MILL Series

Universal precision machining centers for high-performance cutting from small parts to large workpieces
MILL SERIES  STRONG, DYNAMIC AND PRECISE

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MILL 1250
Machining center with NC swivel head and CHIRON standard rotary table for individual set-ups.

Strong, dynamic and precise

Large, flexible work areas
High milling capacity and powerful drives
Lower cost per piece
Highest precision and processing quality

High stability
Fast set-up
Simple operation
Easy maintenance

As versatile as your manufacturing requirements

The CHIRON MILL series is the optimal solution for highly productive cutting and machining applications. Whether your focus is on flexible single-unit production or high volume precision manufacturing – its modular design offers numerous configuration possibilities. Every standard MILL Series machine can be assembled into the perfect individualized solution:

MILL 1250
Machining center with NC swivel head and CHIRON standard rotary table for individual set-ups.
We love perfection
That’s why we view every detail as an exciting challenge. Whether automotive, aerospace, mechanical engineering, medical or precision technology – the high-quality machining centers of the CHIRON MILL Series reduce processing times, while powerfully carrying out their manufacturing tasks in the smallest possible space. Implement your production ideas quickly with micron-level precision.

From small parts to large workpieces – Complete precision machining, with the lowest cost per piece

Mechanical Engineering
Machining of long profile components, e.g. take-up angle for textile machines [Length: 1,700 mm]

Tool Manufacturing
Milling, drilling, thread cutting and turning in one set-up, e.g. complex multi-step tools made of steel

Aerospace
Wing Rib (Large cubic workpiece; Length: 1,600 mm, with a high cutting proportion as a supporting structure part for medium-haul jets)
MILL SERIES

MACHINE CONCEPT

Highest precision: Glass scales and digital drive technology allow high accelerations with the same contour accuracy. Machines with traverse paths of more than 4,500 mm in X are equipped with linear motors.

Precision machining centre with NC swivel head, integrated NC rotary table with face plate Ø 500 mm.

Modular concept
- Vertical traveling column principle
- Long travel with compact external machine dimensions
- Sturdy machine bed with integrated coolant and chip removal
- High rigidity and thermal stability
- Motor spindles with water cooling
- Precision glass scales on all axes
- Dynamic direct drives and precision guides
- Highest productivity with the High Dynamics package
- Robust CHIRON rotary axes
- Fully enclosed work area, stainless steel covers
- Smooth, steep walls for ideal chip flow
- Ergonomic operating and loading concept
- Service friendly access to all auxiliary units
- Foundation-free set-up
- High durability, low maintenance

The MILL Series can be delivered with CNC controls from Siemens, Fanuc or Heidenhain, as needed.

Spindles and spindle systems
- Proven single-spindle machining centers in the vertical traveling column design.
- Machining centers with NC swivel head with programmable positioning anywhere within the range of −110° to +110°.

Tool changing systems
- Automatic tool change using the pick-up procedure as fast as 1.5 s (24 / 40 / 60 tool places SK-40 / HSK-A63).
- Background magazine for the provision of 92 to 163 tools during machining.

Table options
- Fast, high-performance long-bed production in pendulum mode, or with multiple set-ups for efficient workpiece machining. Plenty of space for devices. E.g. standard rotary table basic device with counterbearing, cheeks with connection coupling for mounting clamping devices or NC rotary tables integrated in the table for multi-side machining with a face plate of Ø 500 mm.
- The C-axis can be set up as a turning spindle capable of up to 1,000 rpm.

2-axis swivel rotary table with AC kinematics with one or two face plates for multi-side machining (MILL 800 five axis and MILL 1250 five axis) or 5-axis machining with pendulum working (MILL 2000 five axis, MILL 3000 five axis).

Proven single-spindle machining centers in the vertical traveling column design.

Machining centers with NC swivel head with programmable positioning anywhere within the range of −110° to +110°.

Automatic tool change using the pick-up procedure as fast as 1.5 s (24 / 40 / 60 tool places SK-40 / HSK-A63).

Background magazine for the provision of 92 to 163 tools during machining.
The right machine for each component

Variants and extension options

MILL 800 five axis
Fast and compact precision machining center with a 2-axis swivel rotary table for 5-axis simultaneous and complete machining. Workpieces can be machined with high surface quality in one set-up.

MILL 800 mill turn
The fastest 6-sided complete machining with swivel head and turning spindle for milling and turning from the bar.

MILL 2000
Powerful long-bed production in pendulum mode with standard rotary table basic device. Work areas of long-bed machining centers larger than X=2,000 mm can be divided into two areas by a central splash guard. NC control is mobile for ergonomical setting mode.

MILL 2000
Fast, high-precision machining center with NC swivel head and CHIRON standard rotary table basic device for individual set-ups.

Process advantages

- Travel X - Y - Z max. 6,000 – 915 – 715 mm
- Power max. 75 kW
- Spindle speed max. 20,000 min⁻¹
- Torque max. 280 Nm
- Chip-to-chip time from cut 2.9 s
- Axis acceleration X - Y - Z max. 11 / 12 / 17 m/s²
- Rapid feed max. 75 m/min
- Milling capacity in ST 60 max. 900 cm³/min
- Number of tools max. 163
- Tool taper SK-40 oder HSK-A63
- Tool weight max. 8.0 kg
- Tool diameter max. 160 mm
- Tool length max. 370 mm

Spindles & spindle systems
- Automatic tool changer
Table options


A powerful and flexible large work area for fast, economical production

Your advantages with CHIRON fixed table or long-bed machining

- 3-axis basic machining center based on the vertical traveling column principle
- Long travel with compact external machine dimensions
- Sturdy machine bed
- High rigidity and thermal stability
- Clear, easily accessible work area
- Simple loading with lifting gear (cranes, lift trucks, etc.)
- Work area for larger workpieces or multiple set-ups
- Automatic tool change using the pick-up method
- Chip-to-chip time starting from 2.9 s
- Reduction of down-time due to loading and unloading during machining in pendulum mode or multiple set-ups
- Expandable to 4 axes with the basic device, or to 5-axis machining with the 2-axis tilt rotary table and/or NC swivel head in combination with an integrated NC rotary table

MILL 4500
High-precision machining center with fixed table, NC swivel head and mounted chip-proof central splash guard for fast long-bed production in pendulum mode or with multiple set-ups.

MILL 6000
High-precision machining center for fast long-bed production. Workpieces of up to 6 m in length can be easily clamped and processed economically.

Crane loading
Easy loading of large, heavy devices and workpieces. The front doors are wide opening, allowing great accessibility and easy loading. Automatic door activation can be added as an option.

MILL 6000
NC swivel head with a continuous swivel range of ±110°. It sets itself apart by its exceptionally high rigidity and speed.

MILL 6000
High-precision machining center with fixed table, NC swivel head and CHIRON standard rotary table basic device for individual set-ups.

MILL 1250
High-precision machining center with NC swivel head and CHIRON standard rotary table basic device for individual set-ups.
Strong performance with large traverse pathes in X

MILL 8000
Precision machining centre with open machine bed and clamping cube, NC swivel head and optionally constructed, chip-proof centre partition wall for fast long bed production.

5-axis workpieces up to 8 m in length can be easily clamped and economically produced.
The highest precision

Your advantages with CHIRON five axis

- Long travel with compact external machine dimensions
- Sturdy machine bed
- High rigidity and thermal stability
- Highest precision in positioning and simultaneous operation
- Clear, easily accessible work area
- Simple loading with lifting gear (cranes, lift trucks, etc.)
- Spindle speeds of up to 20,000 rpm
- Excellent surface quality
- Integrated CHIRON 2-axis swivel rotary table with direct measuring systems

- Integrated 6-way energy supply for clamping device on the face plate
- Zero-point clamping systems can be integrated
- 4th axis with a pivoting range of up to +/- 120°
- 5th axis with torque drive up to 1,000 rpm for turning work
- Automatic machine compensation due to the 3D touch probe TS27

Complete machining with CHIRON five axis

Five-axis machining with the CHIRON rotary table program
- Robust and reliable technology – developed and manufactured by CHIRON
- Backlash-freepretensionedprecisiongearwithhighoverloadcapacityandlargeholdingtorque
- Rotation option due to high-precision torque drives

**MILL 800 five axis**
- 2-axis swivel rotary table
  - Swivel range: ± 120°
  - Face plates: Ø 280 mm
  - Table load capacity: 320 kg
- Chain magazine / tool places: 24 / 40 / 92 / 163
- Tool changing time: 1.5 s
- Maximum workpiece dimensions: Ø 940 x 430 mm
- Swing diameter: Ø 780 mm
- 5-axis machining in pendulum mode (MILL 2000 five axis und MILL 3000 five axis) possible.

**MILL 1250 five axis**
- 2-axis swivel rotary table
  - Swivel range: ± 120°
  - Face plates: Ø 630 mm
  - Table load capacity: 1,000 kg
- Chain magazine / tool places: 24 / 40 / 92 / 163
- Tool changing time: 1.5 s
- Maximum workpiece dimensions: Ø 1,380 x 600 mm
- Swing diameter: Ø 1,010 mm

Stationary 3D probing system for tool length measurement, tool breakage checks, as well as machine compensation.
Precision by the meter – 6-side complete machining with CHIRON mill turn

Your advantages with CHIRON mill turn

- Multi-functional machining, incl. back side of workpiece
- Milling, turning, drilling, thread cutting and measuring – all carried out on one machine
- Reduction of the throughput time due to 6-sided complete machining from the bar (passage up to 100 mm)
- Customized material feeding solutions (bar loader / bar loading magazine)
- Job processing and machining times as well as in-plant logistics processes are reduced considerably
- The machining quality is greatly enhanced thanks to the reduced number of reclamping operations
- Direct path measurement system in all axes
- High running autonomy
- Sturdy machine bed, high cutting capacity and precision

MILL 800 mill turn
Multi-functional machining center for drilling, milling and turning. The combination of swivel head and turning spindle allows the automatic machining of complex parts with high precision.

- Training up to 4,500 rpm
- Separation of the workpiece
- Drilling and thread cutting

CHIRON Laser Control for tool breakage detection, tool measurement and machine compensation.
Faster and more productive

Options create greater efficiency

Using the High Dynamics package, achieve faster and more productive manufacturing of body and lightweight structural parts.

Interpolation and positioning with short chip-to-chip times are key features of the High Dynamics package for the MILL series. A weight-optimized machine structure with generously sized drives and axes offer outstanding performance in acceleration and rapid feed rates. Ideal for machining lightweight automotive body components or aerospace structural components.

- Acceleration X / Y / Z: 11 / 12 / 17 m/s²
- Rapid feed rate: 75 m/min

MILL Series – further options

- Speed+-package
- Reinforced spindle drive
- Work area suctioning unit
- Connection for central suctioning unit
- Energy-efficiency package with an intelligent energy-saving control
- Automatic doors
- Zero point clamping systems
- Oil package with fire-extinguishing system CHIRON
- Robot interface
- and much more
MILL SERIES  

TURNKEY SOLUTIONS

Space-saving integration of an articulated arm robot for removing finished parts.

Individual automation and engineered solutions for higher productivity

Your benefits

- Comprehensive process design
- Expert engineering
- Experienced project management
- Validation of statistical process capability
- Ensuring targeted productivity
- Production assistance during the initial phase
- Training in operation and programming
- CHIRON service available around the world

Turnkey customization completely from one source

CHIRON TURNKEY

Customized automation solutions

- Portal and articulated-arm solutions
- Load and unload devices
- Pallet changing systems
- Pallet storage for raw and finished parts
- Interlinked systems
- and much more

From the planning stage to serial production

Today, manufacturing excellent machining centers is not enough. Users expect a solution, which is as individual as it is intelligent. From one specific machining task, a »Turnkey process« is to be developed around the workpiece based on the specifications and constraints. The CHIRON TURNKEY makes it possible to optimally solve complex tasks.

Together with perfectly adapted technology modules, CHIRON engineers create the most economical solution from one source to meet the customer’s special needs. This ensures decisive competitive advantages for CHIRON customers. CHIRON not only offers the machining solution itself, but also the support to keep manufacturing running at an optimal level.
# SmartLine

## The path to »digitally enhanced machining« is prepared

Intelligent machine control, digital networking, mutual machine communication, if »digitally enhanced machining« is mentioned, CHIRON may already has something to say. With the SmartLine program, the CHIRON Group provides a modular software system that enables customers to unlock the full potential of the digital manufacturing process.

## An overview of all software modules

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<th>ConditionLine</th>
<th>Machine operator, Maintenance engineer, Service</th>
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<td>Constant monitoring and analysis of the machine condition</td>
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<td>Collision-tested NC program</td>
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## Trainings and workshops

### Ahead through qualification, because knowledge leads to success.

To enable you to use your CHIRON CNC machining center optimally, we offer a comprehensive range of qualification measures, training courses and training for operators, setup personnel and service technicians.

The training programme is characterised above all by flexibility in implementation. In addition to the courses in our CHIRON training centre, these can also take place at your location. Our trainers are able to offer courses in German and English. Optionally we offer further languages with the help of an translator.

In the CHIRON Training Center, we get interested persons, both beginners and pros, up-to-date with the latest technology, step by step. With a number of individually combinable machine courses and programming courses. In this way we qualify your employees while increasing the productivity of your CHIRON CNC machining center. This leads to more success for your company, since qualified and motivated employees are an important success factor.

Our training courses are designed didactically according to the latest teaching methods. By doing practical work in small groups, we take into account the field of interest and the level of knowledge of the participants.

Our philosophy is to strongly qualify the participants through their own work on our training objects. Subsequently, what has been learned can be directly put into practice in routine work.

### CHIRON training, courses and training are available for the following topics:

- Service and maintenance
- Operation
- Programming
- Components
- Robots
- Customer-specific