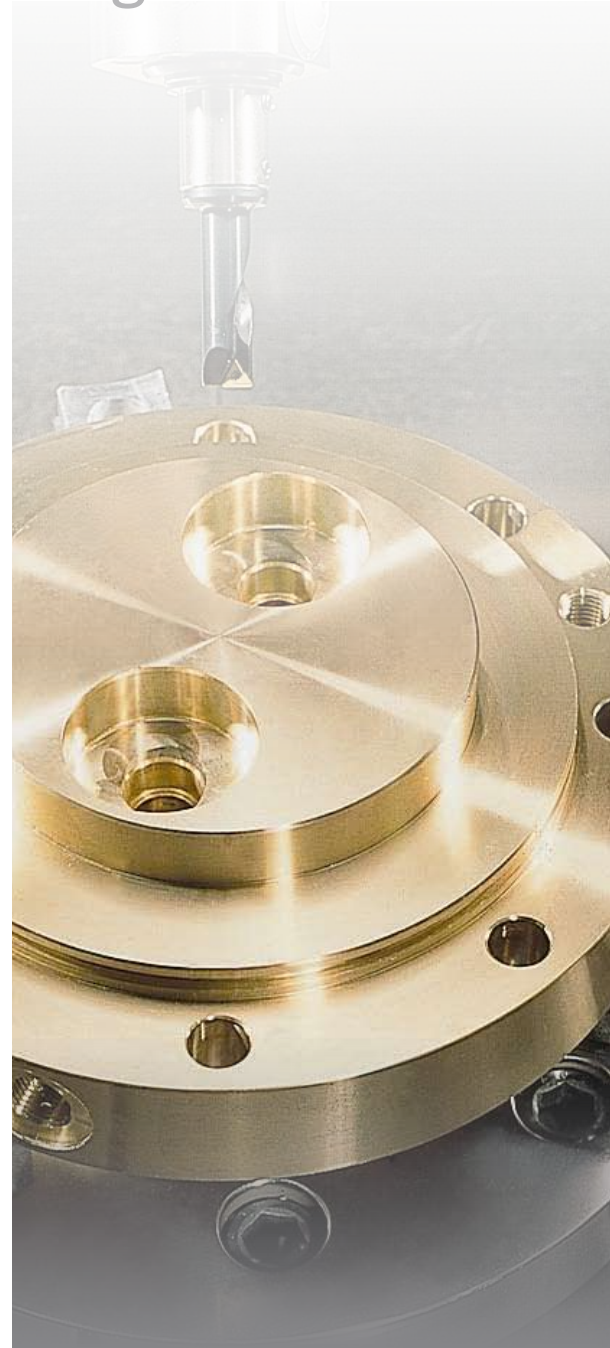


MT series

The greatest precision
in milling and turning



MT series

Milling and turning –
simultaneously in
up to 5 axes

Hermle AG has accelerated its pace of its innovation to respond to the enormous challenges faced by users. The company is not only presenting, in the form of the new CNC 5-axis high-performance machining centers in the MT-series, a practically oriented addition to the C series, which has been successful worldwide, but also provides users with significant added value. The best example of this is the development of an MT version for the C 42, C 50 and C 60 machining centres. They feature a fully integrated rotary table and allow for challenging milling and rotational machining in one clamping. Great emphasis was placed on ensuring that integrating rotational machining has no negative effect on milling.



The MT series
at home in all fields

Tool and mould making

Highly dynamic simultaneous
5-axes machining up to a
component weight of 1,400 kg

Energy technology

Difficult to machine material -
in record time

Aerospace

Precision in perfection

Mechanical engineering

Milling and rotational
machining in one clamping

Motor sport

Highest precision at
high availability

Subcontract industry

Dynamic, precise and reliable



C series



combined milling/
rotational machining



Machines

ADVANTAGES OF A UNIQUE MACHINE CONCEPT

MILLING AND ROTATIONAL MACHINING IN ONE CLAMPING FOR EVEN MORE PRODUCTIVITY

LARGEST WORKING AREA RELATIVE TO THE INSTALLATION SURFACE

UNIQUE AXIS CONCEPT

SHORT CHIP-TO-CHIP TIMES ON ACCOUNT OF INTEGRATED TOOL MAGAZINE

SINGLE LIFT TRANSPORT AND BOLT FREE INSTALLATION

IMMERSION IN DEEP CAVITIES WITH SLENDER Z-AXIS (MAIN SPINDLE)

THE FOLLOWING TYPES OF MACHINING CAN BE PERFORMED WITH THE MT SERIES:

MILLING PROCESSES – 5-SIDED MACHINING WITH UP TO 5-AXIS SIMULTANEOUS MACHINING

HORIZONTAL TURNING

VERTICAL TURNING

The "other" MT concept

The technology and safety requirements that apply to large lathes were taken fully into account in the development of the MT versions. All turning machining operations can be performed on all machines, even with the table swiveled. That opens up entirely new machining options and provides more flexibility in usage.

Fully integrated rotary technology

The modified gantry design essentially provides ideal conditions for integration of the combined swiveling axis (A-axis) with the rotary table axis (C-axis). Driven via high-performance torque motors in the C-axis it is possible to perform challenging rotational machining and combined milling and turning operations.

Maximum safety through integrated balancing system

Hermle machining centres have a significantly larger maximum collision contour in the spindle traversing range compared to other machine models. That means larger workpieces can be machined in one clamping with combined turning/milling. To prevent problems or damage from occurring due to inertial torques, Hermle AG is introducing a balancing system integrated into the rotary table.

Technical features for complete process-safe machining of precision parts

There is also a new tool measuring and tool breakage monitoring system. Milling tools are measured by laser and mechatronic scanning from two sides by 3D probes is used for turning tools. Heidenhain and Siemens units have been adapted to MT machining centers to serve as control units. Modular additional magazines for other milling / turning tools can optionally be adopted. Great importance was placed on ergonomic accessibility.



| Working area | C 42 U MT dynamic | C 50 U MT dynamic | | C 60 U MT dynamic | |
|-----------------------------|---------------------|--------------------|--|--------------------|--|
| Traverse X-Y-Z | 800-800-550 mm | 1,000-1,100-750 mm | | 1,200-1,300-900 mm | |
| Linear rapid traverse X-Y-Z | 60 m/min | 60-60-55 m/min | | 50 m/min | |
| Linear acceleration X-Y-Z | 10 m/s ² | 6 m/s ² | | 6 m/s ² | |

Main spindle drive

| | | | | | |
|------------|---------------------|--------------------------|------------------------|--------------------------|------------------------|
| Speed | 18,000 rpm. | 12,000 rpm. | 18,000 rpm. | 12,000 rpm. | 18,000 rpm. |
| Interface | HSK A 63 / HSK T 63 | HSK A 100 / HSK T 100 | HSK A 63 / HSK T 63 | HSK A 100 / HSK T 100 | HSK A 63 / HSK T 63 |
| Torque | up to 173 Nm | up to 356 Nm | up to 215 Nm | up to 356 Nm | up to 215 Nm |
| Main power | up to 20 kW | up to 56 kW | up to 35 kW | up to 56 kW | up to 35 kW |

Tool changer (pick up)

| | | | | | |
|--------------------|---------------|---------------|---------------|---------------|---------------|
| Magazine pockets | 42 | 42 | 60 | 50 | 70 |
| Chip-to-chip time* | approx. 6.5 s | approx. 7.0 s | approx. 7.0 s | approx. 9.5 s | approx. 9.5 s |

Control unit

| | | | |
|------------|------------|---------|------------|
| Heidenhain | TNC 635 | TNC 635 | TNC 635 |
| Siemens | S 840 D sl | S 840 D | S 840 D sl |

For detailed information, please refer to the individual leaflets.

Technical Data

HIGH DEGREES OF FREEDOM IN THE WORKING AREA

VERY HIGH TABLE LOAD (UP TO 1,400 KG AT HIGHEST PRECISION)

NO CHIP COLLECTION ON THE TABLE (TABLE SWIVELLING)

SWIVELLING AXIS A AND ROTARY AXIS C ARE IN THE WORKPIECE (U SHAPE)

TORSION PREVENTION THROUGH TANDEM DRIVES

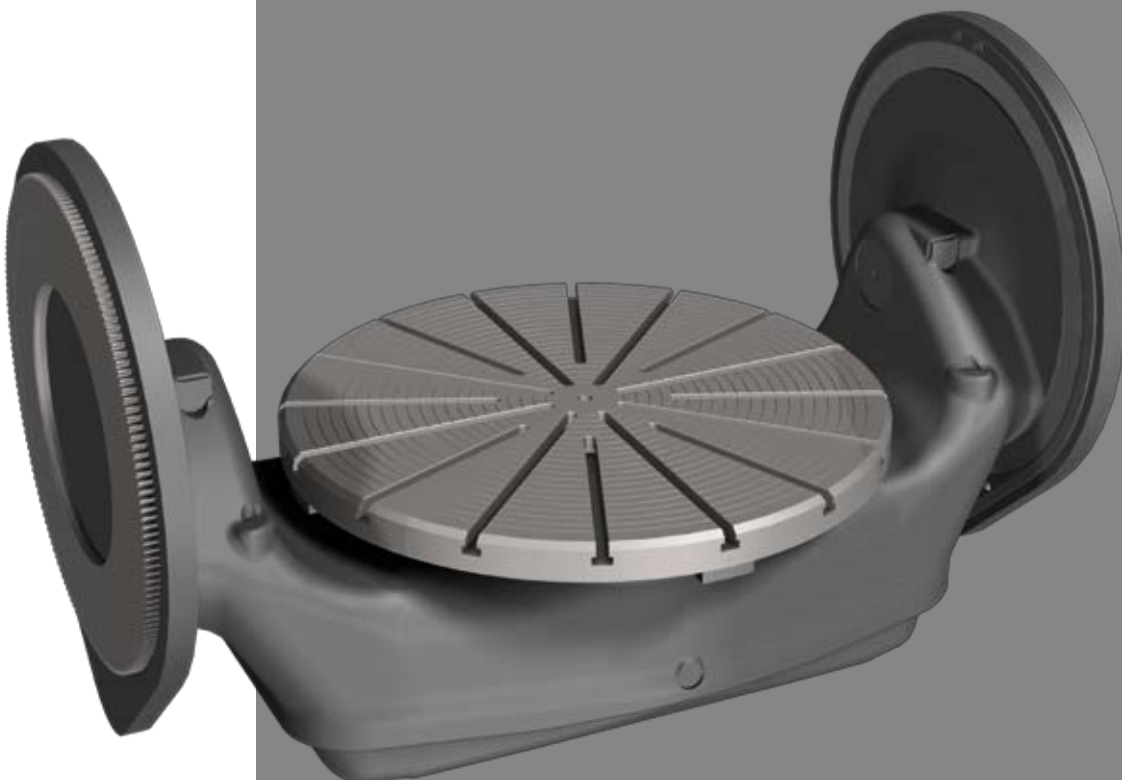
MANUALLY ADJUSTABLE BALANCING SYSTEM INTEGRATED INTO THE TABLE

HIGH DYNAMICS THROUGH LINEAR TECHNOLOGY
(HIGH-TORQUE MOTORS IN THE ROTARY AXIS)

WIDE TRUNNION SUPPORT DISPLACEMENT RESULTS
IN A LARGE COLLISION FREE CIRCLE

NC-controlled swivelling
rotary table

| | C 42 U MT dynamic | C 50 U MT dynamic | C 60 U MT dynamic |
|----------------------------|-------------------|-------------------|-------------------|
| Clamping surface: | Ø 750 mm | Ø 1,000 mm | Ø 1,200 mm |
| Swivel range: | +/- 130° | + 100° / - 130° | +/- 130° |
| Speed - swivelling axis A: | 25 rpm. | 20 rpm. | 15 rpm. |
| Type of drive axis A: | Tandem | Tandem | Tandem |
| Speed - rotary axis C: | 800 rpm. | 500 rpm. | 400 rpm. |
| Type of drive axis C: | Torque | Torque | Torque |
| Maximum table load: | 700 kg | 1,000 kg | 1,400 kg |
| T-grooves: | star 16 / 14 H7 | star 16 / 18 H7 | star 16 / 22 H7 |



Controls

HEIDENHAIN TNC 635 OR SIEMENS S 840 D

3D SOFTWARE

19" TFT-TECHNOLOGY*

USER-DEFINED SOFTKEYS

ERGONOMIC CONTROL PANEL



Practical
slide-in tray

Screen
pivots 30°

Control panel
vertically adjustable +/-100 mm

CONTROLS FOR DEMANDING MILLING PROCESSES

Complete machining (milling and rotational machining) in one clamping.

SAFE CONTROLS

Controls with integrated safety technology keeping with category 3 described in European standard ISO 13849-1.

E-MESSENGER

Increases the availability of the machines and minimises production failures.

TELESERVICE

Teleservice ensures even faster support in case of programming and operating problems.

FINGERPRINT

Recording of meaningful variables and evaluation of them by specialists permit preventive and forward-looking maintenance as well as efficient diagnosis in the event of a malfunction.

* For detailed information, please refer to the individual leaflets.

Technical Data

| | | C 42 U MT dynamic | C 50 U MT dynamic | C 60 U MT dynamic | |
|-----------------------------------------------------------------------------------------------|---------------------------------------|-------------------|------------------------------|--------------------|--------------------|
| Working area | Traverse | X axis | 800 mm | 1,000 mm | 1,200 mm |
| | Traverse | Y axis | 800 mm | 1,100 mm | 1,300 mm |
| | Traverse | Z axis | 550 mm | 750 mm | 900 mm |
| | Linear rapid traverse | X-Y-Z | 60 m/min | 60-60-55 m/min | 50 m/min |
| | Linear acceleration | X-Y-Z | 10 m/s ² | 6 m/s ² | 6 m/s ² |
| | Linear feed force | X-Y-Z | X = 7,000 N Y-Z = 8,500 N | 16,000 N | 16,000 N |
| Main spindle drive | Speed | 12,000 rpm. | - | HSK A 100 / T 100 | HSK A 100 / T 100 |
| | Main power / torque | 20% c.d.f. | - | 56 kW / 356 Nm | 56 kW / 356 Nm |
| | Magazine pockets | | - | 42 | 50 |
| | Chip-to-chip time* | | - | approx. 7.0 s | approx. 9.5 s |
| | Maximum tool length | | - | 430 mm | 500 mm |
| | Maximum tool diameter | | - | Ø 250 mm | Ø 250 mm |
| | Maximum magazine load | | - | 462 kg | 550 kg |
| | Speed | 18,000 rpm. | HSK A 63 / T 63 | HSK A 63 / T 63 | HSK A 63 / T 63 |
| | Main power / torque | 20% c.d.f. | 20 kW / 173 Nm | 35 kW / 215 Nm | 35 kW / 215 Nm |
| | Magazine pockets | | 42 | 60 | 70 |
| | Chip-to-chip time* | | approx. 6.5 s | approx. 7.0 s | approx. 9.5 s |
| | Maximum tool length | | 300 mm | 430 mm | 500 mm |
| | Maximum tool diameter | | Ø 125 mm | Ø 160 mm | Ø 160 mm |
| | Maximum magazine load at 42 units | | 168 kg | 480 kg | 560 kg |
| *(chip-to-chip times were determined in accordance with VDI 2852, sheet 1 in a 3-axis design) | | | | | |
| Table variants | NC-controlled swivelling rotary table | | 750 | 1000 | 1200 |
| | Clamping surface | | Ø 750 mm | Ø 1,000 mm | Ø 1,200 mm |
| | Swivel range | | +/- 130° | + 100° / - 130° | +/- 130° |
| | Speed - swivelling axis A | | 25 rpm. | 20 rpm. | 15 rpm. |
| | Speed - rotary axis C | | 800 rpm. | 500 rpm. | 400 rpm. |
| | Type of drive axis C | | Torque | Torque | Torque |
| | Maximum table load | | 700 kg | 1,000 kg | 1,400 kg |
| | T-grooves parallel | | star 16 / 14 H7 | star 16 / 18 H7 | star 16 / 22 H7 |
| Manually adjustable balancing system | | integrated | integrated | integrated | |
| Control unit | Heidenhain | | TNC 635 | TNC 635 | TNC 635 |
| | Siemens | | Sinumerik 840 D SL | Sinumerik 840 D | Sinumerik 840 D SL |

For detailed information, please refer to the individual leaflets

The safety enclosure of the MT series meets the requirements of the following safety regulations:

Machine tools – machining centres (EN 12417)

Machine tools – large lathes (EN 12478)

Options

| | | | |
|---------------------------------------------|---|--------------------------------------------------|---|
| Automatic cabin door | ● | Coolant nozzle | ● |
| Automatic cabin top | ■ | Minimal quantity lubrication internal + external | ● |
| Laminated safety glass panes | ■ | Air blast through the spindle centre | ● |
| Rotating clear-view window | ● | Bed flushing | ● |
| Electrical heat compensation | ● | BDE signal | ● |
| Electrical hand-held control module | ● | Oil mist extractor | ● |
| Touch probe includ. preparation | ● | Air purge for linear scales | ● |
| Preparation for touch probe | ● | Status lamp | ● |
| Tool breakage monitoring / measuring system | ● | Accuracy packages | ● |

■ standard equipment

● to order

Hermle AG reserves the right to carry out modifications without prior notification, which may lead to deviating technical data.

Hermle

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