



SECONDS AHEAD THROUGH HIGH SPEED MANUFACTURING

MILL SERIES

Efficient small and medium batch production

UNIVERSALLY APPLICABLE WITH EXCELLENT MILLING PERFORMANCE

Cost-effective solution for starting with multi-side machining

Our MILL series includes flexible machines for small and medium batch production. Thanks to our diverse range of options, we can adapt our machining centres to meet specific application requirements of our customers. The powerful moving column machines of the MILL series offer a perfect solution for highly productive cutting operations.

One of the main advantages of these thermally stable, reliable and low-maintenance machining centres lies in their high milling capacity. Apart from that, they are also user-friendly due to their clearly structured, easily accessible and fully enclosed working area.

In order to implement various kinds of machining operations, MILL machining centres are available with a travel of up to 4500 mm with the X axis, up to 630 mm with the Y axis and up to 550 mm with the Z axis.

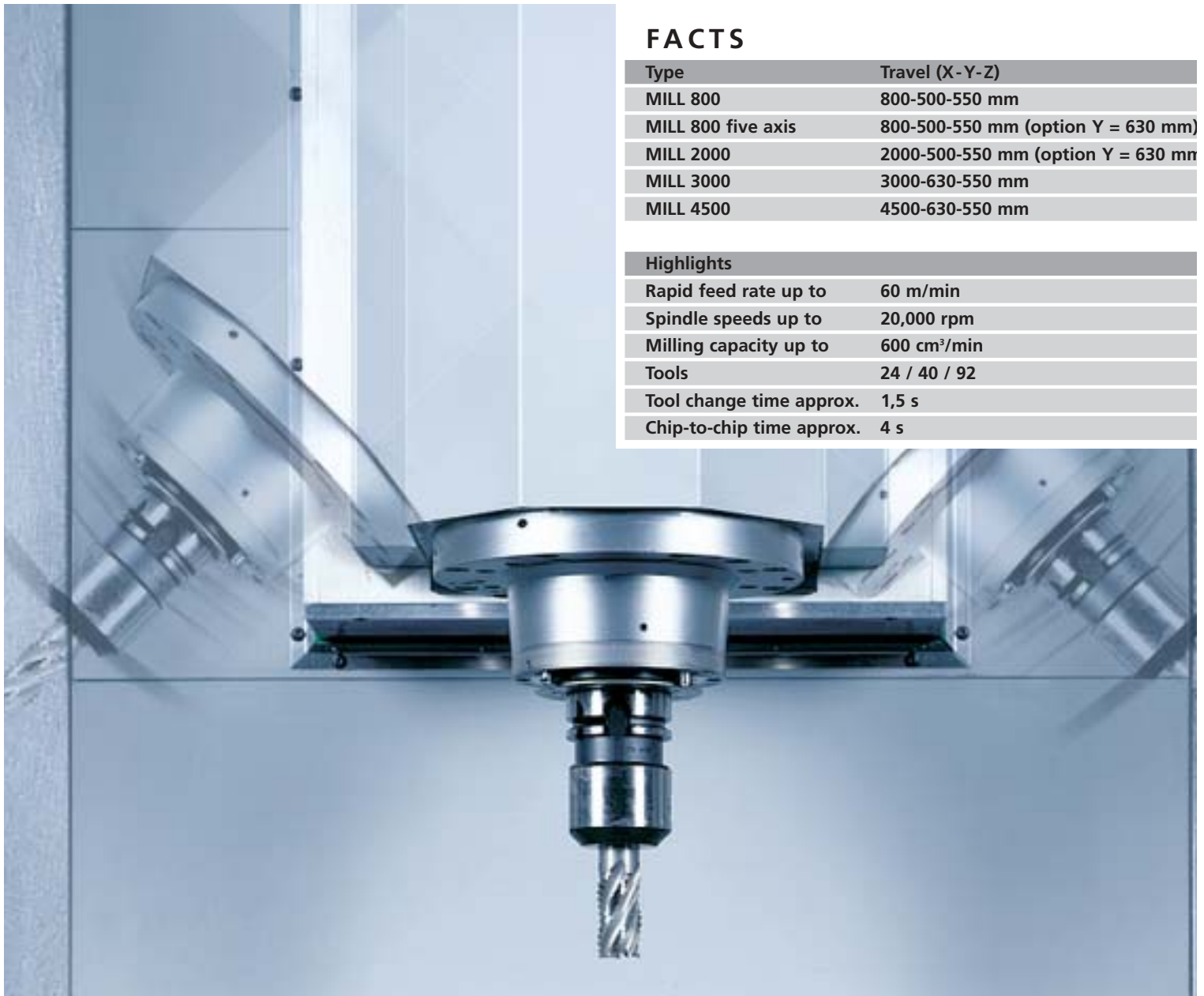
Shuttle machining can be carried out from MILL 2000 onwards. In the high speed version, MILL offers spindle speeds of up to 20,000 rpm and rapid feed rates of 60 m/min.



MILL 800



MILL 2000



FACTS

Type	Travel (X-Y-Z)
MILL 800	800-500-550 mm
MILL 800 five axis	800-500-550 mm (option Y = 630 mm)
MILL 2000	2000-500-550 mm (option Y = 630 mm)
MILL 3000	3000-630-550 mm
MILL 4500	4500-630-550 mm

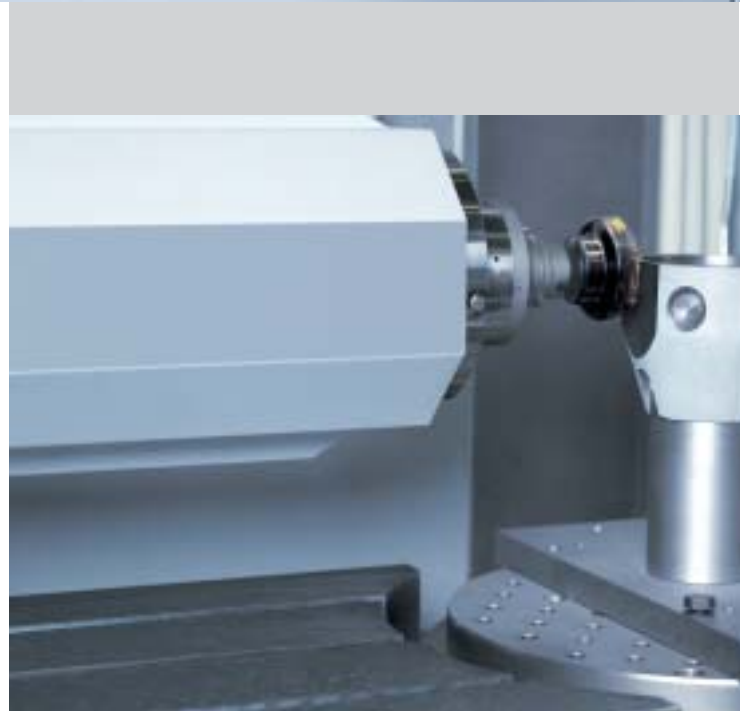
Highlights	
Rapid feed rate up to	60 m/min
Spindle speeds up to	20,000 rpm
Milling capacity up to	600 cm ³ /min
Tools	24 / 40 / 92
Tool change time approx.	1,5 s
Chip-to-chip time approx.	4 s

5-AXIS SIMULTANEOUS MACHINING WITH THE SWIVEL HEAD

The NC swivel head with hydraulic clamping and water-cooled motor spindle has a swivelling range of $\pm 100^\circ$ and distinguishes itself by its exceptionally high rigidity, overload capacity and speed.

It takes only 0.5 s to swivel from 0° to 90° . Complex parts can be machined horizontally as well as vertically in one set-up.

When combined with the swivel head, the NC rotary table with a horizontally or vertically arranged rotary axis can be used for 5-axis machining. In this way, five sides can be machined quickly and highly accurately in one set-up.





EVERYTHING UNDER CONTROL WITH THE PICK-UP SYSTEM

The tool changing system is a quick, failure-proof pick-up system. It takes only 1.5 s to change tools. The chain magazine with 24 (optionally 40) tool places is designed for tool holders with ISO 40 or

HSK-A 63 and separated from the working area. Tools with a diameter of up to 125 mm and length of up to 280 mm can be used.

More application possibilities due to more tools

If more tools are required, a background magazine (optional) can also be used during the machining operation. A total of 92 tools can be used. These tools are assigned to specific magazine places with fixed codes and are immediately

brought back to their respective places after use. Thanks to an intelligent tool management, the chain serves as storage for frequently used tools. CHIRON Laser Control offers a perfect solution for tool measurement and tool breakage monitoring.

INNOVATIVE ENGINEERING FOR DIVERSE APPLICATIONS

Extremely solid machines

MILL machines have been designed with the help of the latest calculation models. The highly rigid machine bed with integrated chip removal and a large distance between the guides ensures the highest possible accuracy even for materials that are difficult to cut.

The fully enclosed working area with smooth, steep walls is insensitive to chips and coolant during wet as well as dry machining. The working area contains the spindle, the required tool, the fixture and the workpiece. All other machine elements and tools are outside the working area, where they are protected against chips and coolants.

High accessibility, simple set-up and unproblematic loading, even with large and heavy fixtures and workpieces – these are only a few advantages of MILL machines.



Machining of long parts and shuttle machining

The large working areas are ideal for two types of machining operations, namely long bed and shuttle machining. During **long bed machining**, long workpieces can be easily loaded from above due to the large door opening with integrated upper cover.

For shuttle machining, a chip-protected centre guard is

set up in the centre of the X-axis travel area in order to divide the working area into two large, easily accessible parts. While parts are being loaded and unloaded on one side, machining can be carried out on the other side. The machine operator can use the movable CNC control panel at all times. The loading doors of the splash guard cover can open and close automatically.



INNOVATIVE MACHINE TECHNOLOGY

Thanks to the fully integrated 2-axis swivel rotary table, MILL 800 five axis can be used for machining five sides of a workpiece in a single set-up. This not only improves the manufacturing quality, but also minimizes the loss of machining time due to reclamping.



2-axis swivel rotary table

- Swivelling range $\pm 100^\circ$
- Range of rotation 360°
- Face plate diameter 280 mm
- Direct path measuring systems
- Power supply with four lines

THE 2-AXIS SWIVEL ROTARY TABLE



It is possible to machine six sides with the help of **the integrated NC swivel rotary table** with additional clamping surfaces to the right and left of the face plate and drilled hole pattern.

Due to the four line rotary supply, the face plate can be used for hydraulic or pneumatic tool clamping.

Optionally, square face plates up to 450 mm and zero point clamping systems can also be integrated.

MILL 800 five axis

Your advantages at a glance:

- **Flexible 5-side complete machining**
- **5-axis simultaneous milling**
- **Excellent milling performance**
- **Wet and dry machining**
- **Highly accurate manufacturing quality**
- **User-friendly due to a clearly structured and easily accessible working area**
- **Up to 92 tool places**

WE CAN ALWAYS FIND AN INDIVIDUAL SOLUTION FOR YOU

MILL Series



The range of options is so diverse that we can always find a solution for your specific requirements.

High speed version
Tool storage capacity
Travel Y-axis
Tool taper HSK-A 63
NC rotary table
NC rotary table with basic fixture
NC rotary table integrated in fixed table
2-axis NC rotary table
Through the spindle coolant up to 70 bar
Chip conveyor with full flow cleaning
Probe
Direct path measuring system
Stationary 3-D-probe system
Centre guard with mechanically operated opening
Tool breakage monitoring/Tool life management
Probes for workpiece and tool measurement
Signal lamp
Handwheel
CHIRON Laser Control
Control: Siemens, Fanuc
Control: Heidenhain

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OUR RANGE OF PRODUCTS

08 SERIES

High speed machining centre
for small workpieces

VISION SERIES

High performance für highly
efficient batch production

12 SERIES

High speed manufacturing for
low piece part cost

15 SERIES

Quicker milling operation for
medium and large batch
production

18 Series

High speed machining and
heavy cutting

28 SERIES

Highly efficient machining for
small and medium batch
production

MILL SERIES

Efficient small and medium
batch production

WHEEL

Customized solutions for
machining wheel rims

FLEXLINE

Diverse series production
without changeover

FIVE AXIS

The quickest way to machine
5 sides

MPS

High speed complete
machining of profile bars

MULTI-SPINDLE MACHINING

Double productivity for lower
piece costs

chiron

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