Getting quickly from the blueprint to the finished workpiece?

SINUMERIK MDynamics: Milling expertise in a package for perfect surfaces.

Answers for industry.
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Precise machining, perfect surfaces and superior process reliability are the demands placed on the milling process chain. Particularly in tool- and moldmaking, the requirements for machining quality, cost-efficiency and speed are very high. But also in other sectors, the manufacturing process – from the first product idea to the finished workpiece – must be perfectly coordinated. And with SINUMERIK MDynamics, the new competence in milling, SINUMERIK is now even more technology-oriented.

Always by your side during the entire process

From simple workpieces that are programmed directly based on a sketch – through to complex workpieces that are created in the CAD/CAM system – SINUMERIK® supports the entire machining process: from the production planning to the setting up on the CNC, right through to the production. Siemens provides a uniform and very modern integrated system. It ranges from programming directly on the CNC resp. the creation of CAD/CAM data in NX CAM or other systems through to the processing of data in the SINUMERIK controller.

Which manufacturing strategy is used to get to the finished workpiece?

Different shapes and designs require different machining operations and the decision often has to be made as to which manufacturing strategy should be used: three axes, three plus two axes or five axes. Convex or concave free-form surfaces with symmetric curvatures are usually machined with three controlled axes. However, five axes are required for deep cavities or frequent changes of curvature. No matter whether three or five axes – SINUMERIK supports all machining strategies. The appropriate CNC equipment is always available no matter what the requirement.
SINUMERIK MDynamics – milling competence in a package

SINUMERIK MDynamics combines milling expertise, the powerful CNC hardware SINUMERIK, intelligent CNC functions and our unique CAD/CAM/CNC process chain into technology packages for three-axis and five-axis milling.

Powerful functions for every industry

SINUMERIK MDynamics guarantees perfect surfaces through Advanced Surface and thus innovative motion control and optimized NC data compression. With SINUMERIK Operate, SINUMERIK provides perfect usability and quick adaptation to workpiece, tool and program handling, optimal machining thanks to flexible programming and extremely short programming times. This provides excellent technological know-how and operator convenience in all sectors, no matter if you are in the automotive or aerospace industry, power generation, medical part manufacturing, if you are a JobShop or even a tool- and moldmaker. To achieve the best milling results with perfect workpiece surfaces, quality, precision and speed are required, and all of this with simple operation and a uniform process chain.
### Sectors/fields of application for milling applications

<table>
<thead>
<tr>
<th>Sectors/fields of application for milling applications</th>
<th>Renewable energies</th>
<th>Mold and die</th>
<th>JobShop</th>
<th>Medical</th>
<th>Aerospace</th>
<th>Automotive</th>
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<tr>
<td>Requirements in the applications</td>
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<tr>
<td>◾ Productivity</td>
<td>◾ Surface quality</td>
<td>◾ Flexibility</td>
<td>◾ Surface quality</td>
<td>◾ Speed</td>
<td>◾ Powerful CNC platform</td>
<td></td>
</tr>
<tr>
<td>◾ Surface quality</td>
<td>◾ Machining quality</td>
<td>◾ Usability</td>
<td>◾ Process reliability</td>
<td>◾ Productivity</td>
<td>◾ Speed</td>
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<tr>
<td>◾ Functionality</td>
<td>◾ Speed</td>
<td>◾ Process reliability</td>
<td>◾ Functualility</td>
<td>◾ Volume of metal removed by cutting</td>
<td>◾ Productivity</td>
<td></td>
</tr>
<tr>
<td>◾ Process reliability</td>
<td>◾ Usability</td>
<td>◾ Process reliability</td>
<td>◾ Process reliability</td>
<td>◾ Technological competence</td>
<td>◾ Cycle time</td>
<td></td>
</tr>
</tbody>
</table>

### Solution

- Powerful CNC platforms for best usability and time-optimized process sequences
- Competence in milling with SINUMERIK Mdynamos
- Surface quality not requiring refinishing through intelligent path control with Advanced Surface
- New user interface SINUMERIK Operate combines simple usability and functionality
- Special high-speed cutting (HSC) functions and milling cycles
- Innovative services for the networking of machines, program and tool data management or condition monitoring
- Getting quickly from the blueprint to the workpiece through the uniform CAD/CAM/CNC process chain
SINUMERIK MDynamics – made for perfect milling

Technology packages comprised of CNC hardware, intelligent CNC functions and CAD/CAM solutions for three-axis and five-axis milling machines are now available for CNCs with SINUMERIK MDynamics – in the compact and premium class.

SINUMERIK MDynamics – SINUMERIK 828D
CNC of the compact class for 3-axis and 3+2-axis machining

The SINUMERIK 828D integrates a technology package for three-axis milling machines and masters all the possible drilling and milling operations. Of course, also in arbitrary swiveled workpiece planes and on cylindrical workpieces.

SINUMERIK MDynamics – SINUMERIK 840D sl
CNC of the premium class for 3-axis, 3+2-axis and 5-axis machining

For the SINUMERIK 840D sl, you can choose between two SINUMERIK MDynamics technology packages – for three and five axes. According to your requirements, they can be expanded with further functions.

More information about the SINUMERIK CNCs is provided on Page 25 or at: www.siemens.com/sinumerik
### Functions in detail

<table>
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<th>SINUMERIK 828D</th>
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<td><strong>3-axis/3+2-axis machining</strong></td>
<td><strong>5-axis machining</strong></td>
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<tr>
<td>- Advanced Surface</td>
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<tr>
<td>- Additional user memory on user Compact Flash (CF) card</td>
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</tr>
<tr>
<td>- Spline interpolation</td>
<td>- Spline interpolation</td>
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<tr>
<td>- Transmit an peripheral surface transformation</td>
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</tr>
<tr>
<td>- Automatic measuring cycles</td>
<td>- Automatic measuring cycles</td>
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<tr>
<td>- 3-D simulation – simultaneous recording</td>
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<tr>
<td>- ShopMill/ShopTurn machining step programming</td>
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<tr>
<td>- Detection of residual material</td>
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<table>
<thead>
<tr>
<th>Optional functions</th>
<th>Optional functions</th>
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<tbody>
<tr>
<td>- Spline interpolation</td>
<td>- Kinematic measurement</td>
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<tr>
<td>- Transmit an peripheral surface transformation</td>
<td>- Volumetric compensation system (VCS)</td>
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<tr>
<td>- Automatic measuring cycles</td>
<td>- Volumetric compensation system (VCS)</td>
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<td>- 3-D simulation – simultaneous recording</td>
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<td>- Detection of residual material</td>
<td>-</td>
</tr>
<tr>
<td>- Extended operator functions</td>
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</table>

**NX CAM – SINUMERIK Advantage Program**
(More detailed information is provided on Page 23)
Please read more about SINUMERIK MDynamics on the following pages.
The intelligent path control – Advanced Surface

With its new, intelligent path control, Advanced Surface, SINUMERIK provides an optimal workpiece surface at a very high machining speed. The highest marks are achieved for surface quality, precision and machining speed. This enables the complete machining to be performed in only one machining operation – for a new level of productivity in the high-speed cutting of complex parts and free-form surfaces.

Perfect surface quality through reproducible results in adjacent milling paths

Very high machining speed through an improved velocity profile

Compressed rapid traverse movements G0 with corner rounding through optimized compressor and rapid traverse movement factor

When using the new path control, an optimized “look-ahead” function helps achieve perfect surface quality through reproducible results in adjacent milling paths, superior accuracy and increased speed. The new compressor that has also been optimized ensures exact contour precision and very high machining speeds. An intelligent jerk limitation puts less stress on the mechanical system of the machine. It enables smooth acceleration and deceleration during all dynamic responses and thus extends the service life of the machine.

A major advance is the automatic harmonization of the velocity profiles on adjacent milling paths through the CNC. It is also effective during the forward/backward line-by-line milling of contours and free-form surfaces and results in a higher surface quality – to be more precise: in perfect workpiece surfaces.
The new user interface
SINUMERIK Operate

The new operator and programming user interface,
SINUMERIK Operate, is now even clearer and more intuitive.
It combines the previous user interfaces into one uniform,
innovative operator and programming user interface and with it
the whole orchestra of functions for operating and programming.
The result: a uniform user interface for all new SINUMERIK controls.

Set up for ease-of-operation

The new SINUMERIK user interface is clearly arranged, can be operated intuitively and is equipped with a large number of new, powerful functions. This combines machining step programming and high-level language programming on one system user interface – and therefore ensures very fast, efficient and intuitive NC programming and production planning.

Whether turning or milling – the look and feel is the same

Intelligent SINUMERIK Operate functions provide simple assistance for the operator during the daily work – for example screenshots with the key combination CTRL+P. User-oriented is also the optimal display in modern Windows style. The new user interface SINUMERIK Operate has also set a new standard in usability in the area of graphic support. Animated Elements are a helpful function as they provide a graphically animated simulation of each machining step in advance. Practical tooltips facilitate the operation.

New: G0 Rapid traverse limitation with SINUMERIK Operate

The new “G0 Rapid traverse limitation” function integrated in SINUMERIK Operate increases the safety through a reduced feedrate via influencing the program when performing rapid traverse movements.
Extended setup functions

A machine is set up with the aid of clear and understandable graphical support. Through the use of animated elements, SINUMERIK CNC sets new standards in ease-of-operation and programming – also for technology cycles.

Extended setup functions

The setup of the machine and workpiece is facilitated through a large number of measuring functions. This includes self-explanatory icons on all soft-keys, which can be preconfigured as favorites. There are also intelligent functions available in JOG mode – for the tool and workpiece measurement and for touch trigger and nonswitching probes.

Measuring in JOG mode – workpiece setup for three-axis and five-axis machines
Edge alignment via two holes.

Measuring in JOG mode – workpiece setup for five-axis machines
Plane alignment via three measuring points with switching probes and two rotary axes.

Swiveling in JOG mode
Complex workpieces can be machined with simple and fast handling in one clamping. Different kinematic types can be set up easily. Swiveling can be performed axis-by-axis and directly including optional coordinate rotation.
Programming as required

SINUMERIK Operate provides unique programming methods for all fields of application. These include ShopMill/ShopTurn machining step programming, as well as the SINUMERIK higher-level language with programGUIDE. ISO code programming is also supported.

ShopMill/ShopTurn workstep programming

The ShopMill/ShopTurn workstep programming is the tailor-made programming solution for the machining of single parts and small batches.
In addition to programGUIDE, ShopMill provides the unique ShopMill/ShopTurn workstep programming for very short programming times.
- Clear display of machining steps without G-code knowledge
- Simple linking of technology functions with geometric elements
- Dynamic display of the workpiece during programming

Functions:

- User-friendly feature with graphical machining step editor
- Perfect input help via animated elements
- Dynamic broken-line graphics for complete workpiece and cycle screens
- Large selection of standard drilling and milling cycles
- Geometry computer facilitates the input of workpiece contours
- Cycles for contour milling with identification of residual material
- Powerful 3-D CNC simulation

Workstep programming
ShopMill/ShopTurn

- Very short programming times
- For single part and small series production
SINUMERIK high-level language with programGUIDE –
CNC programming for highest possible productivity

The SINUMERIK high-level language with programGUIDE has been developed for DIN/ISO G-code programming with advanced cycle support and ensures maximum flexibility and short machining times. Ideal for use with medium to large batch sizes. programGUIDE guarantees maximum productivity and flexibility in programming combined with innovative technology and machining cycles.

- CNC language with high-level programming commands
- programGUIDE with graphical cycle support screens including tooltip (context-related brief information)
- Online ISO dialect interpreter available

Functions:

- Fully flexible ASCII editor for CNC high-level language commands
- Perfect input help via Animated Elements
- Dynamic broken-line graphics for cycle screens
- Large selection of standard drilling, milling and turning cycles
- Contour calculator facilitates the input of workpiece contours
- Cycles for contour milling and turning with identification of residual material
- Powerful 3-D CNC simulation

- Maximum flexibility and very short machining times
- For medium to large batch sizes
Program handling and offsets with new features

The tool and workpiece offsets, the program management and file handling have also been optimized. The tool list has a configurable display. This can be operated intuitively thanks to context-dependent functions and self-explanatory icons. The work offset overview clearly displays all the relevant data so that everything can be seen at a glance.

Program management

- Subdirectories for workpieces on local disk drives
- Direct access to external storage media including network drives
- Part programs with plain text with maximum 24 characters
- Time savings through easy data transfer and simple program handling
- Quick program check through program preview
- Large programs can be easily edited in the NC memory or on external storage media, including program preview

Tool management

- Tool types displayed as icons
- Tooltips available (context-related brief information)
- Tool and magazine data on one screen including details
- Tool name as plain text or number with maximum 24 characters
- Efficient tool data management including all details and replacement tool handling

Work offset

- All active, settable and programmable work offsets listed on one screen
- Rotation, scaling and mirroring also as screens
- Display of the offset of the active swivel data record
SINUMERIK cycles help the user program workpieces even faster and more easily. Even in complex machining tasks, comprehensive machining steps can be solved quicker and easier through the use of innovative cycles – such as trochoidal milling and plunge cutting for cutting with low cutting pressure and little delay. A selection of possible technological cycles is provided in the following.

### Innovative technology cycles

#### Groove cutting

<table>
<thead>
<tr>
<th>Trochoidal milling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred high-speed cutting (HSC) strategy for the roughing of materials that are difficult to cut and the machining of grooves</td>
</tr>
<tr>
<td>Simple parameterization via dialog boxes: roughing, rough-finishing, finishing, bottom and edge finishing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plunge cutting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred strategy for the roughing and opening of deep grooves or cavities with long tools</td>
</tr>
<tr>
<td>Simple parameterization via dialog boxes: roughing, rough-finishing, finishing, bottom and edge finishing</td>
</tr>
</tbody>
</table>

#### Engraving cycle

- The SINUMERIK engraving cycle supports the input and programming of engraving directly on the machine
- Time savings for prototype production and small series
- Graphical support during engraving of arbitrary texts, date and time or quantity (serial number)

#### Multi-edge cycle

SINUMERIK cycles support the simple programming of standard geometries:
- Standard cycle for the milling of a polygon with an arbitrary number of edges and width across flats
- Graphical support for standard parts
Innovative technological cycles and functions

Whether in the 2-D range with the contour calculator, during high-speed cutting or in five-axis applications – SINUMERIK cycles help you get from the blueprint to the finished part even quicker.

“NEW” high-speed setting – CYCLE832

The SINUMERIK machining cycle for roughing/prefinish and finishing as simplified high-speed setting cycle for all milling applications, particularly in tool- and moldmaking, as well as in the aerospace industry.

Roughing Prefinish Finishing

Swivel cycle – CYCLE800

Complex workpieces can be easily programmed. This increases your productivity. Simple parameterization via dialog boxes: swivel modes – direct, axis-by-axis, angle of projection, solid angle.

Contour calculator – user defined contours and geometry programming

The SINUMERIK contour calculator supports the input and programming of any contour directly on the machine
- Up to 256 geometry elements
- Undefined elements can be calculated automatically
- Display can be scaled automatically
- Available in programGUIDE and ShopMill
- CAD reader: offline DXF converter available for the PC
Innovative compressor functionality

Through homogeneous transitions at the block boundaries, the innovative online compressor provides better results during three-axis and five-axis simultaneous milling.

3-D tool radius compensation CUT3DC – CUT3DF

SINUMERIK supports the handling and machining of complex workpieces, for example, during circumferential milling and face milling with tool radius compensation in five-axis applications.

Spline interpolation

ASPLINE/BSPLINE/CSPLINE with integrated NC functionality for high-level CAD/CAM programming commands.

SINUMERIK has powerful functions that greatly simplify the entire sequence of multi-axis programming and machining. These include, for example, tool center point programming – TRAORI.

Whether handling or machining complex workpieces, SINUMERIK supports all kinematics.

Innovative functions for five-axis machining with SINUMERIK 840D sl
Measuring cycles for process measuring

SINUMERIK supports you during measuring with a comprehensive range of practical cycles. With these measuring cycles, you can measure workpieces, tools and the kinematics in the process with graphical support.

Innovative measuring cycles for workpiece and tool measurement during automatic operation

SINUMERIK measuring cycles guarantee the quality of the produced parts through automatic measuring on the machine:
- Powerful cycles for automatic workpiece and tool measurement
- Automatic measuring cycle in programGUIDE and ShopMill
- Input screens with graphical support and automatic logging of the measurement results

Innovative measuring cycles with “Measure kinematics” – CYCLE996 (for SINUMERIK 840D sl)

The “Measure kinematics” cycle (CYCLE996) has been developed for the measurement of multi-axis kinematics. It is easy to use and does not require expensive measuring equipment. The measuring with the calibration ball is performed with a 3-D probe and the “Measure kinematics” cycle in three ball positions. The cycle can be called directly from the NC program. Compared to conventional measuring, this can save a great deal of time at a very high level of measuring accuracy.
CNC simulation: workpiece simulation for multiface machining

Increased safety through 3-D simulation with three-plane view and volume model of the finished part including simultaneous recording in automatic mode. Blank input possible, such as rectangle – tube – cylindrical spigot – polygon. The simulation speed can be controlled via softkeys: Single block mode / start / stop / zoom. The number of control possibilities increases due to the automatic calculation of the machining time.

With the five-axis workpiece simulation, SINUMERIK provides optimal help and safety for programming – with SINUMERIK 840D sl, during parallel machining.

Simulation offers a variety of different workpiece views. In this way, the programming can be checked immediately. During the running simulation, zooming can be performed individually and sections viewed – with SINUMERIK 840D sl also on swiveled planes and for five-axis simultaneous machining.

Simultaneous recording in automatic mode

Simultaneous recording of the machining process can be activated and displayed on request.
Cost-effective manufacturing of complex workpieces on multi-tasking machines

Complex workpieces require cost-effective manufacturing methods and innovative CNC solutions. The SINUMERIK CNC equipment supports multi-tasking machines when machining workpieces in one operation. SINUMERIK provides all functionalities required for machining components on one machining center – even when changing between different technologies. The user interface SINUMERIK Operate provides integrated turning functions for milling, milling functions for turning and supports B-axis kinematics as well as multitools, thus further improving the cost-effective manufacturing.

Operator-friendly solution for multi-channel machines

The display for several channels is one of the many functions provided for easy operation. During milling, the second channel can be used, for example, to control and display handling modules or the tool change. This increases the flexibility and cost-effectiveness in production.

With the programSYNC option, multi-channel machining can be synchronized simply and efficiently. Multi-channel machining can also be visualized through the use of the simulation with the SINUMERIK 840D sl. This way, multi-channel machining operations can be programmed even more efficiently:

- Creation of the structure of the part programs
- Filling of individual machining steps (blocks)
- Simulation of part programs
- Execution of trial part program runs (channel-by-channel or spindle-by-spindle)
- New block forming function – programSYNC including block forming option.

Convenient operation of highly complex multi-tasking machines

SINUMERIK provides innovative functionalities for the operation of multi-tasking machines, such as milling-turning machines. The programGUIDE provides extended turning cycles and the complete turning functionality is integrated in the milling environment through the graphic contour calculator for turning applications. The same functionality is also provided for milling on turning machines.
Efficient tool management

To ensure efficient tool data management including all details required, the SINUMERIK Operate is equipped with an extended tool management for milling, drilling and turning tools. All tool and magazine data, including details, are represented on one screen. Further, all tool parameters are provided for turning operations. All tool types including turning tools are concisely displayed as icons. The SINUMERIK also supports the use of highly complex tools such as multi-tools, which do not require tool change and increase the productivity in manufacturing, on multi-tasking machines.

Superior productivity and flexibility in programming

With programGUIDE, SINUMERIK Operate provides innovative functions for programming complex workpieces and provides superior productivity and flexibility thanks to innovative technology cycles, including turning.

Innovative functions for programming complex workpieces with programGUIDE

Kinematic cycle for B-axis
Orientation of the turning tool and coordinate system rotation for turning.
Well devised from A-to-Z: CAD/CAM/CNC process chain

In the production of milled parts with free-form surfaces, high quality demands are placed on precise machining, perfect surfaces and superior process reliability in high-speed cutting. Siemens provides comprehensive solutions for the complex tasks of the machine tool. Product Lifecycle Management. Other CAM systems, however, are perfectly supported by SINUMERIK, too.

Efficient processes with SINUMERIK

During workpiece production, special focus is placed on the workpiece-related process chain between the product idea and the finished part. This process chain encompasses
- The computer-supported product development at the CAD/CAM level
- The part program generation
- The optimization of the postprocessor, the NC program and the CNC parameters
- Online and offline simulation for monitoring and optimizing the manufacturing process on the PC
- The optimized, highly efficient workpiece machining on the machine tool

With NX, the CAD/CAM system for the entire design and manufacturing process, Siemens provides an open and flexible 3-D system. This concerns the development and design as well as the creation of drawings, simulation and manufacturing. NX enables 3-D and 2-D design in full, partial and nonparameterized form. The considerations that have to be made during the CAD design process concerning the manufacturing characteristics – for example locally required manufacturing precision, fits etc. – are recorded directly and assigned to the contours or components. This way, all the essential information is available at the CAM level for production planning and can be used by the software when generating the part program.
Optimized CAM output for SINUMERIK

A postprocessor generator is also available in NX CAM, which allows to easily generate a tailor-made postprocessor for the target machine tool. Not only the type and version of the SINUMERIK CNC are taken into account, but also the installed software version together with the options provided on the CNC and machine. The part program output by NX CAM via such a postprocessor therefore uses all the productivity increasing functions, cycles and options of the machine tool.

Another significant benefit provided includes the functions, cycles and options available on the CNC. These are already parameterized at the CAM level for the respective machining step (e.g. roughing, rough-finishing or smooth-finishing).

NX CAM – SINUMERIK Advantage Program

Machine users benefit from the SINUMERIK MDynamics in two ways. In addition to the cost-effective package price, a free NX CAM postprocessor is available with the NX CAM SINUMERIK Advantage Program for machines equipped with SINUMERIK. Customers receive an NX CAM voucher with this program that they can use when purchasing an NX CAM license. The Advantage Program also contains a SinuTrain 60-day trial license as well as the complete milling documentation (DocOnCD, five-axis or three-axis milling manual, Train-the-Trainer documentation). More information can be found online at: www.siemens.com/plm
Virtual NC kernel – element of the process chain

Programming errors are costly affairs. Therefore, the objective must be to detect errors as early as possible and reliably correct them before the start of the real production.

Siemens provides the “Virtual Machine” software package for machines equipped with SINUMERIK CNC systems. This includes the virtual NC kernel (VNCK) for a control image of the real control, the graphical simulation system (RealNC or NX CAM) for the metal removal and collision calculation as well as the original SINUMERIK Operate for the operation of the virtual controller and the machine.

Simulation with the “Virtual Machine” enables numerically controlled machining processes to be very realistically simulated on a PC. The use of the simulation reliably excludes programming errors and collisions. Setup times are reduced significantly.

The “Virtual Machine” provides a new perspective for the process optimization in production. Thanks to numerous benefits such as efficient programming, shorter setup times and a minimized error risk, the “Virtual Machine” opens up completely new dimensions for the simulation of production processes with regard to productivity.

More information can be found online at: www.siemens.com/plm
The SINUMERIK CNC family

The SINUMERIK system platform consists of various products that meet the different demands placed on machine tools: the SINUMERIK 828D for compact machines and the high-performance SINUMERIK 840D sl for sophisticated solutions.

Two powerful systems for milling

<table>
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<tr>
<th>Compact-class CNC SINUMERIK 828D</th>
<th>Premium-class CNC SINUMERIK 840D sl</th>
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</thead>
<tbody>
<tr>
<td><strong>Field of application</strong></td>
<td><strong>Field of application</strong></td>
</tr>
<tr>
<td>Compact, powerful and simple CNC system</td>
<td>Open, flexible and powerful CNC system</td>
</tr>
<tr>
<td><strong>Design</strong></td>
<td><strong>Design</strong></td>
</tr>
<tr>
<td>Compact panel CNC in horizontal and vertical operator panel layout</td>
<td>Modular, scalable CNC universal control</td>
</tr>
<tr>
<td>Available in two performance variants</td>
<td></td>
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<tr>
<td><strong>Configuration</strong></td>
<td><strong>Configuration</strong></td>
</tr>
<tr>
<td>Up to 6 axes/spindles in one machining channel</td>
<td>Up to 31 axes/spindles in 10 machining channels</td>
</tr>
<tr>
<td><strong>Field of application</strong></td>
<td><strong>Field of application</strong></td>
</tr>
<tr>
<td>3 axes and 3+2 axes</td>
<td>From 3 axes to 5 axes simultaneously</td>
</tr>
</tbody>
</table>

SINUMERIK – your benefits at a glance:

- Getting quickly from the CAD/CAM system to the workpiece through integrated solutions
- Cost-effective manufacturing with high-speed CNCs
- Powerful CNC system with dynamic drives and motors
- SINUMERIK MDynamics technology packages for best milling results
- Quick and easy to operate thanks to the new, intuitive user interface SINUMERIK Operate
- Greater cost-efficiency through special high-speed cutting (HSC) functions and milling cycles
- Simple and intelligent setup functions
- Easy-to-use, graphical programming and simulation
Global technology competence:  
Technology and Application Centers

Our Technology and Application Centers, also known as TACs, are important information centers and meeting places for machine tool builders and end users. They provide the opportunity to demonstrate customers and partners our systems, solutions and services within the framework of training courses and events. More information on the technologies and events presented at our TAC can be found online at: www.siemens.com/cnc4you

SinuTrain – practical CNC training

With SinuTrain, we have developed a realistic training system for the SINUMERIK CNC system. In addition to the traditional range of training courses and workshops, we also offer services such as online learning modules, learning software and technical books. Practical and perfectly matched to the respective training level, we offer basic courses, programming and operator training through to professional training – everything for successful personal learning. More information is provided online at: www.siemens.com/sinutrain

Documentation made easier

With DOConWEB, we have opened up a unique opportunity to search our documentation online, either with a plain text search, index search or via the table of contents. Individual documentation can also be compiled quickly, easily and for a specific requirement. Visit www.siemens.com/automation/doconweb for more information.

More information about milling

Siemens is the expert when it comes to milling.

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All you want to know about SINUMERIK CNC equipment:  
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