

DMG MORI

DMU 65 monoBLOCK

DMU 75 monoBLOCK

DMC 65 monoBLOCK

DMC 75 monoBLOCK

DMU 85 monoBLOCK

DMU 95 monoBLOCK

5-AXIS UNIVERSAL MILLING MACHINES

monoBLOCK series



2nd
GENERATION
monoBLOCK

monoBLOCK SERIES

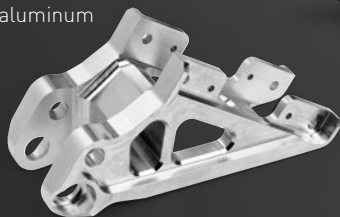
The monoBLOCK series is always the right solution!

The monoBLOCK machines offer a machine concept for all industries: Be it 5-axis simultaneous machining, highly dynamic high-speed milling, integrated mill-turning or high-torque, high-torque high-performance cutting or in the ambitious field of productive part manufacturing. With the new monoBLOCK machines, every component that is manufactured becomes an impressive masterpiece.

With the three Technology Excellence Centers Die & Mold, Semiconductor and Aerospace in Pfronten, DMG MORI provides its customers with experts at eye level who know the industries, their requirements and also the actors and the future developments.

02

**MECHANICAL
ENGINEERING**
Integral component
made from
aluminum



LIFESTYLE
Bearing plate
for yacht



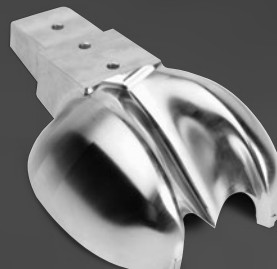
MOBILITY
Rim made from
aluminum



MEDICAL
Titanium
knee joint



ENERGY
Pelton blade made
from tool steel





AEROSPACE EXCELLENCE CENTER

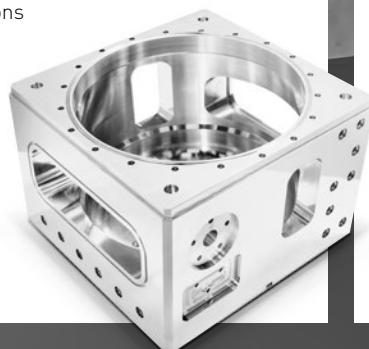
- + More than **30 years of technology experience** for all applications and materials
- + **Green Button Process**
Process development taking measuring and monitoring into consideration for guaranteeing unmanned manufacturing with maximum process safety
- + **Additive manufacturing:**
Laser deposition welding and selective laser melting in powder bed
- + **25 years of milling/turning technology**
Best in Class for casings and rotatives
- + **Technology integration grinding**
- + **Additive Manufacturing:**
LASERTEC *DED* hybrid machines (laser deposition welding) as an additional solution for highly complex geometries and milling and turning operations



03

SEMICONDUCTOR EXCELLENCE CENTER

- + Over **20 years of experience** in high-precision machining for the semiconductor industry
- + **Customised manufacturing solutions** for frame and structural components, process chambers, vacuum technology, and much more
- + **Highest precision** thanks to temperature-stable machine concepts and mechanical fine-tuning in the μ Precision package
- + **Automated production** with integrated online monitoring for maximum process reliability
- + **Technology integration:**
milling, turning, grinding and measuring for multifunctional applications in a single clamping
- + **Material-specific machine concepts and particle management** (cleanONE) for the highest purity requirements



DIE & MOLD EXCELLENCE CENTER

- + **More than 50 years of experience** and more than 20,000 successful customers in tool and mold manufacturing
- + Comprehensive product portfolio for **workpieces up to 1,250 mm and 2 tonnes**
- + Standardized and customized **automation solutions**
- + **Optimal chip flow** for maximum process reliability
- + Possibility to **fully machine a workpiece across the entire NC rotary table** for maximum flexibility
- + **Customized surface qualities** thanks to modular machine construction, spindle speeds of up to 30,000 rpm and direct-drive NC rotary table solutions
- + **Additive Manufacturing:**
LASERTEC *DED* hybrid machines (laser deposition welding) as the perfect solution for repair applications



monoBLOCK SERIES

The choice is yours!

Proven concept – reimagined!



DMUuniversal

- + Door opens to the right
- + Best accessibility to the workspace with the widest door opening in the segment (1,310 mm)
- + Limited automation portfolio compatible
- + Parallel tool and workpiece set-up
- + Standalone operation in standard mode

DMCenter



- + Door opens to the left
- + Complete automation portfolio compatible
- + Third-party automation solutions possible
- + Full accessibility even with automation
- + Standalone operation in standard mode

**COMPLETE
AUTOMATION
PORTFOLIO
COMPATIBLE**

05

Available automation solutions:

	DMU monoBLOCK	DMC monoBLOCK
RPS 3	–	◦
PH 150	◦	◦
Robo2Go Milling	–	◦
PH Cell	◦	◦
MATRIS WPH	–	◦
PH-AMR 750	◦	◦*
Third-party automation solutions	–	◦

◦ option – not available *Not compatible with tables with pallet support

monoBLOCK SERIES

The machine for every possible customer requirement, already sold > 6,000 times.

ERGONOMIC

- + Large door opening to the right (DMU) and left (DMC) with unique access to the working envelope
- + Quick and easy commissioning due to 3-point support

PRECISE

- + 4 µm positioning accuracy – DMU/DMC 65/75 monoBLOCK
- + 30 % greater volumetric accuracy thanks to VCS Complete

RELIABLE

- + Maximum quality thanks to state-of-the-art production line in machine tool construction
- + MASTER spindles with 36 month warranty

ECONOMICAL

- + Complete machining: 5-axis milling, turning and grinding
- + Versatile automation solutions – can also be retrofitted
- + Sheer energy efficiency: Reduced energy requirement > 30 %

FUTURE-PROOF

- + Digitalization with CELOS X and UMATI as standard
- + DMG MORI technology cycles – complex machining made simple by means of dialog-assisted programming



ERGONOMIC
PRECISE
RELIABLE
ECONOMICAL
FUTURE-PROOF



More than 35 years
of 5-axis expertise.

monoBLOCK SERIES

Unique ergonomics!

With a footprint of 8 m², the monoBLOCK is the most compact in its class on the market. Optimum user-friendliness is also provided by the perfect accessibility and visibility of the working area! The working area can be loaded from above without restrictions.

- 1 3-point support**
thanks to inherently rigid monoBLOCK and crane hook design for very simple commissioning
- 2 Palleting capability**
with unrestricted access to working area
- 3 Optimum chip fall**
and chip disposal out of the machine towards the rear, with 860 × 640 mm chip shaft
- 4 Stainless steel lining in working area**
avoids soiling and provides optimum accessibility
- 5 Most compact machine on the market**
footprint of just 8 m² with the DMU 65 monoBLOCK
- 6 CELOS X**
simplifies and accelerates the process, from idea to finished product
- 7 Improved functionality**
Disk can be removed from the outside
- 8 Value stability/long-life surfaces**
Premium area in the fine structure for improved scratch resistance and protection from damage



ERGONOMIC

**UNRESTRICTED
CRANE LOADING**



CELOS X

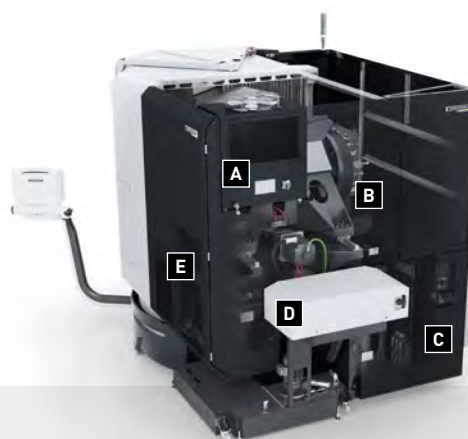
HIGHLIGHTS

- + Large door opening with unique access to working area for quick and ergonomic set-ups
- + Crane loading from above to over the middle of the table
- + Door opening up to 1,310 mm
- + Working area and tool magazine fully accessible, even with automation

EXTREMELY MAINTENANCE-FRIENDLY

- A** Cooling unit
- B** Magazine with blade changer for up to 240 tools
- C** Switch cabinet at side beneath the tool magazine
- D** Chip disposal towards the rear*
- E** Central fluid box with optimum access

*Option



PRECISE

monoBLOCK SERIES

Exact and stable – for perfect machining results

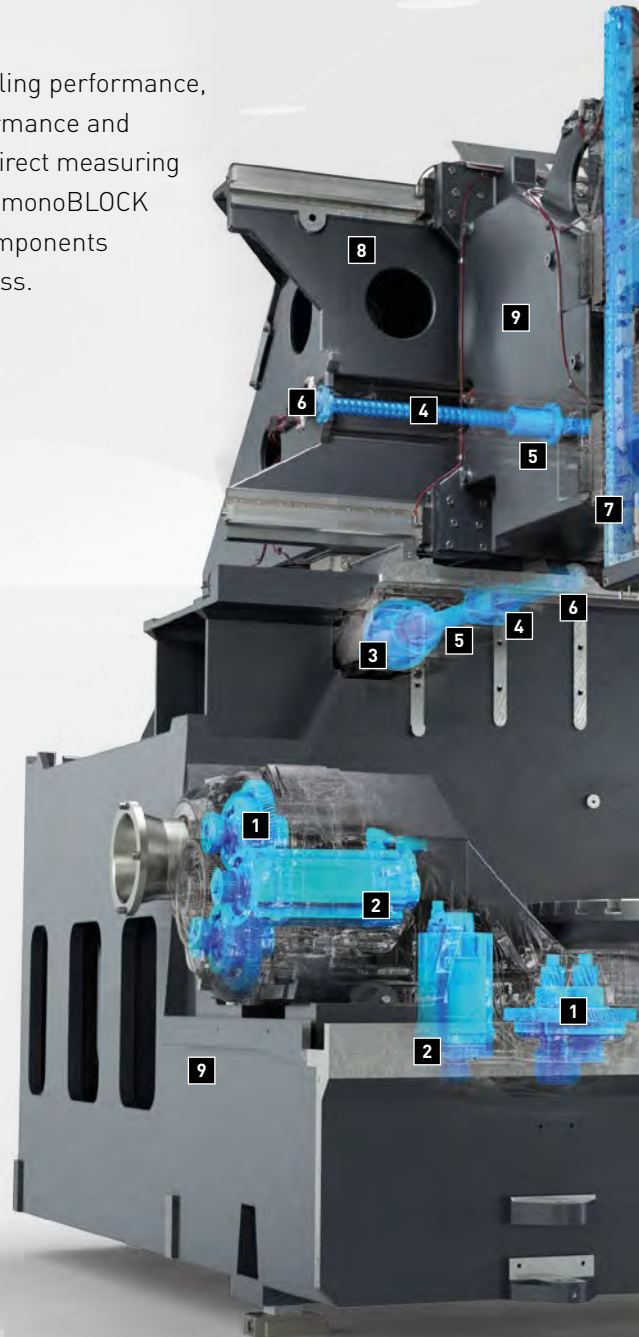
Because of its extreme rigidity and stability for maximum milling performance, the monoBLOCK series provides maximum machining performance and excellent accuracy. These top performances are achieved by direct measuring systems in X / Y / Z, the conceptually high static masses of the monoBLOCK and a detailed FEM analysis. The weight-optimized moved components made from EN GJS 600-3 provide high dynamics in the process.

Standard cooling measures

- 1** Cooled A and C-axis gearbox
- 2** Cooled A and C-axis motor
- 3** Cooled X, Y and Z-axis motor flanges
- 4** Internally cooled ball screw drive in the X and Y axes
- 5** Cooled ball screw bearings and nut flanges in the X, Y and Z-axis
- 6** Cooled fixed bearing X-, Y – and Z- ball screw
- 7** Thermo-symmetric ram cooling
- 8** Constant temperature in the machine due to fans in X and Y-axis
- 9** Multi-sensor compensation:
Spindle, Y-slide, machine body

Cooling unit 5 kW

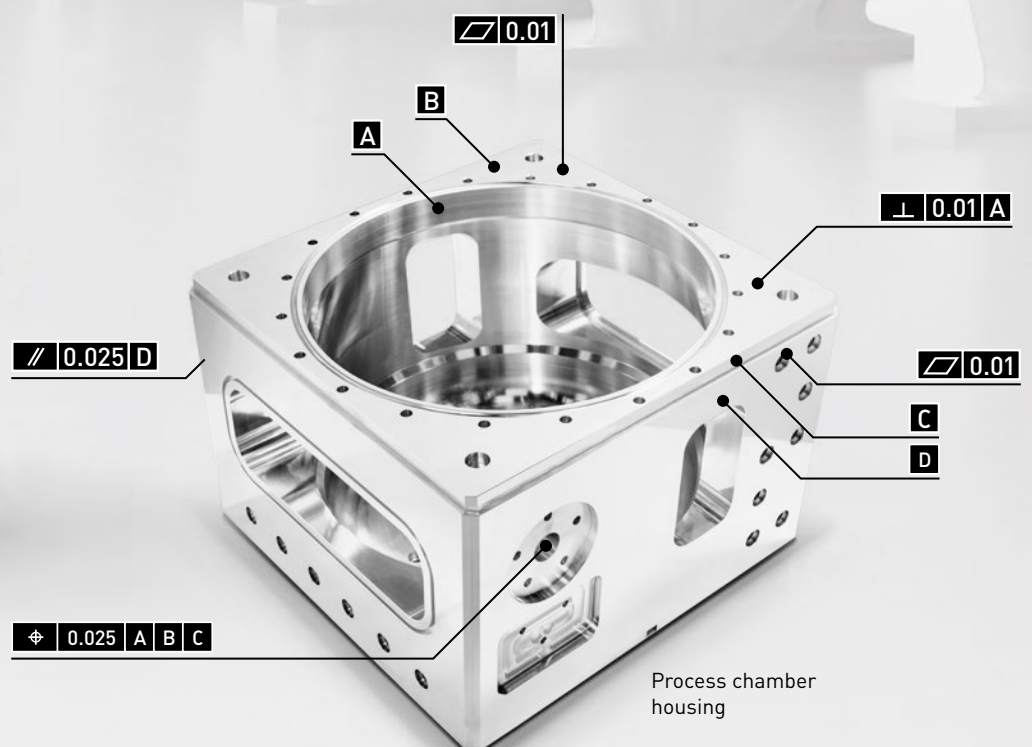
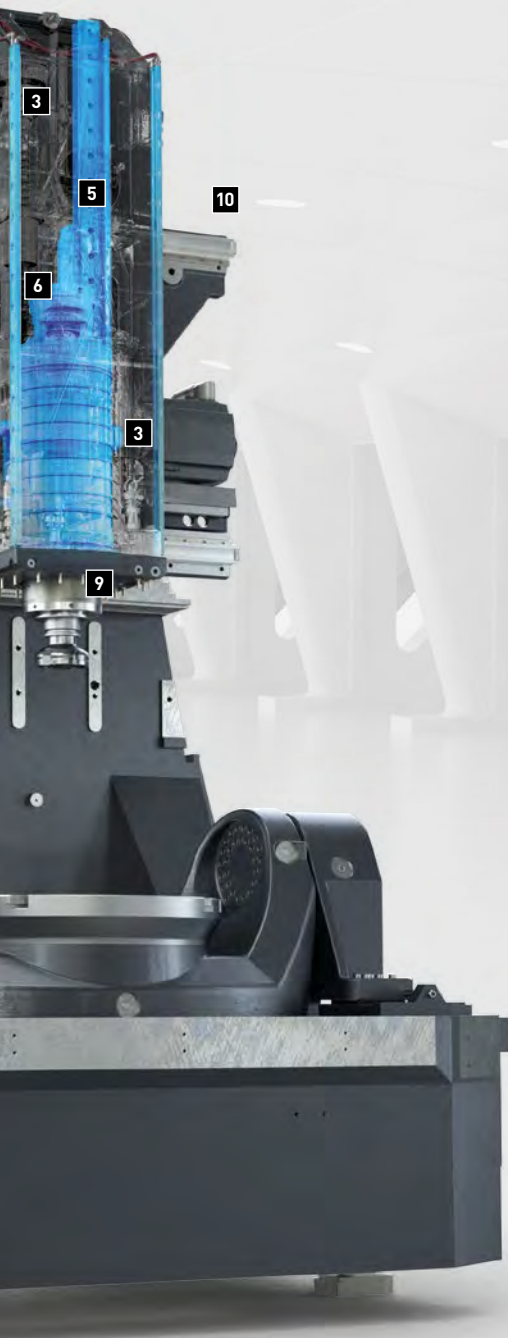
**COMPREHENSIVE COOLING MEASURES
FOR MAXIMUM CONTINUOUS ACCURACY
AS STANDARD**



monoBLOCK – CONSISTENT MAXIMUM STABILITY

Rigid monoBLOCK concept

- + One-piece stand with large-volume and stable slide, 55 mm roller guide in all axes (45 mm with model 65)
- + Maximum stability thanks to large YRT bearing in swiveling rotary table and large ball screws in all axes
- + FEM optimization of all components
- + Clamping of the swiveling rotary table



Industries

Highlights

MX – Machining Transformation

Machine & options

Technical Data

monoBLOCK SERIES

monoBLOCK – The most reliable machine of its kind



monoBLOCK
EXCELLENCE FACTORY
Digital & Automated

RELIABLE

The benchmark in modern manufacturing.

The top quality and reliability of the DMU monoBLOCK machines is guaranteed by the monoBLOCK Excellence Factory at the DMG MORI site in Pfronten. The digitalized and continuously flowing assembly line revolutionizes manufacturing in machine tool construction. Our optimal assembly systems allow our machines to maintain consistent quality at the highest level across the entire model mix.

HIGHLIGHTS

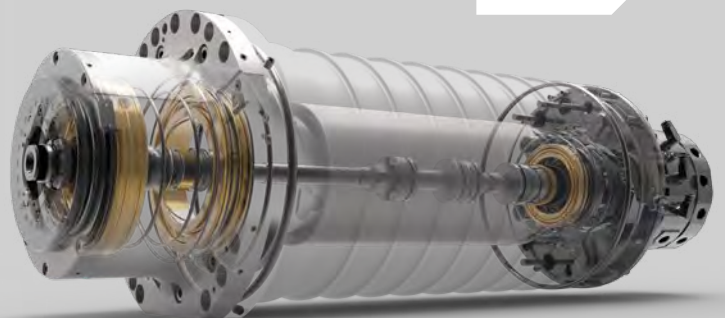
Assured technical availability $\geq 96\%$

- + Durable thanks to heavy-duty cast components and working area lining made from stainless steel
- + Well-tried concept with more than 6,000 installed machines worldwide

36
MONTHS

WARRANTY

13



The main elements of our machines are also manufactured in-house.

The motor spindles of the "MASTER" series impress here with their maximum quality.

Reason enough for a 36 month warranty on all MASTER spindles with unlimited spindle hours.

Industries
Highlights
MX – Machining Transformation
Machine & options
Technical Data

EXPLORE THE WORLD OF

MX MACHINING TRANSFORMATION

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Machining Transformation (MX) by means of process integration, automation, digitalization and sustainability.

- + Workpieces are efficiently manufactured on a single technology-integrated machine
- + Better utilization of a complete machining center rather than partial utilization of several simple machines
- + Additional low-manpower or unmanned night and weekend shifts thanks to automated manufacturing solutions
- + Digital solutions create competitive advantages by improving work processes and generating new ways of improving efficiency and reducing power consumption

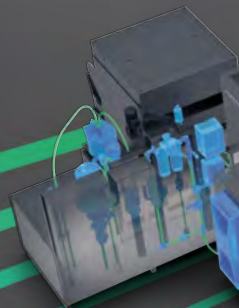
PROCESS INTEGRATION

- + Turning
- + Grinding
- + Gearing



GX – GREEN TRANSFORMATION

*Machine: DMU 65 FDS monoBLOCK – All values shown are based on the internal examinations and experiences of DMG MORI. The actual values may deviate from these because of the actual production conditions. Assumptions for annual energy requirement: 250 working days per annum, 2 shifts per day, 8 hours per shift, 30 % standby, 20 % NC-ready, 50 % machining, CO₂ emission factor: 0.38 kg/kWh, electricity price: 0.20 €/kWh.



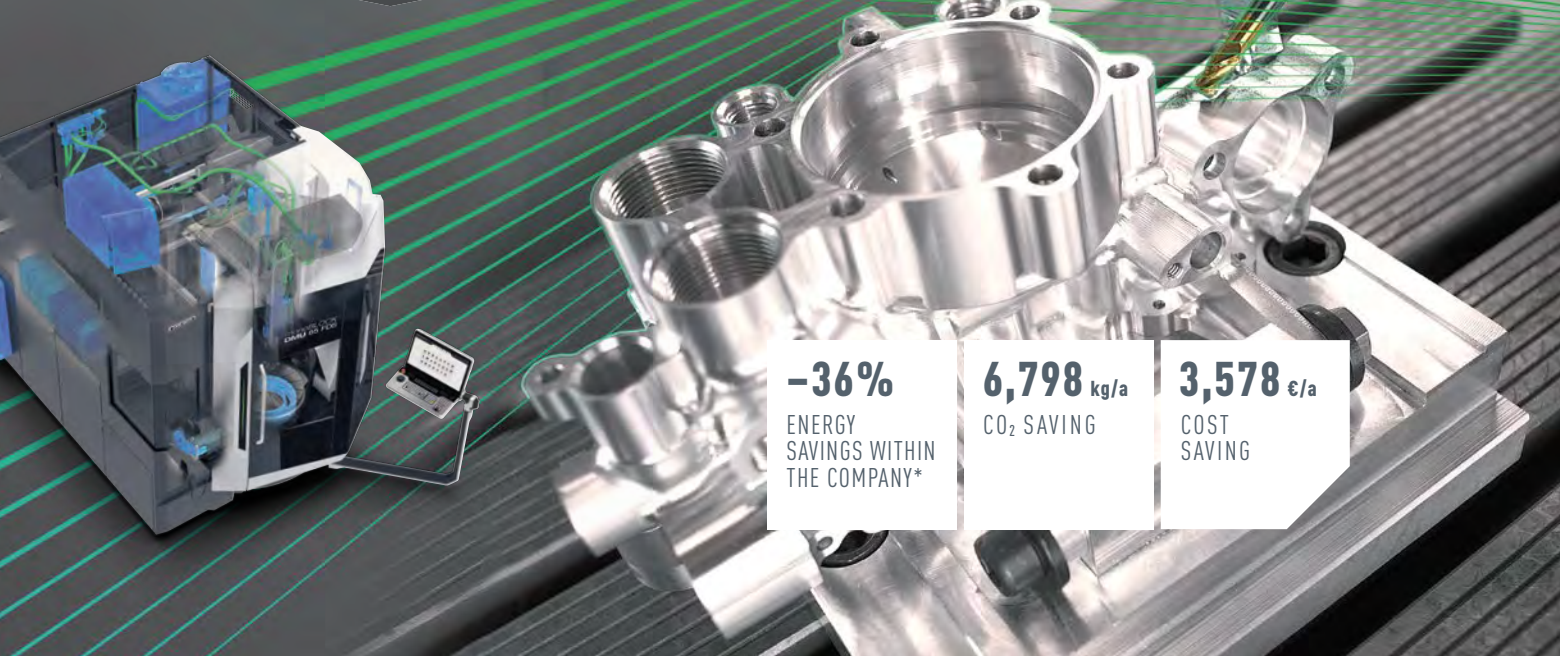
AUTOMATION

- + Collaborative and autonomous pallet handling with the AMR series
- + Pallet handling with the PH 150/PH Cell
- + Workpiece and pallet handling with MATRIS WH/WPH



DX – DIGITAL TRANSFORMATION

- + CELOS X
- + Exclusive DMG MORI Technology Cycles



-36%

ENERGY
SAVINGS WITHIN
THE COMPANY*

6,798 kg/a
CO₂ SAVING

3,578 €/a
COST
SAVING

DMU/DMC 65 FD monoBLOCK / DMU 85 FD monoBLOCK

Turning

HIGHLIGHTS OF DMU/DMC FD monoBLOCK

- + **Complete machining thanks to milling and turning in a single setup on one machine** with Direct Drive technology for up to 1,200 rpm
- + Lower investment costs and **smaller footprint** thanks to the use of a single machine
- + Faster machining times and reduced logistics due to the elimination of downtimes and work steps – lower unit costs and greater precision
- + Swiveling rotary table, also as **Tandem Drive version with drive at both sides** for even more stability and dynamics

 **Direct Drive**

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Performance turning		DMU/DMC 65 FD monoBLOCK	DMU 85 FD monoBLOCK
Material		CK45	CK45
Chip removal rate	cm ³ /min	405	720
Cutting depth	mm	4.5	6
Feed	mm/revolution	0.45	0.6
Cutting diameter	mm	500	500
Cutting speed	m/min	200	200
Speed	rpm	127	127

300%
MORE
PRODUCTIVITY

Complete machining process
monoBLOCK FD machines

Complete machining process:

1 machine
4 machining steps



ECONOMICAL

- 1: Tilted turning with A-axis
- 2: Multitool – Use of multi-blade tools
- 3: Measuring cycles for in-process workpiece measurement
- 4: Measurement of turning and milling tools



Exclusive mill-turn cycles

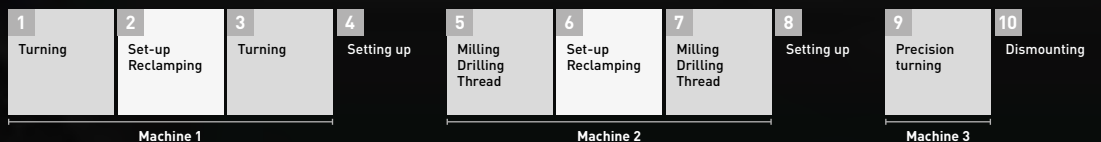
- + Tilted turning with A-axis
- + **Multitool:** Use of multi-blade tools (up to nine blades on one tool)*
- + **Measuring cycle for (L-) touch-probe:** Calibrate touch-probes in the working area, measure grooves and undercuts, save measuring data, output and transmit*
- + **Milling and turning tool measurement***
- + **Alternating speed,** process validation by means of avoiding vibration*
- + **Imbalance** determination, checking and monitoring

*Optional

Conventional machining process with single-purpose machines

Conventional machining process:

3 machines
10 machining steps



DMU/DMC 65 FDS monoBLOCK / DMU 85 FDS monoBLOCK

Grinding

RA UP TO
0.4 μm

HIGHLIGHTS

- + Milling, turning and grinding **in a single clamping**
- + Grinding cycles for **interior, exterior and face grinding and dressing cycles**
- + **Best finish quality** by integrating the grinding technology
- + Economical manufacturing by means of **reducing set-up times**
- + Spindle utilization detects initial contact of grinding disk with the component

ACHIEVABLE TOLERANCES

- + Surface quality Ra up to 0.4 μm
- + Circularity up 5 μm
- + Basic tolerance grade IT4 for nominal dimensions above 315 mm (< 18 μm) according to DIN ISO 286

ECONOMICAL



1: Spindle utilization for moving to component
2: Dressing with upright dressing tool



Grinding package

- + FD package including spindle and cabin – moving to workpiece via performance data
- + Dressing unit with integrated structure-borne noise sensor for process-safe dressing process with additional support from dressing cycles
- + Chip conveyor and 1,300 l coolant system including centrifugal filter for particle fineness of up to 10 µm
- + Machine protection by means of additional wipers, sealing air for all linear measuring systems and shorter lubricating intervals

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3: Milling
4: Turning
5: Grinding

DMU/DMC 65 FD monoBLOCK / DMU 85 FD monoBLOCK

Gearing

DMG MORI gearSKIVING

Achievable gearing qualities

- + Spur gear DIN 9 (roughing)
- + Spur gear DIN 7 (finishing)

HIGHLIGHTS

- + Synchronized rotation of tool and workpiece
- + Innovative manufacturing procedure for straight or helical cut spur gears
- + For external and internal gears
- + Module 2–10 possible
- + Highly productive gear manufacturing process on universal machines
- + Advantages compared to conventional manufacturing:
 - shorter machining times
 - fewer tools
 - better surface

ECONOMICAL

DMG MORI gearMILL

Achievable gearing qualities

- + Bevel gear DIN ≤ 5
- + Spur gear DIN ≤ 6 (depending on pitch circle diameter)

HIGHLIGHTS

- + Productive complete machining with turning, drilling, gear cutting
- + Highest flexibility as the result of manufacturing with standard tools on standard machines
- + Free modification of profiles, flanks and the tooth contact pattern
- + Flexible for different types of gears
- + Soft and hard machining on one machine
- + Quality checking in current process with output listing

monoBLOCK SERIES

Pallet automation

In times of skilled labour shortages and international cost pressures, increasing machine hours and minimizing or eliminating the need for human labour in production have been gaining in importance for years. DMG MORI's range of pallet automation solutions ensures maximum machine utilisation, thereby reducing machining and personnel costs.

Make your business more efficient and competitive with automation solutions that, unlike those offered by your competitors, always prioritise accessibility to the working area and operator ergonomics.

RPS 3 – COMPACT PALLET HANDLING

- + Round magazine with 3 zero-point clamping pallets in the magazine
- + Optimal ergonomics and accessibility to the working area thanks to side loading
- + Simple automation with 500 kg transfer weight

compatible with DMC 65 monoBLOCK



PH 150 PALLET AUTOMATION

- + Simple and cost-effective automation solution for up to 12 pallets
- + Max. workpiece dimensions: 400 × 400 × 400 mm

compatible with DMU/C 65 monoBLOCK



ECONOMICAL

PH CELL – COMPACT PALLET HANDLING

- + Best ergonomics and accessibility to the work area thanks to side loading
- + Modular design for individual customer requirements with subsequent extendibility
- + For connection to one machine
- + Up to 40 zero-point clamping pallets in the system
- + Particularly suited for medium heavy components
- + Simple extension with additional machines

compatible with DMU/C monoBLOCK



monoBLOCK SERIES

Redefining automation!

Not only do companies have to adapt to ever-changing customer requirements, but so does their production. With its innovative automation solutions, DMG MORI enables enhanced manufacturing flexibility. From classic robot workpiece handling to the new combined workpiece and pallet handling (WPH) system, right through to DMG MORI's most flexible automation system, the AMR, which enables the interlinking of several machines with a free layout design and pallet, tool and material handling.

CHIP
DISPOSAL

PALLET
HANDLING

AMR – AUTONOMOUS PALLET HANDLING

- + Collaborative automation solution with free layout design
 - + Omnidirectional movement for minimal space requirements (0m turning circle)
 - + Free access to machine without safety fences
 - + Simple extension with additional machines
- compatible with DMU/C monoBLOCK

TOOL
HANDLING

MATERIAL
HANDLING

Robo2Go MILLING

- + Load capacity of robot either 25 or 35 kg
 - + Handling of components measuring 20–200 mm (other dimensions available as an option)
 - + External and internal gripping as standard
 - + Customised workpiece trays available
 - + Pressure reduction for thin-walled components
- compatible with DMC 65 monoBLOCK



ECONOMICAL

MATRIS WPH – COMBINED WORKPIECE AND PALLET HANDLING

- + Maximum flexibility through pallet (high-mix low-volume) and workpiece handling (low-mix high-volume)
- + Movable shelves for different pallet/workpiece sizes
- + Up to 38 pallets in the system with a transfer weight of up to 150 kg
- + Drawer storage with inlay for flexible arrangement of small components
- + Up to 7 drawers possible with 20 kg workpiece transfer weight
- + Double gripper for rectangular and cylindrical workpieces
- + Intuitive UI software IDEA and programming without prior knowledge
- + Easy expansion with a second machine compatible with DMC 65 monoBLOCK



ENERGY-EFFICIENT MACHINE TOOLS

GREENMODE – sheer energy efficiency

Increasing energy efficiency in industry is an important factor for achieving climate protection targets. Furthermore, a low energy requirement is becoming increasingly economically important due to the increasing energy prices. DMG MORI is redefining energy efficiency in manufacturing with **GREENMODE**. Considerable savings can be made, particularly in process and machine cooling, which often amount to as much as 70 % of the power consumption of a machine tool. DMG MORI has succeeded in reducing the energy requirement by more than 30 % using innovative hardware and software components. In this way, DMG MORI helps you on the way to energy-efficient production.



Measures for better energy efficiency

- | | | |
|---|--|---|
| <ul style="list-style-type: none"> + Braking energy regeneration + LED lighting + High-efficiency coolers
Best-in-class cooling units + Advanced Auto Shutdown
Automatic Standby & Wake-up + Adaptive infeed control
Shorter machining times | <ul style="list-style-type: none"> + Advanced Energy Monitoring
Component-specific energy measurement + Compressed air monitoring
Quick leak detection + Frequency-controlled pumps
Efficient coolant supply + Adaptive coolant supply
Requirement-oriented coolant supply | <ul style="list-style-type: none"> + <i>zeroFOG</i> Emulsion mist separator
Easy maintenance and efficient operation + Business Benefit Optimizer
Transparent comparison of performance and CO₂ emissions during machine selection |
|---|--|---|

ECONOMICAL

-36%*



DMU 65 FDS
monoBLOCK

WITH **GREENMODE**
32,190 kWh/a

-17,890 kWh/a

WITHOUT **GREENMODE**
50,080 kWh/yr.

1. STAND-BY	2. WARM-UP	3. NC READY	4. MACHINING	5. EMERGENCY STOP
Δ -45%	Δ -16%	Δ -11%	Δ -38%	Δ -81%
Reference GREENMODE (ECO) 7.7 kW 4.2 kW	Reference GREENMODE 9.0 kW 7.6 kW	Reference GREENMODE 7.7 kW 6.9 kW	Reference GREENMODE 17.3 kW 10.8 kW	Reference GREENMODE (ECO+) 3.5 kW 0.7 kW

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Savings during operation – example calculation

Machine run-time: 4,000 hours per year (16 hours per day, 250 days per year)

Machine status	Standby	NC ready	Machining
Time distribution	30 %	20 %	50 %
Average power consumption without GREENMODE	7.7 kW	7.7 kW	17.3 kW
Average power consumption with GREENMODE	4.2 kW	6.9 kW	10.8 kW

CO₂ SAVING

6,798 kg/a

COST SAVING

3,578 €/yr.

*All values shown are based on the internal examinations and experiences of DMG MORI. The actual values may deviate from these because of the actual production conditions. Assumptions for annual energy requirement: 250 working days per year, 2 shifts per day, 8 hours per shift, 30 % standby, 20 % NC-ready, 50 % machining, CO₂ emission factor: 0.380 kg/kWh, electricity price: 0.20 €/kWh.

DX – DIGITAL TRANSFORMATION

CELOS X – The future-proof solution for manufacturing

CELOS X platform offers a holistic solution for the digital transformation. Combined with the *ERGOLine X* control panel, manufacturing companies will increase their competitiveness worldwide.

CELOS X consists of the two components **CELOS Xchange**, the open, secure and scalable data platform, and **CELOS Xperience**, which gives access to all applications and systems within the CELOS X ecosystem. This enables a comprehensive and seamless digital experience for the user with the goal of easy machine operation, extended spindle hours while maximizing energy efficiency. CELOS X is therefore the centerpiece of the digital transformation (DX) and a significant contribution to DMG MORI's Machining Transformation (MX) strategy.



Further information on
CELOS X can be found at:
<https://celos.dmgmori.com>

HIGHLIGHT APPS



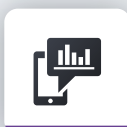
Operator Workbook

Optimal order processing in the office and throughout the shopfloor.



Application Connector

Operate IT-systems directly on the control panel.



Monitoring

Increase planning reliability and productivity through digital transparency.



Tool Master

Manage tools directly on the machine.



Energy Saving

Optimize the machine's carbon footprint by managing and reducing energy consumption.



Energy Monitoring

Track and monitor the energy consumption of the machine.

PROOF

3

GOALS

>30

APPS

>300

FEATURES



ALL YOUR DATA IN

CELOS Xchange

POWERED BY DMG MORI CONNECTIVITY

ALL APPS IN

CELOS Xperience



EASY OPERATION

In the manufacturing industry, the userfriendliness and ease of operation of machine tools plays a decisive role for the efficiency and productivity.

ADDED VALUE

- + Faster programming
- + Reduction of errors
- + Increased efficiency



EXTENDED SPINDLE HOURS

In addition to easy operation, productivity is another crucial parameter, which requires a holistic view across all production processes.

ADDED VALUE

- + Optimization of set-up processes & capacity planning
- + Shorter processing times and order changes
- + Increased machine availability



ENERGY EFFICIENCY

The energy efficiency of machine tools is of utmost importance to DMG MORI and CELOS X makes a valuable contribution to this, adding direct value to the customer.

ADDED VALUE

- + Real-time monitoring of energy consumption
- + Automated adaptation of energy requirements to machining processes
- + Optimized & demand-driven air and cooling lubricant supply

CONTROL TECHNOLOGY

ERGoline X – Innovative control panels for every type of controller

The ERGoline X control panel provides the machine operator with an even more intuitive user experience, whereby the ergonomics and the functionality in particular have been optimized. The ERGoline X control panel gives the user access to CELOS *Xperience* and the native NC controller.

HEIDENHAIN TNC 7

- + Increase maximum flexibility and efficiency
- + Select and arrange working areas in a task-oriented way
- + 3D simulation, accurate to the last detail
- + Tabs for opening up to 9 programs in parallel
- + Compatibility with previous TNC 640 controller
- + Graphically assisted measurement of both clamping materials and components



24" ERGoline X Panel
with HEIDENHAIN
and CELOS X



CONNECTIVITY by DMG MORI

- + Standard connectivity thanks to integrated IoTconnector
- + MDE (Machine Data Recording) possible
- + Automatic output of at least 17 standardized production status signals
- + Openness to third-party products
- + Communication in accordance with standard protocols:

SMARTride

- + Integrated panic function to instantly reduce the feed rate/rapid traverse to 0
- + Integrated haptic feedback to recognize 0% & 100%
- + Feed rate, rapid traverse & NC-start combined in one control element

PROOF

CELOS X

Uniform user interface,
independent of the CNC control.

SMARTkey

- + Compact credit card format
- + Personalized access rights depending on user level
- + Independently customizable SMARTkeys



24" ERGOline X Panel
mit Sinumerik ONE
und CELOS X

SIEMENS SINUMERIK ONE

- + Maximum speed and shorter idle times
- + Standard SIEMENS control interface
- + 3D shop floor programming exclusively for DMG MORI
- + Feature-based programming in Shop Mill/Turn directly on the machine
- + Compatibility with SIEMENS 840d Solutionline and 828d

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MACHINE SIGNALS VIA OPC-UA, MTCONNECT AND MQTT

MACHINE DATA

1. Serial number of the machine
2. Operating hours
3. Machine on hours

MACHINE STATUS

4. Status display
5. Number of alarms
6. Messages, alarms, warnings
7. Control mode
8. Machine version status

PRODUCTIVITY

9. Workpiece counter, current
10. Workpiece counter, total
11. Target quantity
12. Current program runtime

PROCESS DATA

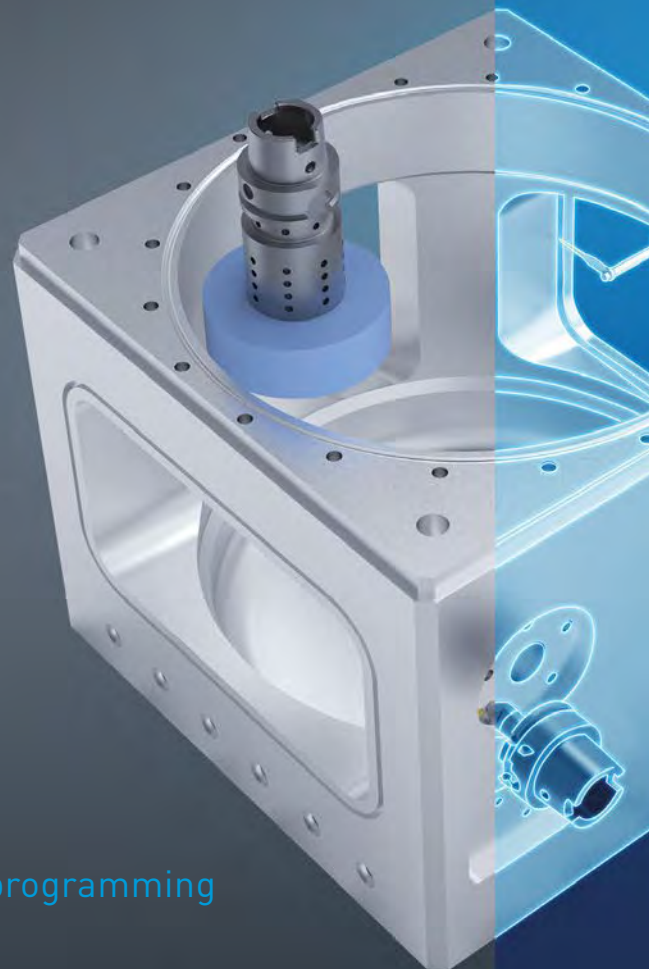
13. Spindle speed correction
14. Fast speed correction
15. Infeed correction
16. Active tool
17. Name of the current NC program

ADDITIONAL MACHINE SIGNALS

Machine-specific signals, e.g. spindle speed, coolant status etc.

DMG MORI TECHNOLOGY CYCLES:

Complex machining, realized in a simple way! Up to 60 % faster due to dialog-assisted programming.



With **technology cycles: Dialog-assisted programming**

- + Clear programming structure
- + Up to 60 % faster programming
- + Fault minimization by means of dialog-assisted programming
- + Technology integration (gearing, grinding)
- + Technology know-how saved in the program

Without **technology cycles – classic DIN programming**

- + Long programs
- + Unclear structure
- + Difficulties during re-entry
- + User-dependent know-how

PROOF

The exclusive DMG MORI technology cycles are genuine assistants for shop floor-oriented programming for boosting productivity and safety and enhancing machine capability.



3D quickSET

Achieving the highest level of accuracy quickly and easily

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



Application Tuning Cycle

Process optimization at the push of a button

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



VCS Complete

Volumetric calibration at the push of a button

- + Geometric fingerprint of the machine and volumetric calibration at the push of a button
- + Compensation of deviations (dimensional errors, angular misalignments and straightness of linear axes)



TCC – Tool Control Center

Process safety and efficiency

- + Chip detection on face and taper support
- + Monitoring of pull force
- + Detection of broken cutting edges in the process by means of symmetry monitoring of the bending moment per cutting edge (polar plot)



Maintenance Package i4.0

Reduced maintenance without manual intervention

- + Automatic detection of tool clamping force for consistently high process stability
- + Leakage detection and consumption measurement of the pneumatic system



MPC 2.5 Machine Protection Control

Machine protection by means of rapid shutdown

- + Rapid shutdown in case of a crash
- + Torque monitoring for drilling and thread-cutting
- + Analysis of imbalance for tools
- + Milling spindle bearing status diagnosis
- + Automatic sister tool change in dependence on tool life and MPC reaction in the process



If your mobile phone has QR code recognition software, you will be taken directly to all of the information about the DMG MORI technology cycles.

monoBLOCK SERIES

monoBLOCK – extensive working range in an extremely small space

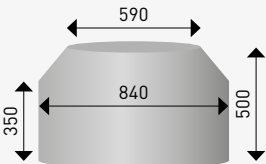
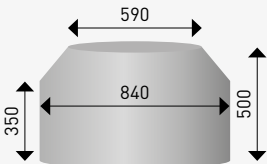
True greatness comes from within. The monoBLOCK series provides room for components with a diameter of up to 1,040 mm and weighing 1,500 kg on an extremely compact footprint. The working area can be loaded from above without restrictions when doing this, and the machines provide a high degree of value retention due to the standard stainless steel lining of the working area.



Just 8.5 m²
DMU 65 monoBLOCK
DMU 75 monoBLOCK



Just 8.1 m²
DMC 65 monoBLOCK
DMC 75 monoBLOCK

		DMU/DMC 65 monoBLOCK	DMU/DMC 75 monoBLOCK
		Swiveling rotary table*	Swiveling rotary table*
Traverse distances X/Y/Z	mm	735 / 650 / 560	750 / 650 / 560
Table size	mm	ø 650	ø 650
Loading weight	kg	600 / 1,000**	600
Workpiece dimensions	mm		

*Detailed dimensioned drawings by request, restrictions depending on swivel angle, **Swiveling rotary table with drive at both sides



UNIQUE WORLDWIDE

5-axis simultaneous machining
with swiveling rotary table for components
weighing up to 1,500 kg



Just 12,3 m²

DMU 85 monoBLOCK
DMU 95 monoBLOCK



35

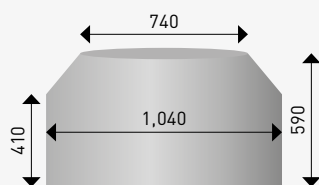
DMU 85 monoBLOCK

Swiveling rotary table*

935/850/650

ø 850 × 750

1,000/1,500**



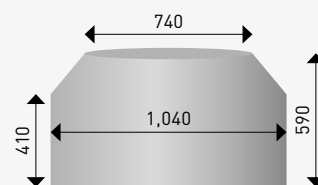
DMU 95 monoBLOCK

Swiveling rotary table*

950/850/650

ø 850 × 750

1,000



DMU/C 75 monoBLOCK / DMU 95 monoBLOCK

First-class equipment at the best price

With 950 mm travel distance in the X-axis (model 75: 750 mm), 20,000rpm speedMASTER spindle and a tool magazine with 60 places, the DMU 75/95 monoBLOCK machines provide first class equipment from the bottom up. On less than 8 m² (model 95: 12.3 m²) workpieces with a maximum diameter of up to 1,040 mm and weighing up to 1,000 kg can therefore be machined. The working area can be loaded from above without restrictions. Three control alternatives and the integrated MPC (Machine Protection Control) round off this unique 5-axis complete package.

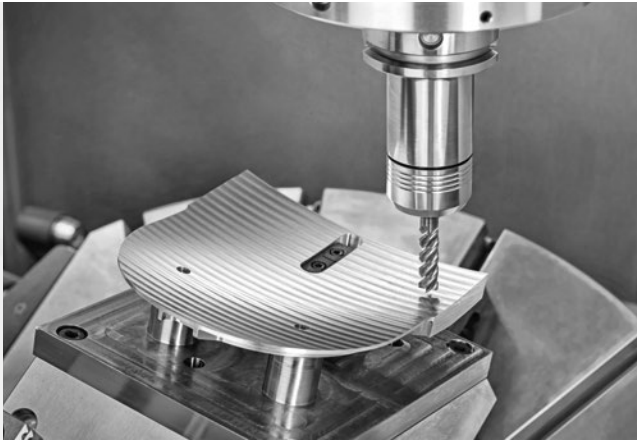
**DMU/DMC 75 monoBLOCK,
DMU 95 monoBLOCK
with PH Cell 300/500/800**

*“Your entry into automation
at an unbeatable price”*



**DMU/C 75 monoBLOCK /
DMU 95 monoBLOCK**

*„DMU/C 75/95 monoBLOCK –
The best package in its class!“*



1: NC swiveling rotary table



2: 20,000 rpm SK 40 motor spindle with 130 Nm | 35 kW (40 % DC)



3: Chain magazine for 60 SK40 tools



4: Machine Protection Control – MPC

STANDARD EQUIPMENT

1. NC swiveling rotary table
2. 20,000 rpm speedMASTER
HSK-A63 motor spindle
130 Nm | 35 kW (40 % DC)
3. Chain magazine for 60 HSK-A63 tools
4. Machine Protection Control
5. CELOS X with SIEMENS Sinumerik ONE

SELECTABLE OPTIONS

- + **Controller**
CELOS X with HEIDENHAIN TNC7
- + **Table variants**
NC rotary table direct drive C-axis
- + **NC swivelling rotary table with pallet support**
(only for automation interface or RPS3)
- + **Tool changer**
Chain magazine 90/120/180/240 places SK40
- + **Tool holders**
SK40 | BT40 | CAT40
- + **Automation/Measurement/Monitoring**
3D quickSET
Infrared touch-probe
(HEIDENHAIN/ RENISHAW)
Maintenance Package i4.0
Tool measurement in working area
Mechanical tool breakage monitoring
4-color VCS complete signal lamp
VCS complete
- + **Cooling media/chip disposal**
Production package IKZ 40 bar/23 l/min
600 l Tank
Production package IKZ 80 bar
frequency controlled
980 l Tank
Scraper-belt chip conveyor
Flusher
Chip flushing

monoBLOCK SERIES

Modular concept for individual requirements

Spindles

(Torque and power = 40 % DC)



15,000 rpm
111 Nm / 21 kW
HSK-A63/SK40



15,000 rpm
200 Nm / 46 kW
HSK-A63/SK40



20,000 rpm
130 Nm / 35 kW
HSK-A63/SK40



24,000 rpm
130 Nm / 35 kW
HSK-A63



30,000 rpm
67 Nm / 40 kW
HSK-A63

Spindles

(Torque and power = 40 % DC)

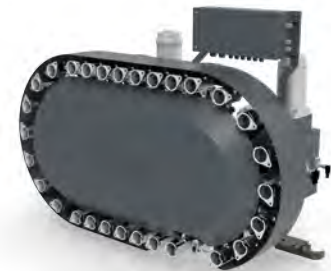


12,000 rpm
288 Nm / 44 kW
HSK-A100/SK50



12,000 rpm
430 Nm / 52 kW
HSK-A100/SK50

Tool magazines



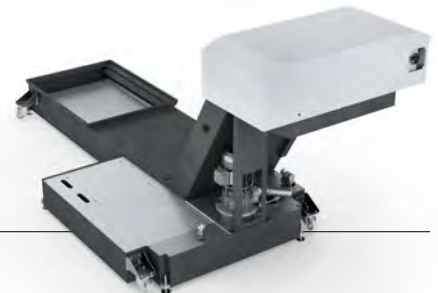
30 tools
as standard

Production

Coolant system
and production package



Chip conveyor



Tables



Swiveling rotary table
[A-axis: Single or tandem drive]

Direct Drive



Swiveling rotary table milling/cutting (FD)
with Direct Drive technology in C-axis

Direct Drive



Swiveling rotary table with Direct Drive technology in the C-axis and gearbox in the A-axis
[A-axis: Single or tandem drive]



Swiveling rotary table with pallet support*
[A-axis: single or tandem drive]



Swiveling rotary table Milling-turning (FD)
with pallet support*
with Direct Drive technology in C-axis



Swiveling rotary table with Direct Drive technology in C-axis and gearbox in A-axis
with pallet support*
[A-axis: single or tandem drive]

*only available for DMC



1: Double gripper

2: Integrated chain magazine with 240 places without additional space requirement



monoBLOCK SERIES

Ergonomic tool magazine integrated in the machine with a very small footprint

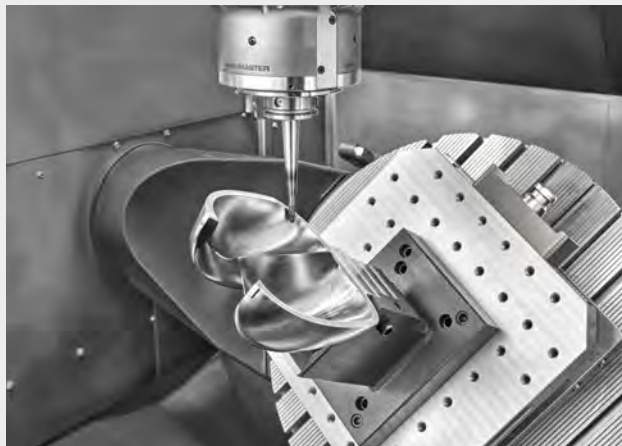
	DMU/DMC 65 monoBLOCK / DMU/DMC 75 monoBLOCK	DMU 85 monoBLOCK / DMU 95 monoBLOCK
Werkzeugmagazin mit HSK-A63/SK40/CAT 40		
Vertical single chain with 30 places	•/–	•/–
Vertical single chain with 60 places	◦/•	◦/•
Vertical single chain with 90 places	◦/◦	◦/◦
Vertical single chain with 120 places	◦/◦	◦/◦
Vertical single chain with 180 places	◦/◦	◦/◦
Vertical single chain with 240 places	◦/◦	◦/◦
Werkzeugmagazin mit HSK-A100/SK50/CAT 50		
Wheel magazine with 30 places	–	◦/–
Vertical single chain with 60 places	–/–	◦/–
Vertical single chain with 90 places	–/–	◦/–

		DMU/C 65 monoBLOCK / DMU/C 75 monoBLOCK	DMU 85 monoBLOCK / DMU 95 monoBLOCK
HSK-A63/SK40/CAT 40			
Magazine type/places up to max.	Chain	240 places	240 places
Tool diameter	mm	160	160
Tool length HSK-AISK	mm	315	420 365
Weight	kg	8	8
Chip-to-chip time	sec.	4.9	5.9
HSK-A100/SK50/CAT 50*			
Magazine type/places up to max.	Chain	–	90 places
Tool diameter	mm	–	200
Tool length HSK-AISK	mm	–	395 315
Weight	kg	–	20
Chip-to-chip time	sec.	–	7.3

• Standard ◦ Optional – not available *only for DMU 85 monoBLOCK

monoBLOCK SERIES

Individual or universal – one construction kit for any application



UNIVERSAL – SWIVELING ROTARY TABLE WITH ONE-SIDED OR TWO-SIDED DRIVE

5-axis simultaneous machining
up to 1,500 kg and
machining of
negative angles



MILLING AND TURNING – COMPLETE MACHINING WITH MORE THAN 2,000 Nm

Maximum productivity by means
of complete machining on a machine
with speeds of up to 1,200 rpm



PERMANENTLY ACCURATE – SWIVELING ROTARY TABLE WITH DIRECT DRIVE IN C-AXIS

Maximum permanent accuracy
(also during continuous operation)
and dynamics
(in simultaneous
operation) in the C-axis

 Direct Drive



Table versions for every application



		DMU/C 65 monoBLOCK	DMU/C 75 monoBLOCK	DMU 85 monoBLOCK	DMU 95 monoBLOCK
Swiveling rotary table – drive with gearbox at one side / with pallet support					
Table diameter/ max. pallet size	mm	ø 650 / 500 × 500	ø 650 / 500 × 500	ø 850 × 750	ø 850 × 750
Max. loading weight	kg	600 / 500	600 / 500	1,000	1,000
Torque C-axis*	Nm	2,000 / 2,000	2,000 / 2,000	3,550	3,550
Speed C-axis	min ⁻¹	40 / 40	40 / 40	30	30
Torque A-axis*	Nm	3,400 / 2,800	3,400 / 2,800	4,900	4,900
Speed A-axis	min ⁻¹	20 / 20	20 / 20	15	15



Tandem Drive swiveling rotary table – drive with gearbox at both sides / with pallet support					
Table diameter/ max. pallet size	mm	ø 650 / 500 × 500	Not available	ø 850 × 750	Not available
Max. loading weight	kg	1,000 / 500		1,500	
Torque C-axis*	Nm	3,600 / 3,600		5,000	
Speed C-axis	min ⁻¹	50 / 50		40	
Torque A-axis*	Nm	5,700 / 5,000		9,200	
Speed A-axis	min ⁻¹	20 / 20		15	



Direct Drive

Swiveling rotary table milling / cutting (FD) with Direct Drive technology / with pallet support single / tandem					
Table diameter/ max. pallet size	mm	ø 680 / ø 630	Not available	850	Not available
Max. loading weight	kg	600 / 500		1,000 / 1,200	
Torque C-axis*	Nm	911 / 911		2,050	
Speed C-axis	min ⁻¹	1,200 / 1,200		800	
Torque A-axis*	Nm	3,400 / 5,700 / 2,800 / 5,000		6,300 / 11,300	
Speed A-axis	min ⁻¹	20 / 20		15	



Direct Drive

Swiveling rotary table with Direct Drive technology in the C-axis and gearbox in the A-axis / with pallet support single / tandem **					
Table diameter/ max. pallet size	mm	ø 650 / 500 × 500	ø 650 / 500 × 500	ø 850 × 750	ø 850 × 750
Max. loading weight	kg	600 / 500	500	1,000	1,000
Torque C-axis*	Nm	900 / 900	900 / 900	1,630	1,630
Speed C-axis	min ⁻¹	80 / 80	80 / 80	80	80
Torque A-axis*	Nm	3,400 / 5,700 / 2,800 / 5,000	2,800 / 5,000	6,300	6,300
Speed A-axis	min ⁻¹	20 / 20	20 / 20	15	15

*Torque = 100 % DC

**Available for DMU/C 65 / DMU 85 monoBLOCK; one-sided for DMU/C 75 / DMU 95 monoBLOCK

Only compatible with RPS

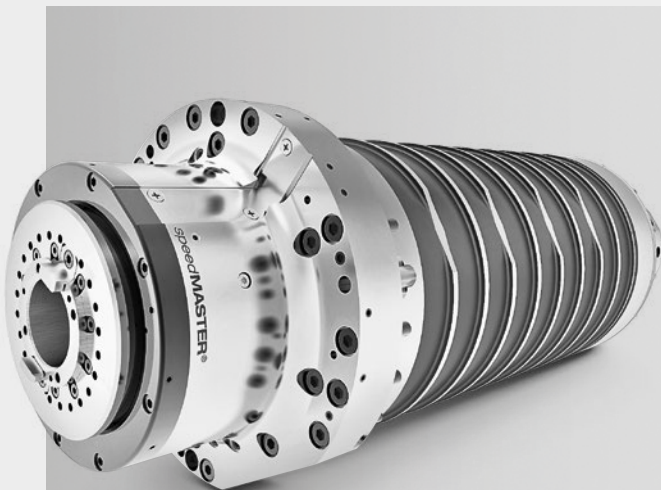
monoBLOCK SERIES

The right spindle for any application

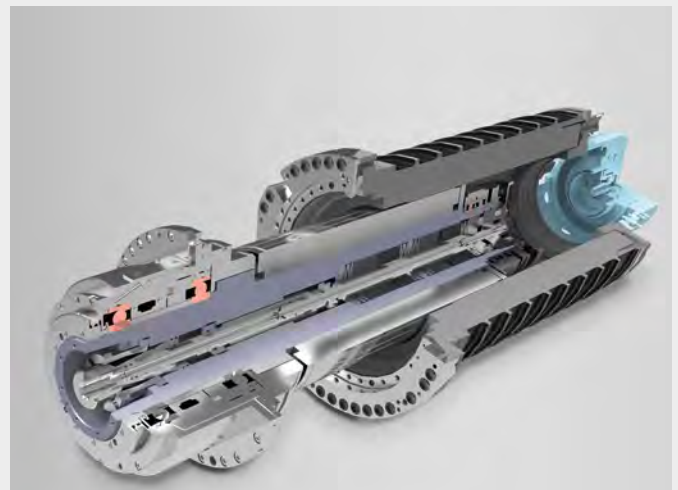
HIGHLIGHTS

- + **Biggest modular spindle construction kit** up to 30,000 rpm and torque of up to 430 Nm
- + **speedMASTER** – high-tech motor spindles with the highest performance and the best true running accuracy
- + Motor spindle with **plug-in technology** for the quickest and most economical repairs

Ra
< 0.4µm



1



2

1: speedMASTER – motor spindles with the best true running accuracy

2: SGS – Spindle Growth Sensor for maximum accuracy by means of monitoring and compensating for spindle misalignment

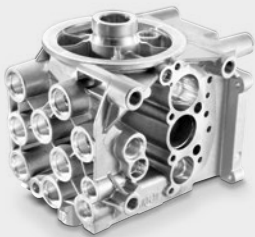
Application examples



Complete machining of a machine component made from GGG60, productive cast machining with the standard spindle

Roughing and finishing of the surfaces; drilling, thread cutting and milling of individual recesses;
5-sided machining with swiveling rotary table; complete machining in two clamping operations

Industry	Mechanical engineering	Spindle	15,000 rpm
Tool	Plane milling head ø 63 mm	Power	21 kW
Material	GGG60	Torque	111 Nm



Complete machining of a hydraulic component for rail traffic made from aluminum, 40 % more productivity for the drilling and finishing machining

Face milling of the outer contours; 5-sided machining with swiveling rotary table;
complete machining in two clamping operations

Industry	Fluid / Railway	Spindle	20,000 rpm
Tool	PKD reamer ø 18 mm	Power	35 kW
Material	Aluminum die casting	Torque	130 Nm



Complete machining of a machine component made from CK45, high-end machining with HSK-A63

5-sided machining with roughing; drilling and threading of M24 on same machine in same clamping

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



Complete machining of a forging die for a con-rod made from tool steel, hard machining (60 HRC) and best surface quality of Ra 0.2 µm

Focus of machining: 5-axis simultaneous machining for a shorter machining time and better surfaces;
HSC machining with the 24,000 rpm motor spindle; roughing depth Ra < 0.2 µm

Industry	Mold-making	Spindle	24,000 rpm
Tool	Ball cutter ø 3 mm	Power	24 kW
Material	Tool steel	Torque	100 Nm



Complete machining of a pump housing made from CK45, high-performance milling in CK45 with a metal removal rate of > 800 cm³

Face milling with high performance and high torque motor spindle; 5-sided machining with swiveling rotary table;
complete machining in two clamping operations

Industry	Mechanical engineering / fluid	Spindle	12,000 rpm / SK50
Tool	Cutter head ø 100 mm	Power	44 kW
Material	CK45	Torque	288 Nm

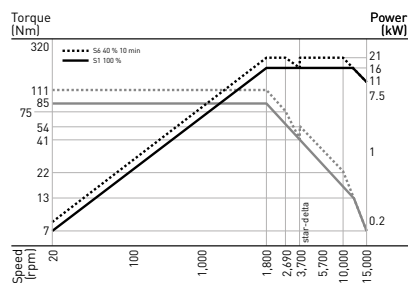
monoBLOCK SERIES

Largest and most state-of-the-art spindle range

speedMASTER motor spindles

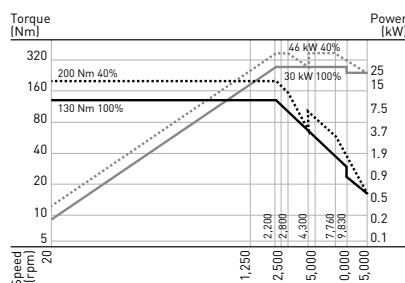
HSK-A63/SK40

15.000 rpm / 21 kW / 111 Nm



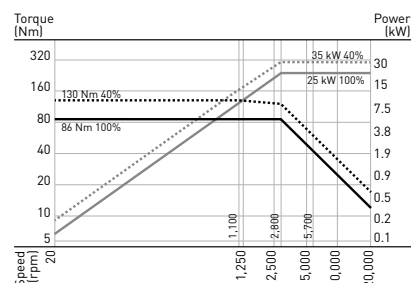
HSK-A63/SK40

15.000 rpm / 46 kW / 200 Nm



HSK-A63/SK40

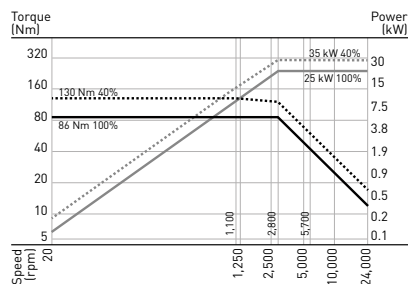
20,000 rpm / 35 kW / 130 Nm



speedMASTER motor spindles

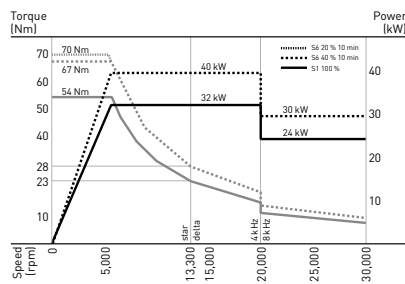
HSK-A63

24,000 rpm / 35 kW / 130 Nm



HSK-A63

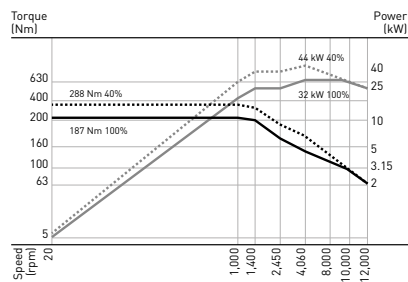
30,000 rpm / 40 kW / 67 Nm



powerMASTER motor spindles

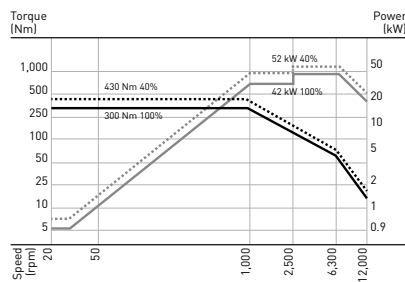
HSK-A100 / SK50*

12,000 rpm / 44 kW / 288 Nm



HSK-A100/SK50

12,000 rpm / 52 kW / 430 Nm



*Also available as FD spindle

SPINDLE RANGE monoBLOCK | FD monoBLOCK

<i>Speed Tool holder</i> <i>Power (40 % DC)</i> <i>Torque (40 % DC): Spindle start-up time</i>	DMU/DMC 65 monoBLOCK	DMU/DMC 75 monoBLOCK	DMU 85 monoBLOCK	DMU 95 monoBLOCK
15,000 rpm HSK-A63/SK40* 21 kW, 111 Nm 0 – 15,000 rpm: 2.1 sec.	•	–	•	–
15,000 rpm HSK-A63/SK40* 46 kW, 200 Nm 0 – 15,000 rpm: 2.1 sec.	◦	◦	◦	◦
20,000 rpm HSK-A63/SK40* 35 kW, 130 Nm 0 – 20,000 rpm: 2.6 sec.	◦	•	◦	•
24,000 rpm HSK-A63 35 kW, 130 Nm 0 – 24,000 rpm: 4.4 sec.	◦	–	◦	–
30,000 rpm HSK-A63 40 kW, 67 Nm 0 – 30,000 rpm: by request	◦	–	◦	–
12,000 rpm HSK-A100/SK50 44 kW, 288 Nm 0 – 10,000 rpm: 3.6 sec.	–	–	◦	–
12,000 rpm HSK-A100/SK50* 52 kW, 430 Nm 0 – 10,000 rpm: 4.5 sec.	–	–	◦	–

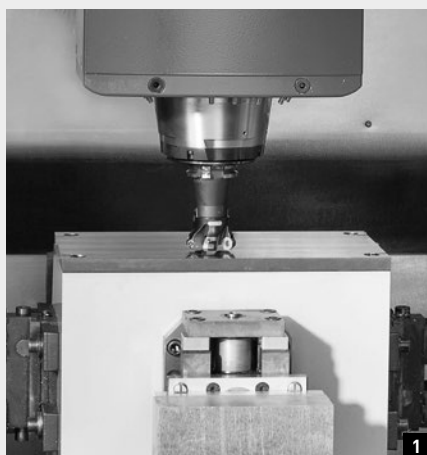
<i>Speed Tool holder</i> <i>Power (40 % DC)</i> <i>Torque (40 % DC): Spindle start-up time</i>	DMU/DMC 65 FD monoBLOCK	DMU 85 FD monoBLOCK
20,000 rpm HSK-A63 35 kW, 130 Nm 0 – 20,000 rpm: 2.6 sec.	•	•
12,000 rpm HSK-A100 44 kW, 288 Nm 0 – 12,000 rpm: 4.3 sec.	–	◦

• Standard ◦ Optional – not available *Optional



monoBLOCK SERIES

High-performance milling, high-performance drilling and thread cutting



speedMASTER motor spindle 20,000 rpm / 35 kW / 130 Nm

	1 High-performance milling	2 High-performance drilling	3 Thread
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Chip removal rate	520 cm ³ /min	435 cm ³ /min	–
Tool	Plane milling head ø 63 mm	Drill with indexable insert ø 54 mm	M24 screw 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 of cut	4/50 mm	–	–

speedMASTER motor spindle 15,000 rpm / 46 kW / 200 Nm

	1 High-performance milling	2 High-performance drilling	3 Thread
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Chip removal rate	500 cm ³ /min	794 cm ³ /min	–
Tool	Plane milling head ø 80 mm	Drill with indexable insert ø 54 mm	M24 screw 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 of cut	3.5/52 mm	–	–



powerMASTER motor spindle 12,000 rpm / 52 kW / 430 Nm

	4 High-performance milling	5 High-performance drilling	6 Thread
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Chip removal rate	1,000 cm ³ /min	830 cm ³ /min	–
Tool	Cutter head ø 160 mm (9 cutting edges)	Drill with indexable insert ø 80 mm	M42 screw 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 of cut	4.5 / 120 mm	–	–

powerMASTER motor spindle 12,000 rpm / 44 kW / 288 Nm

	4 High-performance milling	5 High-performance drilling	6 Thread
Workpiece material	Steel (CK45)	Steel (CK45)	Steel (CK45)
Chip removal rate	812 cm ³ /min	708 cm ³ /min	–
Tool	Cutter head ø 100 mm (7 cutting edges)	Drill with indexable insert ø 70 mm	M30 screw 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 of cut	3.5 / 80 mm	100 / – mm	Depth of thread 30 mm

monoBLOCK SERIES

Technical Data

		DMU/DMC 65 monoBLOCK	DMU/DMC 75 monoBLOCK	DMU 85 monoBLOCK	DMU 95 monoBLOCK
Work area					
X/Y/Z-axis	mm	735/650/560	750/650/560	935/850/650	950/850/650
Working area volume	dm³	268	273	517	517
Swiveling rotary table (standard)					
Pallett/table	mm	ø 650	ø 650	ø 850	ø 850
Max. loading weight	kg	600/1,000	600	1,000/1,500	1,000
Max. workpiece dimensions	mm	ø 840	ø 840	ø 1,040	ø 1,040
Max. workpiece height	mm	500	500	590	590
Main drive (standard)					
Speed	rpm	15,000	20,000	15,000	20,000
Torque [S6 40 %]	Nm	111	130	111	130
Power [S6 40 %]	kW	21	35	21	35
Tool change system					
Tool holder		HSK-A63/SK40	HSK-A63/SK40	HSK-A63/SK40	HSK-A63/SK40
Tool magazine	Places	30	60	30	60
Diameter (free adjacent locations)	mm	160	160	160	160
Max. length	mm	315	315	420/365	420/365
Weight	kg	8	8	8	8
Chip-to-chip time	sec.	4.9*	4.9*	5.9*	5.9*
Tool change system					
Tool holder		–	–	HSK-A100/SK50	–
Tool magazine	Places	–	–	30	–
Diameter (free adjacent locations)	mm	–	–	200	–
Length	mm	–	–	395/315	–
Weight	kg	–	–	20	–
Linear axes (X/Y/Z)					
Feed rate	mm/min	40,000	40,000	40,000	40,000
Rapid traverse speed	m/min	40	40	40	40
Acceleration	m/s²	6	6	6	6
Feed force (X/Y/Z)	kN	7/10/12	7/10/12	12/15/18	12/15/18
Roller guides (X/Y/Z)	mm	45	45	55	55
Ball screws (X/Y/Z)	mm	40/50/40	40/50/40	50/50/50	50/50/50
P _{max.} (X/Y/Z) – VDI DGQ 3441/ISO 230-2	µm	4	4	5	5
Machine data					
Space requirement for basic machine without chip conveyor and IKZ	approx. m²	8	8	12.3	12.3
Height of machine (standard machine)	mm	2,897	2,897	3,205	3,205
Machine weight	kg	12,100	12,100	14,600	14,600
Control systems					
CELOS X with SIEMENS ONE including 24" ERGOline Control with multi-touch screen		•	•	•	•
CELOS X with HEIDENHAIN TNC7 including 24" ERGOline Control with multi-touch screen		◦	◦	◦	◦

*HSK-A values • Standard ◦ Optional – not available

Technical Data

		DMU/DMC 65 FD monoBLOCK	DMU 85 FD monoBLOCK
Work area			
X/Y/Z-axis	mm	735/650/560	935/850/650
Working area volume	dm³	268	517
Swiveling rotary table FD			
C-axis speed max.	rpm	1,200	800
Power (100 % DC)	kW	37	36
Torque (100 % DC)	Nm	1,000	2,050
Max. holding torque	Nm	4,125	4,125
Pallett/ table	mm	ø 680	ø 850
Max. loading weight (one sided/two sided)	kg	600	1,000/1,200
Max. workpiece dimensions	mm	ø 840	ø 1,040
Max. workpiece height	mm	500	590
Main drive (standard)			
Speed	rpm	20,000	20,000
Torque (S6 40 %)	Nm	130	130
Power (S6 40 %)	kW	35	35
Tool change system			
Tool holder		HSK-A63	HSK-A63 HSK-A100
Tool magazine	Places	30/chain	30/chain
Diameter (free adjacent locations)	mm	160	160 200
Max. length	mm	315	420 395
Weight	kg	8	8 20
Chip-to-chip time	sec.	4.9	5.9 7.3
Linear axes (X/Y/Z)			
Feed rate	mm/min	40,000	40,000
Rapid traverse speed	m/min	40	40
Acceleration	m/s²	6	6
Feed force (X/Y/Z)	kN	7/10/12	12/15/18
Roller guides (X/Y/Z)	mm	45	55
Ball screws (X/Y/Z)	mm	40/50/40	50/50/50
P _{max.} (X/Y/Z) – VDI DGQ 3441/ISO-230-2	µm	4	5
Machine data			
Space requirement for basic machine without chip conveyor and IKZ	approx. m²	8	12.5
Height of machine (standard machine)	mm	2,897	3,205
Machine weight	kg	12,300	14,800
Control systems			
CELOS X with SIEMENS ONE including 24" ERGOline Control with multi-touch screen		•	•
CELOS X with HEIDENHAIN TNC7 including 24" ERGOline Control with multi-touch screen		◦	◦

*HSK-A values • Standard ◦ Optional – not available

monoBLOCK SERIES

Options

	DMU/C 65/75 monoBLOCK	DMU/C 65 FD monoBLOCK	DMU 85/95 monoBLOCK	DMU 85 FD monoBLOCK
Table options				
Swiveling rotary table (A-axis: single/tandem)	●/○	–	●/○	–
Swiveling rotary table FD (A-axis: single/tandem)	–	●/○	–	●/○
Swiveling rotary table with Direct Drive in C-axis (A-axis: single/tandem)	○/○*	–	○/○*	–
Swiveling rotary table with pallet support (A-axis: single/tandem)	●/○	–	–	–
Swiveling rotary table FD with pallet support (A-axis: single/tandem)	–	●/○	–	–
Swiveling rotary table with Direct Drive and pallet support (A-axis: single/tandem)	○/○*	–	–	–
Main drive				
speedMASTER HSK-A63 motor spindle 15,000 rpm 21 kW/111 Nm (40 % DC)	●/–	–	●/–	–
speedMASTER HSK-A63 motor spindle 20,000 rpm 35 kW/130 Nm (40 % DC)	○/●	○	○/●	○
speedMASTER HSK-A63 motor spindle 24,000 rpm 35 kW/130 Nm (40 % DC)	○/–	–	○/–	–
speedMASTER HSK-A63 motor spindle 30,000 rpm 40 kW/67 Nm (40 % DC)	○/–	–	○	–
speedMASTER HSK-A63 motor spindle 15,000 rpm 46 kW/200 Nm (40 % DC)	○	–	○	–
powerMASTER HSK-A63 motor spindle 12,000 rpm 44 kW/288 Nm (40 % DC)	–	–	○	○
powerMASTER HSK-A63 motor spindle 12,000 rpm 52 kW/430 Nm (40 % DC)	–	–	○	–
Tool holder				
HSK-A63/SK40/BT 40/CAT 40	●/○/○/○	●/–/–/–	●/○/○/○	●/–/–/–
HSK-A100/SK50/BT 50/CAT 50	–/–/–/–	–/–/–/–	○/○/○/○	○/–/–/–
Tool magazine				
Chain magazine vertical with 60/90/120/180/240 magazine places (SK40/HSK-A63)	○	○	○	○
Chain magazine vertical with 30/60/90 magazine places (SK50/HSK-A100)	–	–	○/–	○
Automation/measurement/monitoring				
Infrared touch-probe: HEIDENHAIN TS 460/RENISHAW PP60 (OMP 60)	○	○	○	○
High-precision touch-probe Renishaw PP600 (OMP 600)	○	○	○	○
Tool measurement in the work area – Blum laser DIGILOG	○	○	○	○
4-color signal lamp	○	○	○	○

	DMU/C 65/75 monoBLOCK	DMU/C 65 FD monoBLOCK	DMU 85/95 monoBLOCK	DMU 85 FD monoBLOCK
Cooling media / chip disposal				
Production package: IKZ 40 bar band filter system 600 l, chip conveyor	○	○	○	○
Production package: IKZ 80 bar, 980 l, frequency-controlled	○	○	○	○
Coolant temperature control for IKZ coolant system 600 l/980 l	○	○	○	○
Flusher	○	○	○	○
Internal minimum quantity lubrication through center of spindle, external via nozzles	○*	○	○*	○
Oil and emulsion mist separation system	○	○	○	○
Cooling device, air blast through center of spindle	○	○	○	○
Technology cycles and software options				
Grinding package	–	○	–	○
3D quickSET	○	○	○	○
Application Tuning Cycle	○	○	○	○
Maintenance i4.0	○	○	○	○
Tool Control Center TCC (only in combination with HSK-A63)	○*	○	○	○
Volumetric Calibration System VCS complete	○	○	○	○
MDynamics package (only in combination with SIEMENS)	○	○	○	○
Machine Protection Control MPC	○**	○	○**	○
General options				
Laminated glass safety window for inspection window	–	●	–	●
Electronic handwheel	○	○	○	○

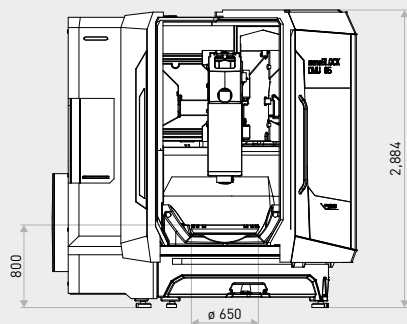
● Standard ○ Optional – not available *not available for DMU/C 75 / DMU 95 monoBLOCK **in the standard at DMU/C 75 / DMU 95 monoBLOCK

monoBLOCK SERIES

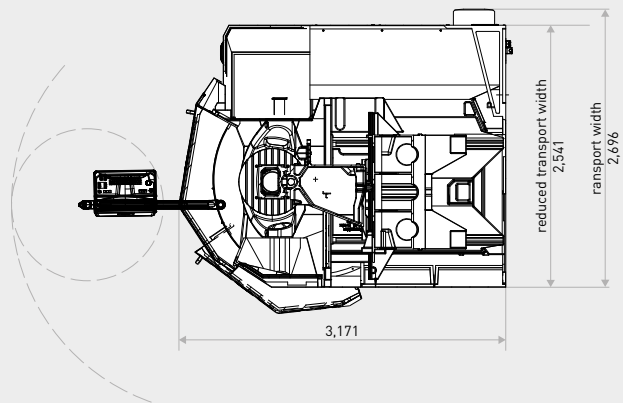
Floor plans

Floor plan for DMU 65 / 65 FD / 75 monoBLOCK

Front view

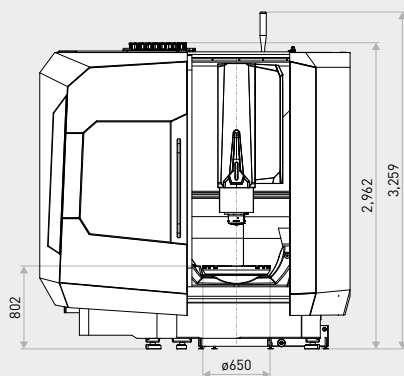


Top view with chain magazine 30 or 60 places without chip conveyor
Footprint: 8.5 m² (11.4 m² with chip conveyor)

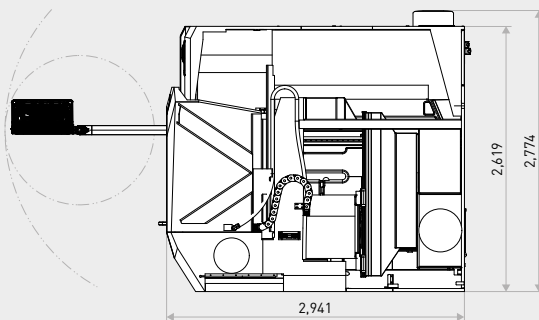


Floor plan for DMC 65 / 65 FD / 75 monoBLOCK

Frontansicht

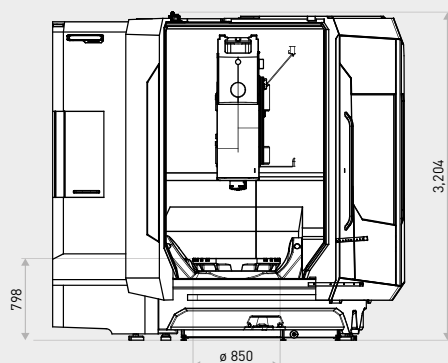


Top view with chain magazine 30 or 60 places without chip conveyor
Footprint: 8.1 m² (9.6 m² with chip conveyor)

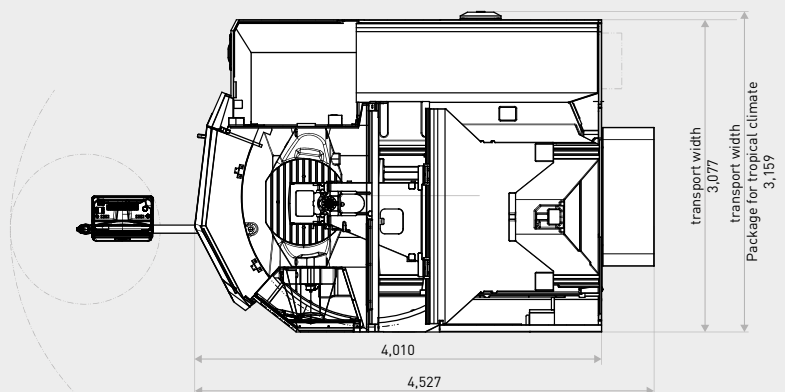


Floor plan for DMU 85 / 85 FD / 95 monoBLOCK

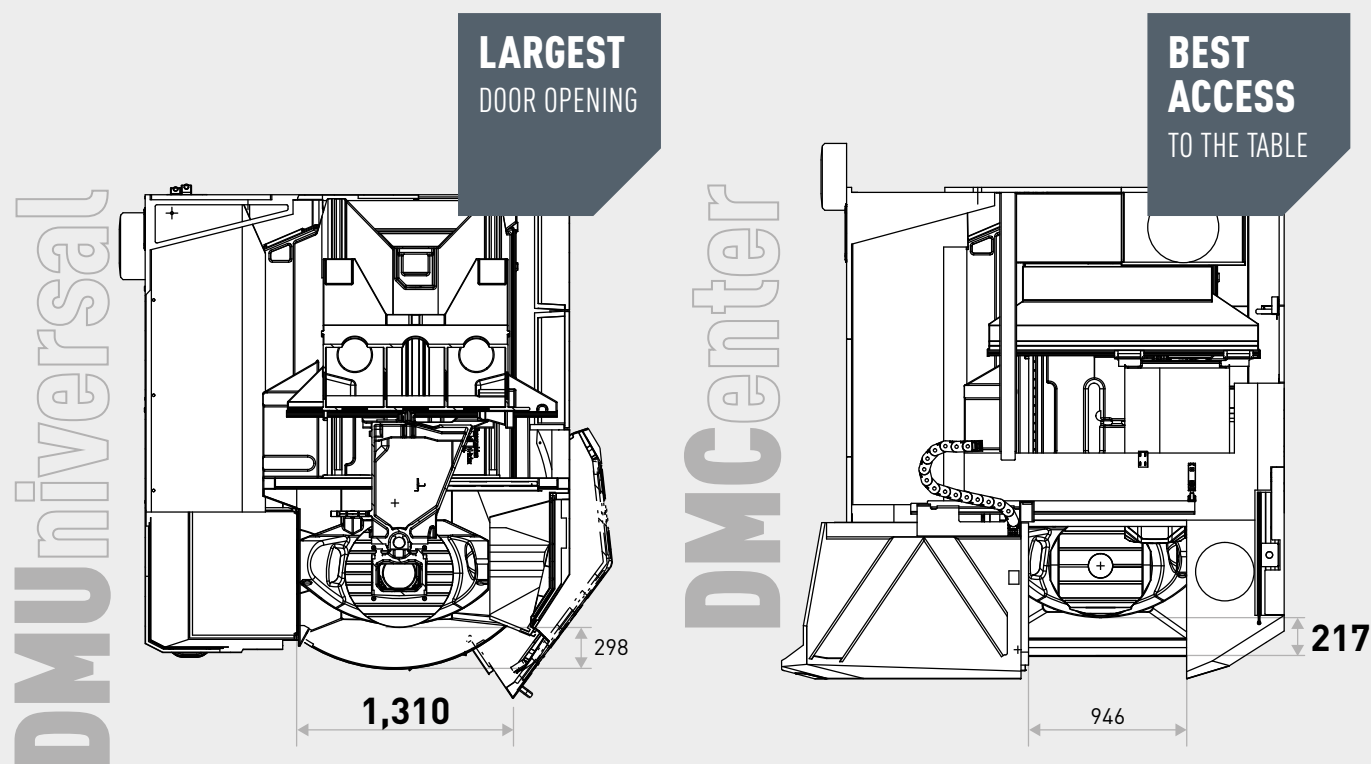
Frontansicht



Top view with chain magazine 30 or 60 places with chip conveyor
Footprint: 12.3 m² (13.9 m² with chip conveyor)



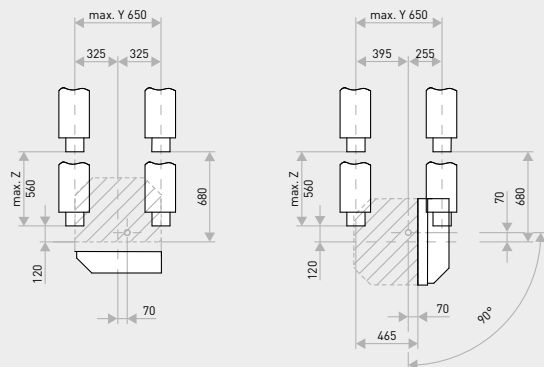
Accessibility comparison



Working envelopes

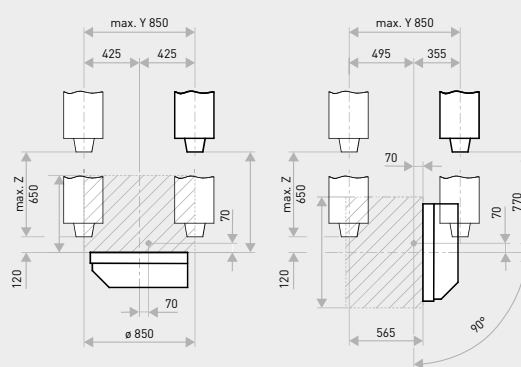
Working area for DMU/C 65/65 FD/75 monoBLOCK

Swivel range $\pm 120^\circ$



Working area for DMU 85/85 FD/95 monoBLOCK

Swivel range $\pm 120^\circ$



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