

5-axis universal milling machines

# DMU 75 / 95 monoBLOCK®

High tech as standard

5-axis simultaneous  
machining at the  
best price.



DMU 75 / 95 monoBLOCK®

## Top features for five-axis simultaneous machining with 950 mm X-axis travel.

With 950 mm traverse on the X axis (75: 750 mm), 20,000 rpm speedMASTER® spindle and a tool magazine with 60 positions, the DMU 75 / 95 monoBLOCK® machines offer top features from the ground up. In a footprint of less than 8 m<sup>2</sup> (95: 12.3 m<sup>2</sup>), workpieces up to 1,040 mm in diameter and 1,000 kg in weight can be machined. The working area can be loaded from above without difficulty. The 3D control systems HEIDENHAIN TNC 640 or Operate 4.7 on SIEMENS 840D solutionline and the integrated MPC (Machine Protection Control) round off this unique five-axis complete solution.

### High tech as standard at an excellent price

- + NC swivelling rotary table
- + SK40 motor spindle, 20,000 rpm, 130 Nm, 35 kW (40% DC)
- + Vertical chain magazine for 60 tools, SK40
- + Control system: CELOS from DMG MORI with 21.5" ERGOline® Control with Operate 4.7\* on SIEMENS 840D solutionline or HEIDENHAIN TNC 640
- + Machine Protection Control (MPC)

\* Operate 4.7 on SIEMENS 840 D solutionline available from July 2016



**CELOS®** |

by DMG MORI

DMU 75 / 95 monoBLOCK®

# monoBLOCK® – The new benchmark in all sectors.



## Tool and mould making

Tyre mould  
in tool steel



## Mechanical engineering

Pallet carrier  
in GGG60



## Job shop

Golf putter  
in stainless steel



## Aerospace

Blisk  
in Inconel



## Energy

Impeller  
in aluminium



## Automotive

Hydraulic component  
in aluminium



## Medical

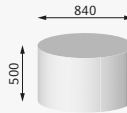
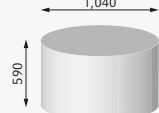
Hip replacement  
in titanium



## Tooling

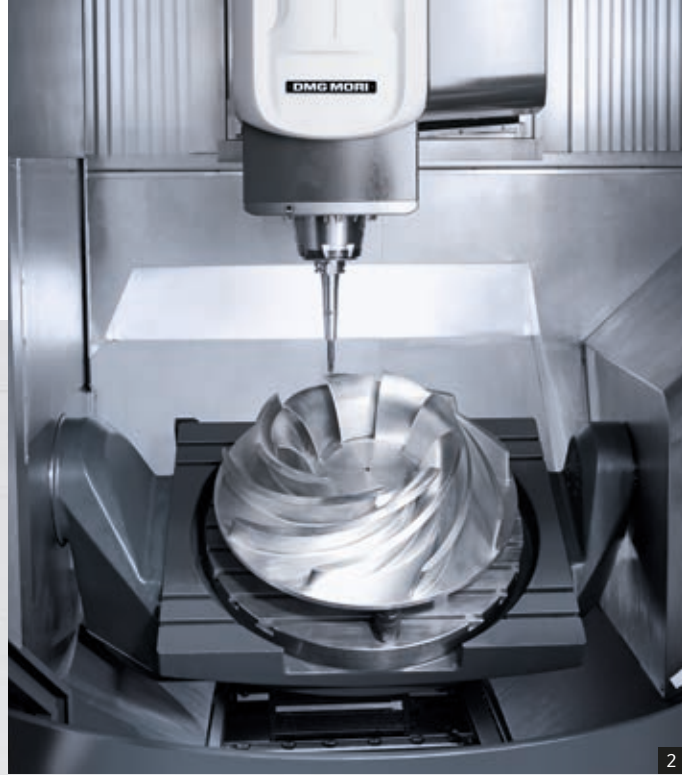
Specialised side milling cutter  
in tool steel

## Working area

|                      |    | DMU 75 monoBLOCK®  | DMU 95 monoBLOCK®   |
|----------------------|----|--|---|
| Travel X / Y / Z     | mm | 750 / 650 / 560  | 950 / 850 / 650   |
| Table size           | mm | ø 650 / in 800 x 650   | ø 850 x 750 / in 1.000 x 750  |
| Maximum load         | kg | 600  | 1,000   |
| Workpiece dimensions | mm |  |  |



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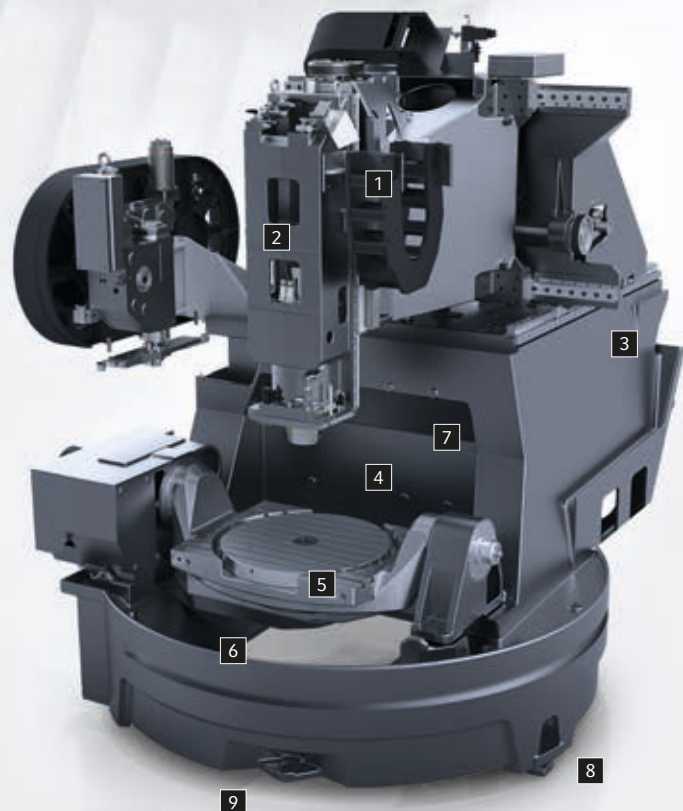


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1: Chain magazine for 60 tools 2: 5-axis simultaneous machining with NC swivelling rotary table and 20,000 rpm speedMASTER® spindle

## Design concept

- **Linear scales**  
as standard
- **50% more dynamic**  
due to weight optimised X / Y slides and Z ram in GGG60
- **High stiffness**  
one-piece bed, large volume, stable slideways, 55 mm roller guideways in all axes (75: 45 mm), FEM optimisation of all components
- **Unrestricted crane loading**  
from above to over the table centre
- **Maximum stability**  
thanks to a large YRT bearing in the swivelling rotary table and large ball screws in all axes
- **Optimal chip removal**  
and chip disposal from the machine to the rear large chip chute (75: 860 × 640 mm, 95: 1,080 × 800 mm)
- **High stability of value**  
Stainless-steel covers in working area
- **Compactness**  
Footprint of just 8 m<sup>2</sup> (95: 12.3 m<sup>2</sup>)
- **3-point support**  
with the inherently stiff monoBLOCK® and crane hook design for ease of installation



### MPC – Machine Protection Control

Preventative protection of machine and tools thanks to vibration sensors on the cutter spindle:

Machine protected by fast shut-off, process monitoring through teach function and via graphical display, bearing condition diagnosis for the cutter spindle, and easy planning of maintenance and repair.



## HEIDENHAIN TNC 640

- + Unique, highly detailed 3D simulation display
- + New optimised TNC user interface
- + Workshop or DIN-ISO programming
- + Collision monitoring (DCM)
- + ATC\*\*, 3D quickSET®\*\*
- + New optimised ADP movement guide for improved surfaces and quicker machining (block processing time of just 0.5 ms)
- + Adaptive AFC feed controller as standard

\*\* Option



## Operate 4.7 on SIEMENS 840D solutionline\*

- + Improved user interface for maximum ease of use – SINUMERIK Operate
- + ATC\*\*, 3D quickSET®\*\*
- + MDynamics enhanced technology package with Top Surface and Advanced Surface\*
- + Optimal protection against unwanted collisions – Collision Avoidance
- + Graphical simulation of the machining process with plan view, triple-window display and 3D display; synchronous graphics during the machining process

\* Operate 4.7 on SIEMENS 840 D solutionline available from July 2016



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## Options

- + Tool carriers: HSK-A63, BT 40, CAT 40
- + Measuring sensor HEIDENHAIN, Renishaw
- + Blum laser tool measurement in working area
- + 3D quickSET®
- + Scraper-type chip conveyor
- + Production package 40 bar / 23 l/min., 600 l tank
- + Ring nozzle for refrigerated coolant
- + Coolant spray gun with 1-bar pump
- + Chip flushing
- + Oil / emulsion mist delivery equipment
- + Control options

3: Blum Laser – tool measurement in the working area

4: Measuring sensor HEIDENHAIN, Renishaw

# Technical data / installation plans

|   |                  | DMU 75 monoBLOCK®    | DMU 95 monoBLOCK®            |
|---|------------------|----------------------|------------------------------|
| <b>Working area</b>                                       |                  |                      |                              |
| X / Y / Z axis  | mm               | 750 / 650 / 560      | 950 / 850 / 650              |
| <b>Swivelling rotary table</b>                            |                  |                      |                              |
| Table   | mm               | ø 650 / in 800 × 650 | ø 850 × 750 / in 1,000 × 750 |
| Max. load weight  | kg               | 600                  | 1,000                        |
| Maximum workpiece dimensions                              | mm               | ø 840                | ø 1,040                      |
| Max. workpiece height                                     | mm               | 500                  | 590                          |
| <b>Main drive (standard)</b>                              |                  |                      |                              |
| Speed   | rpm              | 20,000               | 20,000                       |
| Torque (S6 40%)   | Nm               | 130                  | 130                          |
| Power (S6 40%)  | kW               | 35                   | 35                           |
| <b>Tool magazine</b>                                      |                  |                      |                              |
| Tool holder   |                  | SK40 / HSK-A63       | SK40 / HSK-A63               |
| Tool magazine   | Positions        | 60 / chain           | 60 / chain                   |
| Diameter (free adjacent positions)                        | mm               | 160                  | 160                          |
| Max. length   | mm               | 315                  | 365 / 420*                   |
| Weight  | kg               | 8                    | 8                            |
| Chip-to-chip time   | seconds          | 4.9*                 | 5.9*                         |
| <b>Linear axes (X / Y / Z)</b>                            |                  |                      |                              |
| Feed  | mm/min           | 40,000               | 40,000                       |
| Rapid traverse speed                                      | m/min            | 40                   | 40                           |
| Acceleration  | m/s <sup>2</sup> | 6                    | 6                            |
| Feed force (X / Y / Z)                                    | kN               | 7 / 13 / 10          | 14 / 20 / 14                 |
| Roller guideways (X / Y / Z)                              | mm               | 45                   | 55                           |
| Ball screws (X / Y / Z)                                   | mm               | 40 / 50 / 40         | 50 / 50 / 50                 |
| P <sub>max.</sub> (X / Y / Z) – VDI DGQ 3441 / ISO 230-2  | µm               | 8                    | 8                            |
| P <sub>smax.</sub> (X / Y / Z) – VDI DGQ 3441 / ISO 230-2 | µm               | 5                    | 5                            |

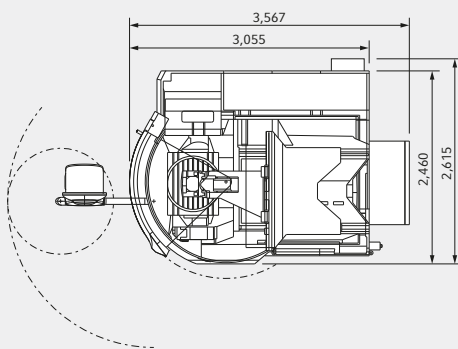
\* HSK-A value

## Floor plan for DMU 75 monoBLOCK®

Plan view with chain magazine 60 positions and chip conveyor option

Machine height: 2.9 m

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

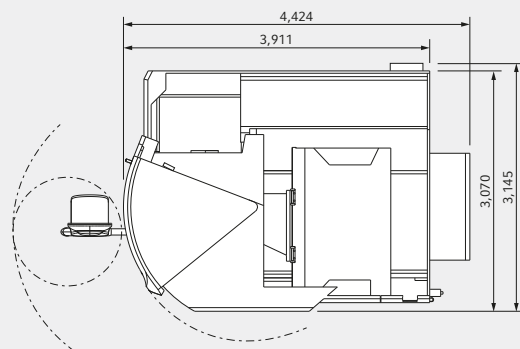


## Floor plan for DMU 95 monoBLOCK®

Plan view with chain magazine 60 positions and chip conveyor option

Machine height: 3.2 m

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



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