SpeedLine
ABC

Production turning machine
More dynamics, less setup – unsurpassed power density

For machining simple to highly complex parts in small to large lot sizes, the INDEX ABC with a Siemens S840D sl or Fanuc 31i-B control always provides for economic and productive solutions.

The production turning machine INDEX ABC produces for you simple automatic turned parts just as well as complex CNC turned parts. You work with high flexibility, deliver best quality and produce economically. The possibilities are almost unlimited. The technical equipment is designed to meet your needs: There are up to 19 tools available with which you can completely produce your workpieces on one machine.

**Your benefits:**
- compact design and high performance with unrivalled low space requirements
- spindle clearance: up to 65 mm
- reduced cycle time through a highly dynamic work spindle and simultaneous machining with up to 3 tools
- live tools can be used on all tool holders
- up to 5 reverse side machining stations
- easy to set up thanks to very good accessibility with INDEX W-serration
- polygon turning possible also in steel

For machining simple to highly complex parts in small to large lot sizes, the INDEX ABC with a Siemens S840D sl or Fanuc 31i-B control always provides for economic and productive solutions.
More dynamics, less setup – unsurpassed power density
The INDEX ABC has 2 tool turrets with 14 tool mountings. An upper turret with 7 tool stations plus a fixed station for mounting a synchronous spindle (for chuck or collet clamping) and a lower turret with additional 6 tool mountings. Plus five back-boring stations (of which 2 are live) for cutoff-end machining. Optional polygon turning unit up to size 24 also in steel.

Complete machining
With 5 back-boring stations (of which 2 are live), workpieces can be machined also on the cutoff end.
Technology with impressive results
The power density

Motorized spindle
High-torque hollow-shaft synchronous motor with patented headstock air cooling. It delivers 20 kW of power at 100%. A low air over-pressure in the headstock prevents ingress of emulsion; rotor, end windings and stator are cooled directly. Short acceleration times, no mechanical transmission elements, low rotating masses, maximum smoothness, high torsional stiffness.

Synchronous spindle
With collet clamping up to 42 mm or with 90 mm chuck diameter also for internal clamping. Max. speed 4,500 rpm. The synchronous spindle is equipped with an alignment and indexing unit as standard.

Productivity:
CuZn39Pb3 F37 ø 49 x 33 mm
Siemens 840C 102 s
Siemens 840D 93 s
Siemens 840D sl 87 s

Part production times are valid for only this specified part.

More machines in a production line
An investment that pays for itself

No matter what you produce — the ABC is the solution for all your manufacturing tasks. Regardless of whether you produce classic or demanding automatic turned parts. Whether you perform complex CNC turning or simple reworking.

Your benefits when using an ABC: You turn complex workpieces in one cycle. You save throughput and setup times. The ABC allows you to produce even small batch sizes economically. You increase your production reliability.

Precision in automatic turning

A large variety of machining options for a wide range of parts

- **9SMnPb28K**
  - Size: 17 x 45 mm
  - Time: **45 s**

- **ETG 100**
  - Size: 26 x 33 mm
  - Time: **63 s**

- **X10CrNiS1810**
  - Size: 25.8 x 64.3 mm
  - Time: **71 s**

- **CuZn39Pb3**
  - Size: 19 x 29 mm
  - Time: **16 s**

**SpeedLine ABC**
Automation and additional equipment

The ABC comes with an interface for bar loading magazines as standard.
- By attaching a loading magazine INDEX LMI, you gain up to 4 s for bar feeding in connection with the bar feeder.
- Attaching the loading magazine INDEX MBL provides for maximum smoothness and accuracy due to the unique guiding principle.
- The interface also allows attaching common third-party makes.

Reduce your unit costs
You need another machining station for the production of threads and polygons? The ABC can be equipped with an auxiliary drive. This allows you to realize threads and polygons in brass, aluminum, steel and free machining steels using common methods in a minimum of time.

Automated workpiece handling
The removal unit moves the finished turned parts to a conveyor belt, while the next part is being machined. The bar remnant is carried away separately.
The control INDEX C200-4D sl: New – Fast – Optimal

New
The control concept of the INDEX ABC-sl consistently relies on the new SIEMENS S840D sl (solution line) control and the new generation SIEMENS SINAMICS drive. This ensures a future-proof investment: the user gets the latest generation of control technology that supports any type of application. Also the use of Virtual Line for programming support (VPro) or simulation (VM) is now easily possible directly on the control screen! This reduce time and cost!

Fast
The consistent use of the performance-enhanced S840D solution line control provides uncompromising short execution times for all types of machining operations. At the same time, NC servo drives in both turrets allow shortest retooling and chip-to-chip times. Also the new main spindle drive featuring state-of-the-art synchronous motor technology is not only more energy-efficient, but contributes with markedly reduced acceleration and deceleration times to the significantly increased productivity of the ABC-sl.

Optimal
The new INDEX C200-sl control, enhanced by INDEX with intelligent machine functions, optimally supports simultaneous machining operations with multiple tool carriers. For example, the new control facilitates also directly the loading of new workpieces – if required also separate by subsystems. In combination with INDEX machine cycles, this creates optimized machining processes in minimal time – a truly added value of the machine. This is all inclusive machining efficiency!

Complete
All INDEX ABC-sl machines come with extensive control equipment: TRANSMIT (front side) and TRACYL (peripheral surfaces) machining operations are included. Milling and drilling operations – also off-center – are easily programmed and executed in the X/Y or Y/Z plane. INDEX ABC-sl with the new C200-sl control – automatic bar lathe and turning center in one – complete from the factory!

Advanced
- The latest editor for easy and fast programming
- Convenient display functions such as multi-editor, animated cycles, etc.
- Programming of mathematical functions, variables and workpiece counts
- The same functionality for turning, milling, drilling
- Easy network integration through control-integrated network technology
- Intelligent online help, detailed descriptions of error causes and remedies
- More than 20 foreign languages

Efficient
- Positions and movements of all axes and spindles in the home screen (INDEX)
- Largely unchanged machine operation and key arrangement (INDEX)
- Practical machine cycles for safe and collision-free machine operation
- Supported re-entry after program termination
- Internal calculation accuracy better than nano-interpolation (80 bit floating point arithmetic)
- All displays and operating inputs in clear text

Productive
- The latest generation of control for maximum quality and productivity
- Comprehensive technology cycles for error-free and optimal machining quality
- Fast and safe job change with automatic saving of setup data and automatic re-initialization at (re-)selection of the job
- INDEX Virtual Machine & VPro programming studio for programming, setup, optimizing on a PC (option) or on the machine control panel (option)

Safe
- Safe machine start by start requirements and guided return to the machine home position
- Direct access to tool offsets, program parameters, etc. via individual keys
- Supported machine operation through backlighting of active control buttons
- Safety Integrated Inside: Continuous safety monitoring and testing integrated in the control
- INDEX tool breakage monitoring available (option)
The control FANUC 31i: Powerful and proven

FANUC Control 31i-
Model B – the future-proof standard control.
All advantages at a glance:
• Control of the latest FANUC series (30-Series, Model B)
• FANUC control panel with CNC keyboard and 10.4" TFT color display
• Original FANUC machine control panel with axis and spindle override
• Electronic handwheel integrated in machine control panel (standard)

Memory for 1000 part programs or more
File system with 3 levels (folders) for structured program storage
USB interface and CARD reader at the control panel
Advanced operator safety by FANUC Dual Check Safety

INDEX enhancements and additions
• Individual keys on the control panel with direct access to the following functions:
  - Turret indexing / Single station (CCW/CW)
  - Setup / Production (key switch removable in “Production” position) removable)
  - Cycle Start / Cycle Stop
  - Consent function
  - Open workpiece clamping
• INDEX-specific enhancements of the user interface for easier machine operation, program and parameter input, machine monitoring
• Sensorless tool monitoring based on motor current
• Freely programmable interface for adjusting external (automation) devices to the machine (e.g., handling system)

Programming
• Text editor with Insert, Overwrite, Find, Replace, Copy, and Delete functions
• Annotating NC programs
• NC program numbers or NC program names
• Up to 3 M functions possible per NC block
• Dwell time in seconds
• Conditional or unconditional program branching
• Arithmetic and trigonometric computing operations
• Parameter calculation and reading/loading of system data

Technology
• Standard cycles for turning and milling
• Cutting longitudinal, transverse and tapered threads with constant or variable pitch
• Threading without compensating chuck (up to \( n_{\text{max}} = 2000 \text{ rpm} \))
• TRANSMIT and cylinder surface interpolation
• Oriented spindle stop
• Minimum input/output unit 0.0001 mm or 0.00001”
• Handwheel-controlled travel movements

Program input/output
• Program input via control keyboard
• USB port
• Memory card
• ETHERNET-interface
• Input switchable between metric/inch for
  - Program entry
  - Programmed travel movements
  - Tool offsets
  - Screen display
• Two-channel program display and two-channel editor (depending on machine equipment level)

Production
• Absolute measuring systems in all axes, i.e. no referencing required
• Electronic tool offset in X, Z
• Total number-of-parts counter
• Counter for setting the order batch size
• Tool breakage monitoring (option)
# Technical data

<table>
<thead>
<tr>
<th></th>
<th>SIEMENS</th>
<th>FANUC</th>
</tr>
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<tbody>
<tr>
<td><strong>Main spindle</strong></td>
<td></td>
<td></td>
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<tr>
<td>Bar capacity</td>
<td>mm 65</td>
<td>mm 60</td>
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<tr>
<td>Bar feed max.</td>
<td>mm 80</td>
<td>mm 80</td>
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<tr>
<td>Speed</td>
<td>rpm 6000</td>
<td>rpm 6000</td>
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<tr>
<td>Acceleration time (0 - 5000 rpm)</td>
<td>sec. approx. 1.2</td>
<td>approx. 1.2</td>
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<tr>
<td>Power at 100% / 40%</td>
<td>kW 20 / 27</td>
<td>kW 20 / 29</td>
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<tr>
<td>Torque at 100% / 40%</td>
<td>Nm 105 / 145</td>
<td>Nm 105 / 145</td>
</tr>
<tr>
<td>Option: C-axis / aligning and indexing unit (pitch angle 2.5°)</td>
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</table>

<table>
<thead>
<tr>
<th><strong>Turret 1</strong></th>
<th>X-axis</th>
<th>Z-axis</th>
<th>X-axis</th>
<th>Z-axis</th>
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<tbody>
<tr>
<td>Number of stations</td>
<td>8 (7 + synchronous spindle)</td>
<td>8 (7 + synchronous spindle)</td>
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</tr>
<tr>
<td>Tooling system DIN 69880</td>
<td>mm 25</td>
<td>mm 25</td>
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<tr>
<td>Slide travels</td>
<td>mm 90</td>
<td>mm 280</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feed forces</td>
<td>N 5500</td>
<td>N 5500</td>
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<td></td>
</tr>
<tr>
<td>Rapid traverse rate</td>
<td>m/min 27</td>
<td>m/min 36</td>
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<tr>
<td>Acceleration</td>
<td>m/s² 6</td>
<td>m/s² 6</td>
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<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>mm 0.0005</td>
<td>mm 0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option: Tool drive unit for all stations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td>rpm 6000</td>
<td>rpm 6000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power at 25%</td>
<td>kW 4.2</td>
<td>kW 4.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Torque at 25%</td>
<td>Nm 10</td>
<td>Nm 10</td>
<td></td>
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</table>

**Synchronous spindle**

<p>| | |</p>
<table>
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<tbody>
<tr>
<td>Speed</td>
<td>rpm 4500</td>
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<tr>
<td>Power at 25%</td>
<td>kW 4.2</td>
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<tr>
<td>Torque at 25%</td>
<td>Nm 10</td>
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<tr>
<td>Alignment and indexing unit (pitch angle 7.5°) / hydraulic ejecting and flushing unit (ejector stroke 42 mm)</td>
<td></td>
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</table>

**Back-boring stations**

<p>| | |</p>
<table>
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<tbody>
<tr>
<td>Number</td>
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<td>2</td>
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<td>Power at 25%</td>
<td>kW 4.5</td>
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<td>Torque at 25%</td>
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**Turret 2**

<table>
<thead>
<tr>
<th></th>
<th>X-axis</th>
<th>Z-axis</th>
<th>X-axis</th>
<th>Z-axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of tools</td>
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<td>6</td>
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<tr>
<td>Tooling system dovetail mounting with parallel shank</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slide travels</td>
<td>mm 81</td>
<td>mm 80</td>
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</tr>
<tr>
<td>Feed forces</td>
<td>N 8300</td>
<td>N 5500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rapid traverse rate</td>
<td>m/min 27</td>
<td>m/min 36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acceleration</td>
<td>m/s² 6</td>
<td>m/s² 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>mm 0.0005</td>
<td>mm 0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tool drive unit for all stations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td>rpm 6000</td>
<td>rpm 6000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power at 25%</td>
<td>kW 4.2</td>
<td>kW 4.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Torque at 25%</td>
<td>Nm 10</td>
<td>Nm 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option: Thread cutting unit, polygon turning unit (simultaneously mountable to a max. of 2 stations)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Speed</td>
<td>rpm 6000</td>
<td>rpm 6000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power at 25%</td>
<td>kW 5.2</td>
<td>kW 6.9</td>
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</table>

**Weights and connecting values with max. configuration**

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Mass</td>
<td>approx. kg 2500</td>
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<tr>
<td>Electrical connection</td>
<td>12-34 kW, 15-43 kV, 25-80 A, 400 V, 50 / 60 Hz</td>
</tr>
<tr>
<td>Control</td>
<td>INDEX C200-4D (based on Siemens S840D sl)</td>
</tr>
</tbody>
</table>