MILL Series

Universal precision machining centers for high-performance cutting – from small parts to large workpieces
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.

Your benefits:

- 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

MILL 1250
Machining center with NC swivel head and CHIRON standard rotatory table for individual set-ups.
From small parts to large workpieces –
Complete precision machining, with the lowest cost per piece

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.
Market leaders trust us.
High-tech modules for any application
Perfectly tuned for flexibility

Modular concept:
- Vertical traveling column principle
- Long travel with compact external machine dimensions
- Study 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

Spindles & 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 63)
- Background magazine for the provision of 92 to 163 tools during machining

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

MILL 2000
Precision machining center with NC swivel head, integrated NC rotary table with a face plate of Ø 500 mm.

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.

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 counterbalancing, chucks 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.
- FX: 2-axis swivel rotary table with AC kinematics with one or two face plates for multi-side machining (MILL 800 FX and MILL 1250 FX) or 5-axis machining with pendulum working. (MILL FX 2000, MILL FX 3000).
The right machine for each component

Variants and extension options

Table options:
- Automatic tool changer
- Spindles & spindle systems

Process advantages:
- Maximum path X–Y–Z: 6,000–915–715 mm
- Maximum power: 75 kW (40% ED)
- Maximum spindle speed: 20,000 rpm
- Maximum torque: 280 Nm
- Chip-to-chip time starting: from 2.9 s
- Maximum axis acceleration X–Y–Z: 11 – 12 – 17 m/s²
- Rapid feed as fast as: 75 m/min
- Maximum milling capacity in St 60: 900 cm³/min
- Max. number of tools: 163
- Tool taper: SK 40 / HSK 63
- Maximum tool weight: 8 kg
- Maximum tool diameter: 160 mm
- Max. tool length: 370 mm

MILL 800
MILL 1250
MILL 2000
MILL 4500
MILL 6000

Flexible work areas and maximum traverse paths:
X=6,000, Y=915, Z=715 mm

MILL 800
MILL 2000
MILL 4500
MILL 6000

MILL FX 800
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 MT 800
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 movable 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.
A powerful and flexible large work area
for fast, economical production

**MILL 1250**

High-precision machining center with NC swivel head and CHIRON standard rotary table basic device for individual 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.

**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 CHIRON standard central splash guard for fast long-bed production in pendulum mode or with multiple set-ups.

**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.

**Large figure:**
Fixed table with vacuum system (optional)
The highest precision
Complete machining with CHIRON Five axis

MILL FX 800
Fact precision machining center with 2-axis tilt rotary table for economical complete machining with five simultaneously controlled axes.

MILL FX 1250
Combination of a NC swivel head and NC rotary table integrated in the fixed table with a face plate of Ø 500 mm. The C axis can be designed as a NC rotary table or as a turning spindle with a speed of up to 1,000 rpm.

MILL FX 3000
Combination of a NC swivel head and the basic device. Achieve maximum productivity using the High Dynamics package.

MILL 1250
Stationary 3D probing system for tool length measurement, tool breakage checks, as well as machine compensation.

MILL 2000
Combination of a NC swivel head and a standard rotary table basic device. The swivel plate can be customized according to our customers’ requirements; for instance 4-sided due to a clamping cube.

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
Fourth 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

Your advantages with CHIRON FX:
- 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
- Fourth 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

MILL FX 800 MILL FX 1250
- 2-axis swivel rotary table
  - Swivel range: ±120° ±120°
  - Face plates: Ø 280 mm Ø 630 mm
  - Table load capacity: 320 kg 1,000 kg
- Chain magazine / tool places: 24 / 40 / 92 / 163 24 / 40 / 92 / 163
- Tool changing time: 1.5 s 1.5 s
- Maximum workspace dimensions: Ø 940 x 450 mm Ø 1,380 x 600 mm
- Swing diameter: Ø 780 mm Ø 1,010 mm
5-axis machining in pendulum mode (MILL FX 2000 and MILL FX 3000) possible.
Precision by the meter
6-side complete machining with CHIRON MillTurn

Your advantages with CHIRON MT:
- 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
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 optimised 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

Series MILL – further options:
- High Speed Plus package
- High Dynamics 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
Turnkey customization completely from one source

Individual automation and engineered solutions for greater productivity

Various SYSTEM – Customized automation solutions:
- Machine-integrated spindle-grippers
- Portal and articulated-arm solutions
- Load and unload devices
- Pallet changing systems
- Pallet storage for raw and finished parts
- Interlinked systems
- and much more

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CHIRON TURNKEY
- 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

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

Intelligent machine control, digital networking, mutual machine communication, if "Digitally enhanced machining" is mentioned, CHIRON may already have 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.

SmartLine
The path to „Digitally enhanced machining“ is prepared

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 decision 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.

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An overview of all modules

User
Maintenance engineer
Service
Machine operator
Maintenance engineer
Operator
Installer
Maintenance engineer
Customer maintenance engineer
Service
Production planner
Head of manufacturing
Controlling
Production planner

RemoteLine
- Machine remote access
- Rapid assistance in event of fault
- Automatic notifications
- Optimum data security

DataLine
- Visualization of machine condition and process progress
- Configurable system
- Real-time information about all machinery

ProcessLine
- Digital twin and post-processor
- “Digital” process run-in
- Collision-tested NC program

TouchLine
- Context-sensitive information
- Machine-specific support
- User-guided operation

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ProtectLine
- Collision monitoring in all types of operation
- Preventative collision protection
- Safety during machining

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ConditionLine
- Customized monitoring and analysis of the machine condition
- Early detection of unusual operation behavior
- Customized degree of networking

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Training courses and Workshops
Ahead through qualification, because knowledge leads to success.

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
- Robot
- Customer-specific

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