Milling on standardized machines – SINUMERIK 828D and SINUMERIK 828D BASIC M are setting the benchmark with their unique CNC performance.

Rugged hardware architecture and intelligent control algorithms – coupled with premium drive and motor technology – ensure the highest degree of dynamic performance and precision when machining. The intuitive SINUMERIK Operate user interface facilitates efficient machine operation. With a convincing performance, SINUMERIK 828D and SINUMERIK 828D BASIC M master all of the challenges for standardized milling machines. They are supplemented by a range of solutions for IT integration.

**Highlights**

- Compact, rugged and maintenance-free panel CNC
- Highest machining precision with 80-bit NANO° accuracy
- Intelligent kinematic transformations for machining cylindrical workpieces and in swiveled workpiece planes
- SINUMERIK MDynamics technology package with the Advanced Surface function: perfect workpiece surfaces and shortest machining times for mold making
- Interactive input based on Animated Elements
- Transparent tool management
- programGUIDE for the shortest machining times for large series production
- ShopMill machining step programming for the shortest programming time for small series production and individual parts
- CNC simulation to ensure process reliability
- Extensive package of technology cycles – including residual material detection and in-process measurement
- Auto Servo Tuning (AST) for optimization at the press of a button
- Easy Message guarantees maximum availability by monitoring the process with SMS text messages sent to your cell phone
- Even simpler planning and execution of cyclic maintenance work with the onboard maintenance planner
- SINUMERIK Operate user interface available in over 23 languages

**SINUMERIK 828D and SINUMERIK 828D BASIC M**

The compact CNCs for standardized milling machines

- **PPU 240.2/241.2**
  - 10,4" PPU
  - 1 machining channel
  - Min. block change time ~ 3 ms
  - 80 tools, 160 cutting edges
  - 1 Mbyte user memory

- **PPU 260.2/261.2**
  - 10,4" PPU
  - 1 machining channel
  - Min. block change time ~ 2 ms
  - 128 tools, 256 cutting edges
  - 2 Mbyte user memory

- **PPU 280.2/281.2**
  - 10,4" PPU
  - 1 machining channel
  - Min. block change time ~ 1 ms
  - 128 tools, 256 cutting edges
  - 3 Mbyte user memory

- **PPU 284.2/285.2**
  - 8,4" PPU
  - 1 machining channel
  - Min. block change time ~ 3 ms
  - 80 tools, 160 cutting edges
  - 1 Mbyte user memory

- **PPU 284.2/285.2**
  - 8,4" PPU
  - 1 machining channel
  - Min. block change time ~ 3 ms
  - 80 tools, 160 cutting edges
  - 1 Mbyte user memory

**Performance**

- Up to 6 axes / spindles
- 1 machining channel
- Min. block change time ~ 1 ms
- 256 tools, 512 cutting edges
- 5 Mbyte user memory

- Up to 6 axes / spindles
- 1 machining channel
- Min. block change time ~ 2 ms
- 128 tools, 256 cutting edges
- 2 Mbyte user memory

- Up to 6 axes / spindles
- 1 machining channel
- Min. block change time ~ 3 ms
- 80 tools, 160 cutting edges
- 1 Mbyte user memory
## Technical data

<table>
<thead>
<tr>
<th>SINUMERIK 828D BASIC</th>
<th>SINUMERIK 828D</th>
</tr>
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<tbody>
<tr>
<td><strong>Configuration</strong></td>
<td>PPU24x</td>
</tr>
<tr>
<td>Operation with SINAMICS S120 Combi, S120 Booksize</td>
<td>●</td>
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<tr>
<td>Maximum number of axes/spindles</td>
<td>5</td>
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<tr>
<td>CNC user memory up to</td>
<td>1 MB</td>
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<tr>
<td>Additional CNC user memory on CF card/USB stick</td>
<td>●</td>
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<tr>
<td>Minimum block change time</td>
<td>~3 ms</td>
</tr>
<tr>
<td>Current/speed controller cycle, e.g. for high-speed spindles</td>
<td>125 µs / 62.5 µs</td>
</tr>
<tr>
<td>Display size (TFT color displays)</td>
<td>8.4&quot;</td>
</tr>
<tr>
<td>PLC adaptation control</td>
<td>S7-200-based</td>
</tr>
</tbody>
</table>

### Axis functions
- Travel to fixed stop with Force Control
- Acceleration with jerk limitation, dynamic precontrol
- Dynamic Servo Control in the drive

### Interpolation
- Interpolating axes, up to
- Straight line, circle, helix, splines, polynomials, involutes
- Advanced Surface, compressor
- Look Ahead, number of blocks

### Transformations
- Face/Peripheral surface transformation TRANSmit
- Multi-side machining (3+2 axis machining)

### SINUMERIK synchronous architecture
- Synchronous motion actions
- Asynchronous subprograms ASUB

### Compensations
- Compensation of measuring system and spindle pitch (bidirectional)
- Temperature compensation, sag compensation
- Additional compensations (cogging torques, etc.)

### Tools/tool management
- Number of tools/cutting edges in the tool list, up to
- Unit quantity/tool life monitoring with replacement tool management

### CNC operation
- SINUMERIK Operate
- Animated Elements
- SimuTrain training and offline programming tool

### CNC programming
- SINUMERIK CNC programming language with high-level language elements
- Online ISO dialect interpreter
- programGUIDE (technology cycle support)
- Technology cycles for drilling, milling and turning
- Cycles for in-process measurements (with cycle support) (tool probe calibration, workpiece measurement, tool measurement)
- ShopMill/ShopTurn machining step programming
- 3D CNC simulation for turning/milling
- Simulation parallel to the main machining time (simulation of program X, while program Y is being executed)
- Additional functions to increase machine performance (residual material detection, multiple clamping, contour processor, etc.)

### Onboard optimization and diagnostics
- Context-sensitive onboard help system
- Onboard servo and drive optimization (AST)
- Onboard signal, bus and network diagnostics

### IT integration
- Standard data transfer
- RS232C/CF card/USB/Ethernet
- SINUMERIK Integrate (Access MyMachine)
- SINUMERIK Safety Integrated (drive-based)
- Openness in the user interface
- SINUMERIK Integrate Run MyScreens (OA EasyScreen)
- SINUMERIK Ctrl-Energy
- Ctrl-E Analysis (determining the energy usage of the machine)
- Ctrl-E Profile (energy management of the machine in non-productive times)
- Automatic reactive current compensation (with Active Line Module)
- Automatic flux reduction for induction spindle motors

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