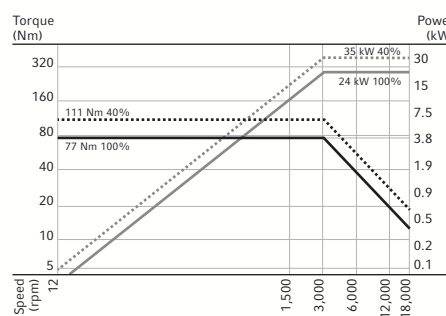
24,000 rpm / 24 kW / 100 Nm



Mill-turn motor spindles

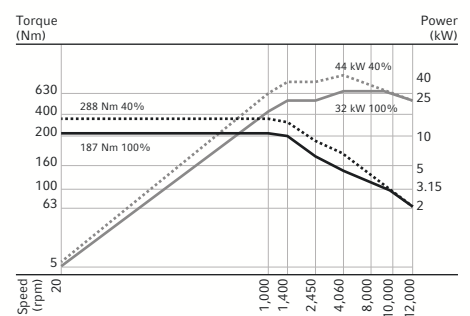
HSK-A63

18,000 rpm / 35 kW / 111 Nm



HSK-A100

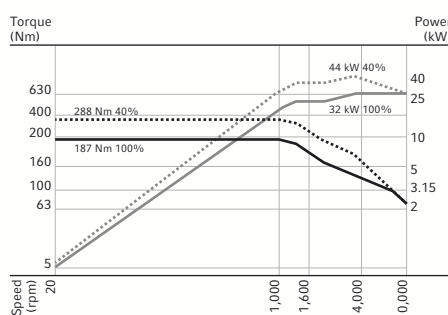
12,000 rpm / 44 kW / 288 Nm



Motor spindles

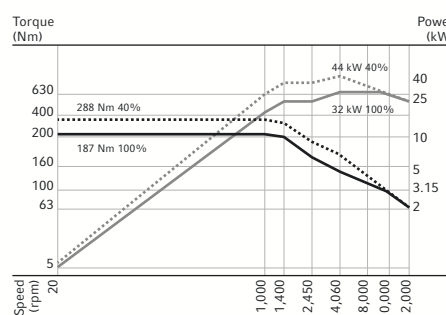
SK50 / HSK-A100

10,000 rpm / 44 kW / 288 Nm



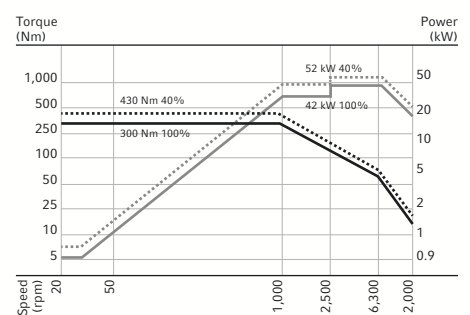
SK50 / HSK-A100

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®
15,000 rpm // SK40 / HSK-A63* 21 kW, 111 Nm 0–15,000 rpm: 1.7 seconds	•	•	•	•
20,000 rpm // SK40 HSK-A63* 35 kW, 130 Nm 0–20,000 rpm: 2.6 seconds	◦	◦	◦	◦
15,000 rpm // SK40 HSK-A63* 46 kW, 200 Nm 0–15,000 rpm: 1.7 seconds	◦	◦	◦	◦
24,000 rpm // SK40 HSK-A63* 24 kW, 100 Nm 0–24,000 rpm: 3.5 seconds	◦	◦	◦	◦
10,000 rpm // SK50 / HSK-A100* 44 kW, 288 Nm 0–10,000 rpm: 3.5 seconds	–	◦	◦	◦
12,000 rpm // SK50 / HSK-A100* 44 kW, 288 Nm 0–10,000 rpm: 3.6 seconds	–	◦	◦	◦
12,000 rpm // 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®
18,000 rpm // HSK-A63 35 kW, 119 Nm 0–18,000 rpm: 2.2 seconds	•	•	–	–
12,000 rpm // 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

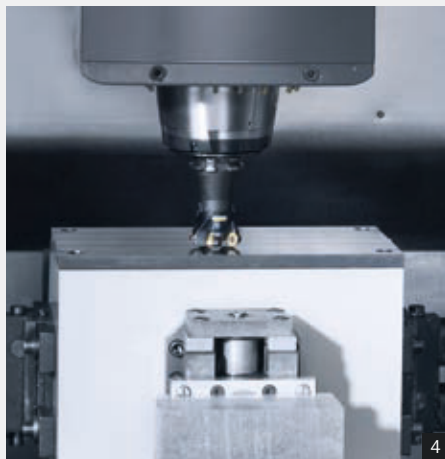
Machining focus: Face milling with a powerful, high-torque motor spindle; 5-sided machining with swivelling rotary table; complete machining in two clampings

DMU / DMC monoBLOCK® series

High-performance milling, drilling and tapping.



speedMASTER® motor spindle rated at 15,000 rpm / 21 kW / 111 Nm			
	1 High-performance milling	2 High-performance drilling	3 Tapping
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Material removal rate	460 cm³/min	473.6 cm³/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

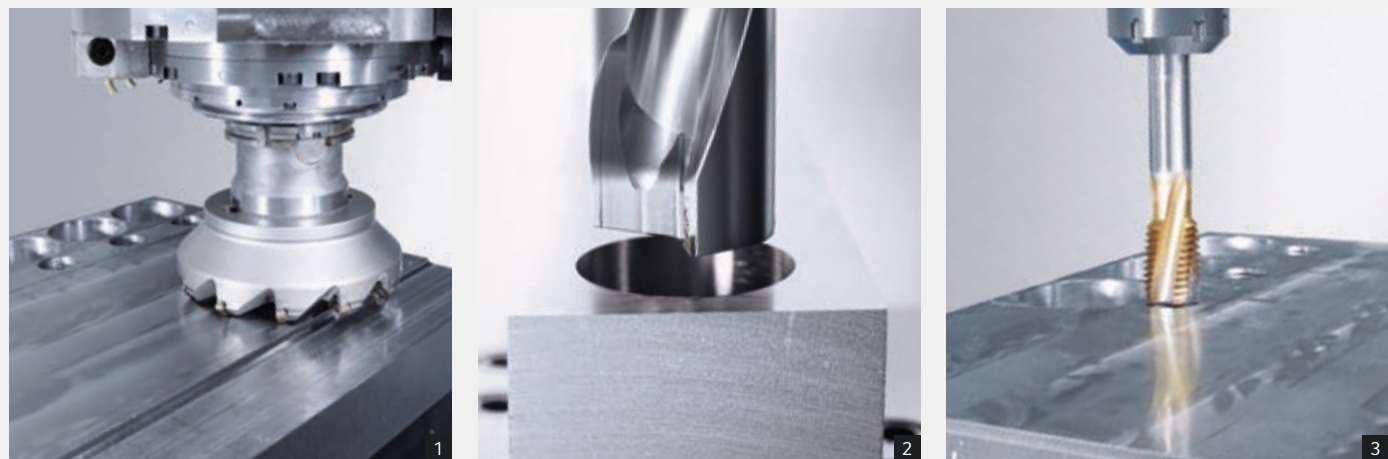
	4 High-performance milling	5 High-performance drilling	6 Tapping
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Material removal rate	520 cm ³ /min	435 cm ³ /min	–
Tool	Face mill ø 63 mm	Indexable insert drill ø 54 mm	M24 tap
Spindle speed	1,800 rpm	1,650 rpm	464 rpm (Vc = 35 m/min)
Feed	2,600 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

	4 High-performance milling	5 High-performance drilling	6 Tapping
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Material removal rate	236.5 cm ³ /min	201 cm ³ /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	–	–

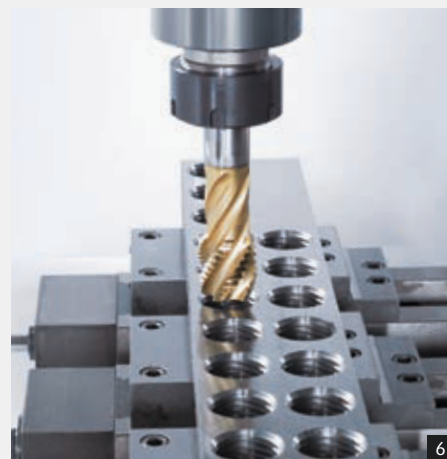
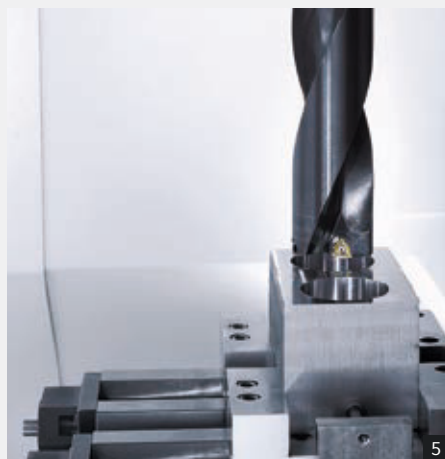
DMU / DMC monoBLOCK® series

High-performance milling, drilling and tapping.



speedMASTER® motor spindle rated at 15,000 rpm / 46 kW / 200 Nm			
	1 High-performance milling	2 High-performance drilling	3 Tapping
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Material removal rate	500 cm³/min	794 cm³/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	–	–

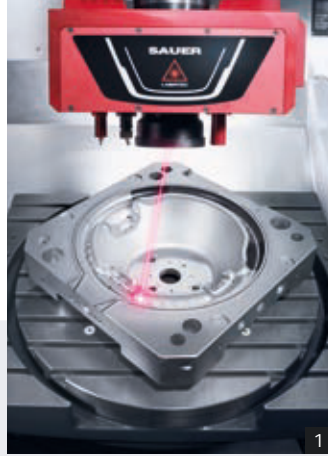
Torque spindle rated at 10,000 rpm / 44 kW / 288 Nm			
	1 High-performance milling	2 High-performance drilling	3 Tapping
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Material removal rate	812 cm³/min	708 cm³/min	–
Tool	Face mill ø 100 mm	Indexable insert drill ø 70 mm	M30 tap
Spindle speed	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

	4 High-performance milling	5 High-performance drilling	6 Tapping
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Material removal rate	1,000 cm ³ /min	830 cm ³ /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

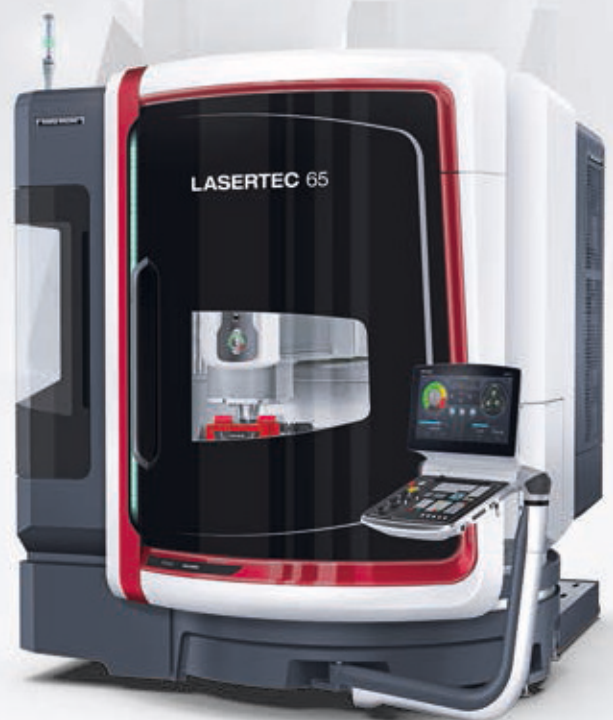
	4 High-performance milling	5 High-performance drilling	6 Tapping
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Material removal rate	812 cm ³ /min	708 cm ³ /min	–
Tool	Mill ø 100 mm (7 cuts)	Indexable insert drill ø 70 mm	M30 tap
Spindle speed	1,255 rpm (Vc = 394 m/min)	1,023 rpm (Vc = 225 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



- 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

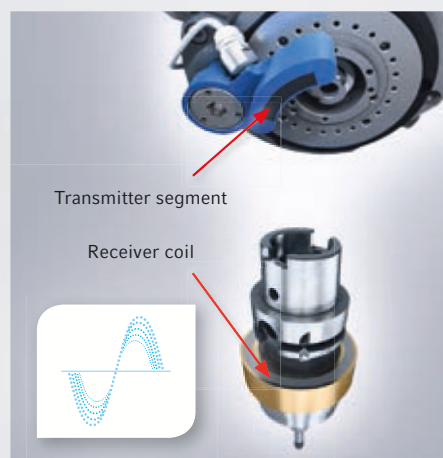
ULTRASONIC

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.

35

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®	
Working area				
X / Y / Z travels	mm		735 / 650 / 560	
Working volume	dm ³		268	
Swivelling rotary table			•	
Pallet / table	mm		ø 650 / 800 × 650	
Max. load	kg		600 / 1,000	
Maximum workpiece dimensions	mm		ø 840	
Maximum workpiece height	mm		500	
Main drive (standard)				
Rotational speed	rpm		15,000	
Torque (S6 40 %)	Nm		111	
Power (S6 40 %)	kW		21	
Tool changer				
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*	
Tool changer				
Tool holder			–	
Tool magazine	stations		–	
Diameter (free adjacent positions)	mm		–	
Length	mm		–	
Weight	kg		–	
Linear axes (X / Y / Z)				
Feed	mm/min		40,000	
Rapid traverse	m/min		40	
Acceleration	m/s ²		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 _{max.} (X / Y / Z) – VDI DGQ 3441 / ISO 230-2	µm		8	
P _{smax.} (X / Y / Z) – VDI DGQ 3441 / ISO 230-2	µm		5	
Machine data				
Space requirements of the base machine without chip conveyor or internal coolant supply	approx. m ²		7.5	
Machine height (standard machine)	mm		2,897	
Machine weight	kg		12,100	
Controls				
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®
Working area			
X / Y / Z travels	mm		735 / 650 / 560
Working volume	dm ³		268
Swivelling rotary table (mill-turn with C axis speed)			• (1,200)
Pallet / table	mm		ø 680
Maximum load (single drive / twin drive)	kg		600 / 800
Maximum workpiece dimensions	mm		ø 840
Maximum workpiece height	mm		500
Main drive (standard)			
Rotational speed	rpm		18,000
Torque (S6 40 %)	Nm		111
Power (S6 40 %)	kW		35
Tool changer			
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
Linear axes (X / Y / Z)			
Feed	mm/min		40,000
Rapid traverse	m/min		40
Acceleration	m/s ²		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 _{max.} (X / Y / Z) – VDI DGQ 3441 / ISO-230-2	µm		8
P _{smax.} (X / Y / Z) – VDI DGQ 3441 / ISO-230-2	µm		5
Machine data			
Space requirements of the base machine without chip conveyor or internal coolant supply	approx. m ²		8
Machine height (standard machine)	mm		2,897
Machine weight	kg		12,300
Control system			
DMG MORI ERGOline® Control with 19" monitor and 3D control system			
• standard, ◦ optional, – not available			

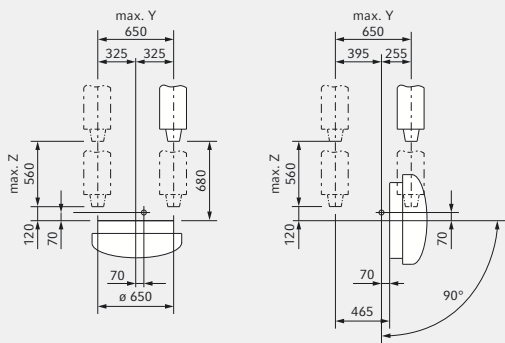
DMU 85 FD monoBLOCK®	DMU 105 FD monoBLOCK®	DMU 125 FD monoBLOCK®	DMC 65 FD monoBLOCK®	DMC 85 FD monoBLOCK®
935 / 850 / 650	1,135 / 1,050 / 750	1,335 / 1,250 / 900	735 / 650 / 560	935 / 850 / 650
517	894	1,502	268	517
• (800)	• (500)	• (500)	• (1,200)	• (800)
ø 850	ø 1,050	ø 1,250	ø 680	ø 850
1,000 / 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

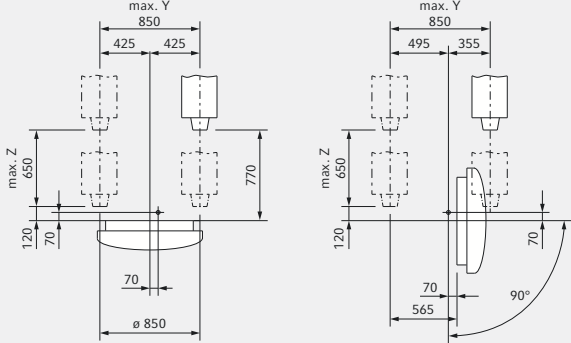
Working area of the DMU 65 / 65 FD monoBLOCK®

Swivel range ±120°



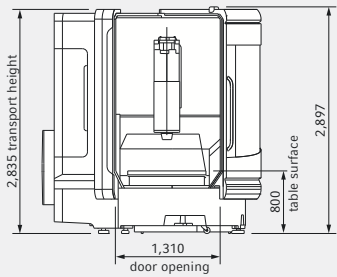
Working area of the DMU 85 / 85 FD monoBLOCK®

Swivel range ±120°



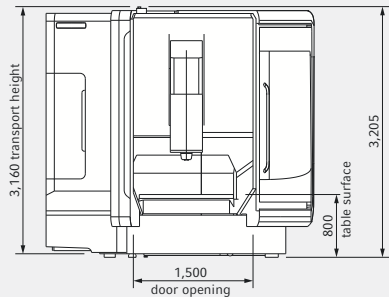
Floor plan of the DMU 65 / 65 FD monoBLOCK®

Front view



Floor plan of the DMU 85 / 85 FD monoBLOCK®

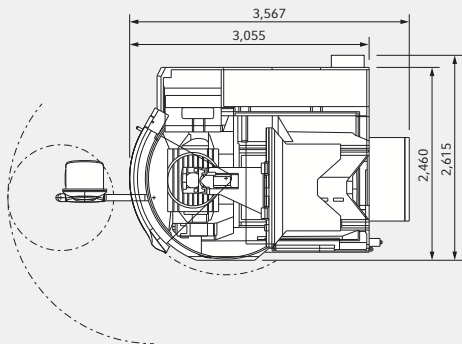
Front view



Floor plan of the DMU 65 / 65 FD monoBLOCK®

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

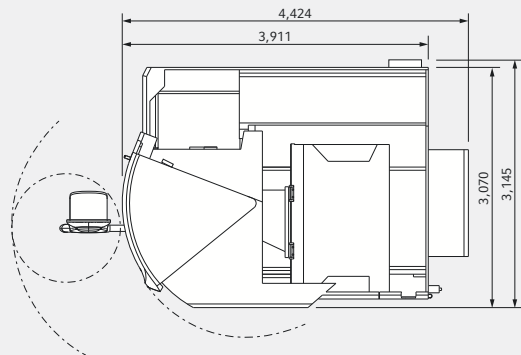
Footprint: 8 m² (9.2 m² with chip conveyor)



Floor plan of the DMU 85 / 85 FD monoBLOCK®

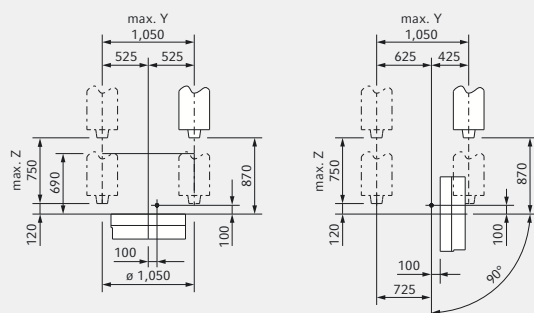
Plan view with 30-station chain magazine and chip conveyor option

Footprint: 12.3 m² (13.8 m² with chip conveyor)



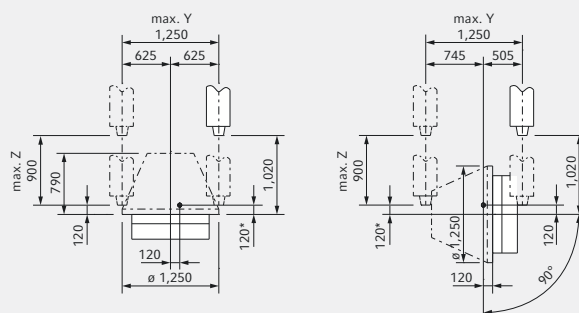
Working area of the DMU 105 / 105 FD monoBLOCK®

Swivelling rotary table – swivel angle



Working area of the DMU 125 / 125 FD monoBLOCK®

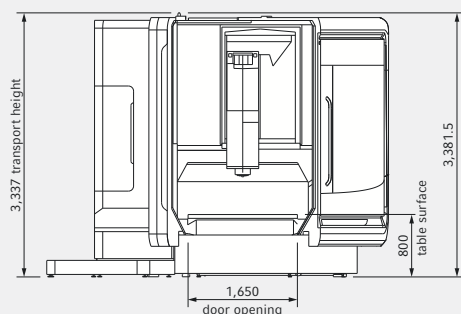
Swivelling rotary table – swivel angle



* on the FD 100

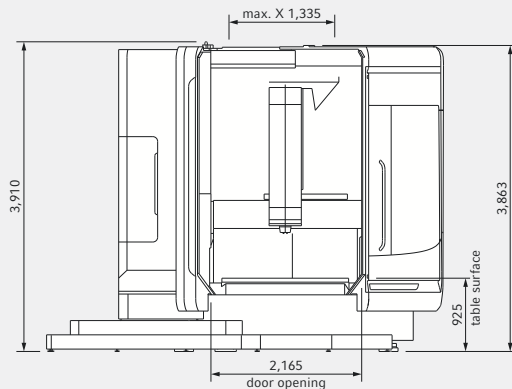
Floor plan of the DMU 105 / 105 FD monoBLOCK®

Front view



Floor plan of the DMU 125 / 125 FD monoBLOCK®

Front view

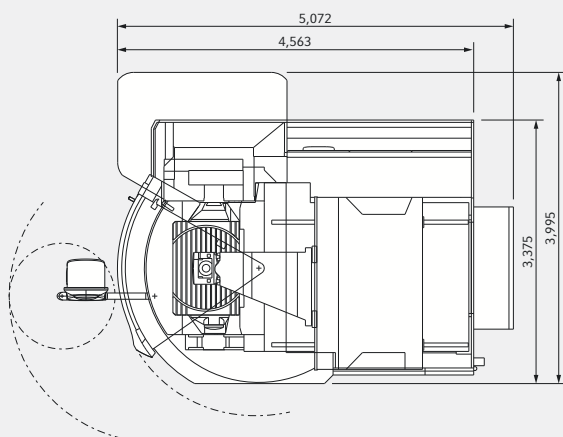


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Floor plan of the DMU 105 / 105 FD monoBLOCK®

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

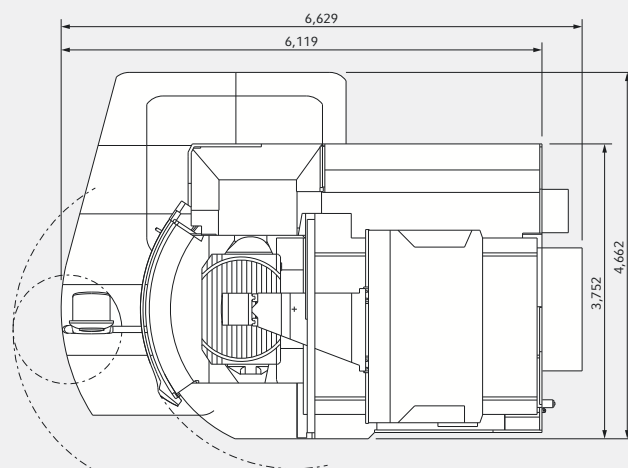
Footprint: 18.2 m² (20.2 m² with chip conveyor)



Floor plan of the DMU 125 / 125 FD monoBLOCK®

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

Footprint: 28.5 m² (30.9 m² with chip conveyor)

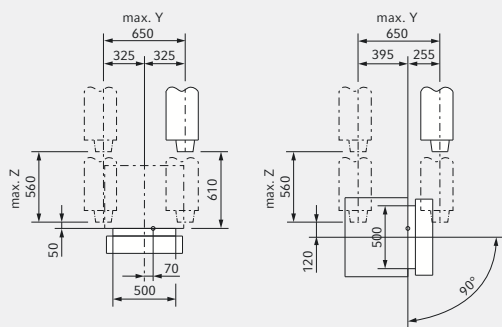


Applications and parts
Highlights
Control technology
Overview
Technical data
Floor plans

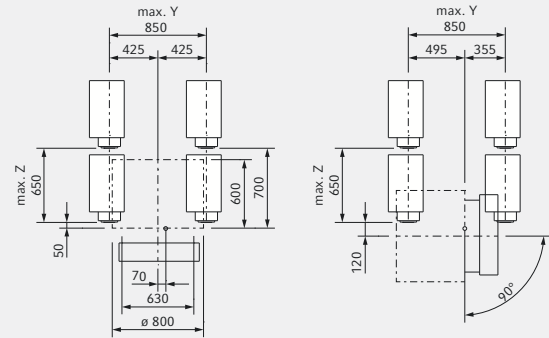
DMC / DMC FD monoBLOCK® series

Floor plans

Working area of the DMC 65 / 65 FD monoBLOCK®

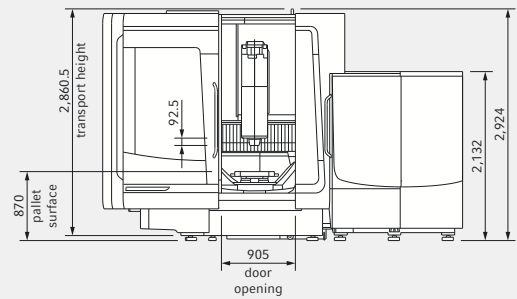


Working area of the DMC 85 / 85 FD monoBLOCK®



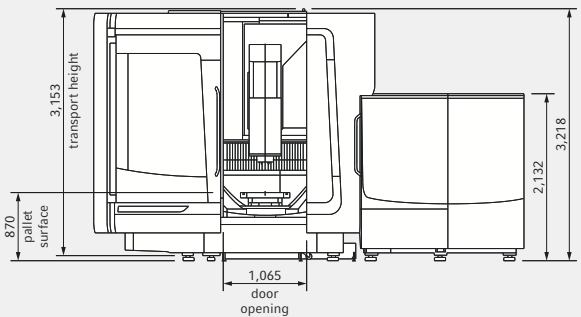
Floor plan of the DMC 65 / 65 FD monoBLOCK®

Front view



Floor plan of the DMC 85 / 85 FD monoBLOCK®

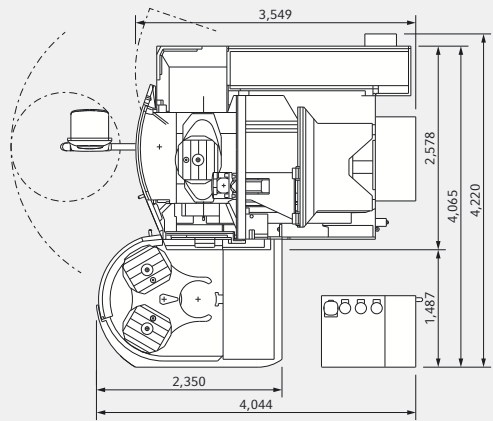
Front view



Floor plan of the DMC 65 / 65 FD monoBLOCK®

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

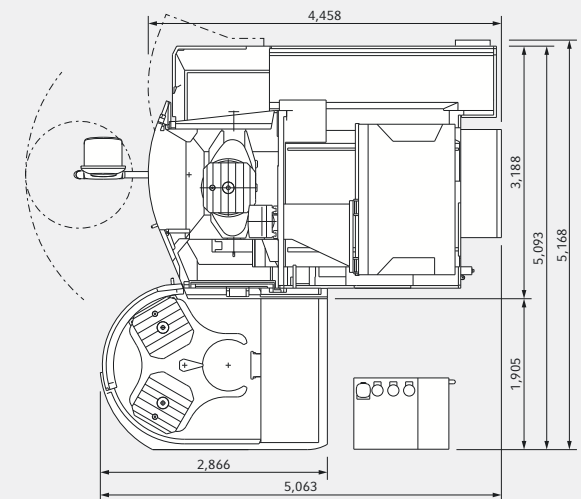
Footprint: 17 m² (including chip conveyor and coolant tank)



Floor plan of the DMC 85 / 85 FD monoBLOCK®

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

Footprint: 26 m² (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®
Table options			
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	◊	◊	◊
Main drive			
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)	–	◊	◊
Tool holder			
HSK-A63 / BT 40 / CAT 40	◊ / ◊ / ◊	◊ / ◊ / ◊	◊ / ◊ / ◊
HSK-A100 / BT 50 / CAT 50	– / – / –	◊ / ◊ / ◊	◊ / ◊ / ◊
Tool magazine			
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)	–	◊	◊
Automation / measurement / monitoring			
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 axesACCURACY	◊	◊	◊
Quad-colour signal lights	◊	◊	◊
Coolant / chip disposal			
Compact 500 l coolant system, chip conveyor, fabric tape filter	◊	◊	◊
Compact 500 l coolant system, 20 bar internal coolant supply, chip conveyor, fabric tape filter	◊	◊	◊
Production package: 40 bar, 600 l internal coolant supply, chip conveyor	◊	◊	◊
Production package: 80 bar, 980 l internal coolant supply, frequency controlled	◊	◊	◊
Coolant temperature control for the 600 / 980 l 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	◊	◊	◊
Optional TNC 640 control systems			
ATC – Application Tuning Cycle	◊	◊	◊
Electronic handwheel TNC 640	◊	◊	◊
SIEMENS 840D solutionline options			
Electronic SIEMENS 840D hand wheel	◊	◊	◊
MDynamics package	◊	◊	◊
ATC – Application Tuning Cycle	◊	◊	◊
General options			
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

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