Siemens solutions and services for the machine tool industry

IMTS 2016
It’s an exciting time—and the world is changing. You hear all the talk and read all the news in the trade magazines about Industrie 4.0, the Internet of Things, Big Data and additive manufacturing. At Siemens, we see these evolutions in product manufacturing and data communications as elements of what we call the new digital factory. Digitalization starts with the CAD program, the essence of design in today’s fast-paced machine tool world. From there, the CAM program translates the digital data into a step-by-step set of instructions for the machine to make the part. In production, the CNC executes those steps by driving the machine’s motion control, cutting or additive operations and part articulation, often with the help of robotics, to produce the end product.

During this process, all the data being generated can flow from the shopfloor to the top floor or your production manager’s office in ways unimagined, just 20 years ago. New communications platforms are impacting every aspect of the production scenario, often now with our PLM software doing real-time analysis of performance on the machines, quality monitoring and, still the most important facet of any operation, the personnel. The digital factory comes alive.

This journey requires manufacturers to rethink how they work, along with an investment in people with new skills, as well as machines and software to make everything happen. Siemens is committed to helping you realize a return on that investment through the products, services and especially the services we offer.

A tour of our booth E-4502 will introduce you to the latest technologies in our SINUMERIK CNC family, as we enter the age where the machine tool control strategies play a vital role in that digital factory. Think of the control as a two-way messenger. Data flows from the factory floor up to the point cloud for comparison of part data to the CAD file, while the CNC can simultaneously execute real-time changes to a program in progress. Siemens offers a comprehensive range of CNC for the smallest job shop to the largest production department in every segment of the industry, from tool-and-die and mold-making to primary automotive, aerospace and medical part manufacturing.

As you continue through our booth, machine operators will enjoy our SinuTrain demonstration, where you can actually become a better machinist in 30 minutes. Programmers will also benefit from the new technologies and techniques we’ll display. Education, I want to emphasize, is a key element in the transition of any manufacturing operation into a digital factory. Current and future employees need new and very different training to be effective—and Siemens is ready to help.
We'll be showing our new additive manufacturing technologies for the first time in America at this year’s IMTS, so make a point to stop there. Likewise, explore the many hardware and software stations in the booth, which will highlight various motors, drives, robotic integration strategies, shopfloor management programs, data analytics and our industry cloud display.

For the personal touch, we’ll have our Engineering Bar open throughout the show, so you can ask those tough questions of a Siemens engineer, who’ll give you many new insights and techniques to apply on the job.

We’ll also have partner machines from EMCO, Fryer, Romi and Detroit Machine Tools running in our booth, so you can see our many technologies in action. A friend of mine in the gear business always reminds us, “Nothing happens until somebody makes something.” That simple yet elegant statement reminds us all of the value manufacturing and advanced technologies bring to a society. You’re part of that process and we welcome you to stop by our booth and see all the ways we can help you achieve success. Siemens is proud to partner with the American manufacturing community.

Sascha Fischer
Business Segment Manager
Motion Control Business
Machine Tool Systems
Siemens Industry, Inc.
Siemens solutions and services

Siemens offers you more innovation, more standard product options, more integration expertise and ongoing support. With our cost-effective solutions for every industry, we give you more ways to keep your productivity in motion.

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Solutions for the job shop

With SINUMERIK CNC, your shopfloor will gain greater flexibility while experiencing better accuracy, excellent precision and outstanding performance. It’s easy-to-program, easy-to-use.

Communication across every level

SINUMERIK CNC for the shopfloor is the ideal solution for every facet of turning and milling. Handling is amazingly simple: all programming for turning, milling and drilling is done right on the shopfloor. This makes it possible to achieve a great deal very quickly and with little overhead.

No wonder that our ShopMill and ShopTurn software suites are virtually indispensable in modern-day production plants of all sizes. Their high level of functionality is based on input from the world’s leading machine manufacturers. Shared features of the “Job Shop Suite” software include:

Easy on-screen programming
Desired parameters are swiftly entered into each input field, moving logically from one machining block to the next. For total flexibility, the machining sequence can be changed at any point during or after part programming.

Graphically-supported programming
By following a sequence of on-screen prompts, the graphical support program guides the operator from setup through dry run simulation. Help displays are present every step of the way to further maximize production time.
ShopMill for milling

ShopMill milling and drilling software enables CNC operators to achieve peak productivity, with minimum training, on three, four or five-axis machining centers. No intensive G-code training is needed because ShopMill features simple step-by-step programming using on-screen graphics of the workpiece and the tool paths. At the same time, ShopMill users can switch between graphical and G-code programming with the touch of a single keystroke.

ShopTurn for turning

ShopTurn makes the production of machining plans easy for skilled workers — even for those who do not have NC programming knowledge. When dimensions are missing, the software features a high-performance contour calculator to compute up to 50 undefined contour elements and their transitions.
Solutions for the aerospace industry

SINUMERIK offers the aerospace industry innovative high-speed and five-axis features like TRAORI, NURBS and Spline Interpolation to boost productivity on the manufacturing floor without compromising precision or surface finish.

CNC technology for aerospace

The aviation industry is constantly demanding lighter, faster, higher, farther. With SINUMERIK CNC technology, you can make use of a potential that “takes off” on every project. Competition within the world of aerospace manufacturing requires a combination of technology, quality, proven reliability and speed. The SINUMERIK 840D sl continues to be the first choice for aerospace part manufacturing.

High speed cutting — precision, speed and high surface finish

We have developed special tools to achieve the best surface finishes on a reliable basis. These allow optimization of your entire sequence of processes, from CAM-generated sub-programs all the way to the tool’s surface.

SINUMERIK — five-axis machining of aircraft components

It’s not surprising that the SINUMERIK 840D has been the first choice in aerospace part manufacturing for many years — especially when there is a need for five-axis machining.

Special functions that have been implemented to make your five-axis machining simple and convenient include:

- Five-axis transformation
- Orientation interpolation
- Special machine kinematics
- High-performance 3-D tool correction
- Manual five-axis functions
The open architecture of the SINUMERIK 840D sl is ideal for the integration of sophisticated five-axis functionality demanded by aerospace manufacturers. The control offers aerospace end-users innovative high-speed features like NURBS and Spline Interpolation to boost productivity without compromising precision or surface finish.

These unique features of the 840D sl provide increased productivity on the manufacturing floor, especially during the challenging segments of high-velocity and five-axis machining.
Your production line on the road to success

TRANSLINE from Siemens can be implemented into any factory environment and integrates diverse metal cutting technologies such as milling, turning, drilling and grinding under a common system architecture.

Today’s investment decisions regarding mass production as well as traditional aspects such as efficiency, longevity and price have lost their impact. Today, a strong emphasis is placed on maximized availability and minimized cost.

Let’s talk about your production goals

TRANSLINE helps automotive powertrain customers increase their productivity while reducing machine downtime thus providing greater efficiency and a faster time-to-market. TRANSLINE solution line includes comprehensive project management support for automotive customers and machine tool builders along with a complete set of hardware and software tools for high-volume production equipment.

The system is designed with you in mind:

- Transfer lines
- Flexible production lines
- Assembly lines
- Special-purpose machines
- Machining centers, standard CNC machines and grinding machines
- Loaders/loading gantries
The face for mass production
Based upon SINUMERIK CNC and SIMATIC PLC, TRANSLINE uses common hardware and software components. Not only will you benefit from faster start-up times, but also better equipment serviceability and increased productivity.

The complete set of hardware and software tools includes:
- Machine controls (NC and PLC)
- Motors and drives
- Networks
- Engineering and HMI software tools
- Plant infrastructure interfaces

One common PLC programming tool and common programming standards are used for all applications. This allows for very efficient training of maintenance and service personnel. These features, and more, will greatly enhance the productivity of your investment.

Modular hardware and software provides users with opportunities to implement new technology, reduce spare parts inventory and reduce overall commissioning, training and maintenance costs.

TRANSLINE proves its value in thousands of production lines everyday.
Solutions for medical part manufacturing

Whenever there is a need for five-axis machining, the SINUMERIK 840D sl is first-choice in medical part manufacturing.

SINUMERIK is the right prescription

Competition within the world of medical part manufacturing requires a combination of technology, proven reliability and speed. The SINUMERIK 840D sl has productivity-enhancing features such as cutting-edge precision, performance and innovation that give machines the best that today’s CNC technology has to offer: faster machining speeds, shorter setup times and downtimes, and improved surface finish right from the start.

SINUMERIK — five-axis machining of medical parts

It’s not surprising that the SINUMERIK 840D sl has been the first choice in medical manufacturing for many years — especially when there is a need for five-axis machining.

Special functions that have been implemented to make your five-axis machining simple and convenient include:

- Five-axis transformation
- Orientation interpolation
- Special machine kinematics
- High-performance 3-D tool correction
- Manual five-axis functions
The open architecture of the SINUMERIK 840D sl is ideally suited for the sophisticated five-axis functionality demanded by the medical industry. The control offers innovative high-speed features that boost productivity without compromising, accuracy, precision or surface finish. These unique features of the 840D sl provide increased productivity on the manufacturing floor, giving users an edge on the competition.
Solutions for power generation

With five-axis machining of structural components, up to 90 percent of raw material can be removed. These extremely high metal removal rates can only be achieved by using SINUMERIK CNC and SINAMICS drives.

SINUMERIK is the control of choice

Thanks to its integrated technology functions, SINUMERIK has become the control of choice in the power generation industry.

When it comes to the machining of high-quality turbine parts, the 840D sl is the ideal control for five-axis transformation, special milling cycles, programming support with orientation interpolation, manual five-axis functionality and high-performance 3-D correction. Through its graphical user interface, SINUMERIK Operate, and SINUMERIK MDynamics milling technology packages, you have complete five-axis machining expertise.

Wind power

Wind turbines are not only becoming ever more efficient, but also ever larger. This means they are subject to enormous loading and performance demands.

The precision and the surface quality of the installed gear wheel components, not only for the gearboxes and the rotor blade pitch control systems, but also for the hub and drive shafts, is of great importance for the use of such plants and helps ensure the safe operation.

The 3-axis / 5-axis milling, turning, grinding and gear-wheel machining technologies are used in the production of these parts.

Hydropower

Hydropower is power that is derived from the force or energy of moving water. Various turbine designs use the force of moving water to generate electricity. The production of blade turbines must take into account the exact water compression and the angle of impact. The machining technologies used for the production of these types of turbines are 3-axis / 5-axis milling, grinding and thermal coating.
Gas and steam power
Power generation with steam and gas turbines places enormous loads on components. Temperatures as high as 600 degrees Celsius, pressures as high as 300 bar and speeds of 3,000 rpm can be attained for steam turbines. This means reliable and fault-free machining for the milling, grinding and teeth machining of gear components is required.

Solar power
Photovoltaic modules convert sunlight directly into electrical current. First, silicon blocks must be grounded. Then wafers for the photovoltaic modules are cut from these blocks.

Solar thermal power plants utilize the heat of the sun to drive steam turbines. The highest manufacturing precision is required for the production of components. The SINUMERIK 840D sl is used for surface and chamfer grinding, laser cutting of mirror curvatures and metal-cutting.
Solutions for mold-and-die

Combine milling expertise with SINUMERIK CNC and the unique CAD/CAM/CNC process chain and you have technology packages for three-axis and five-axis milling.

SINUMERIK MDynamics—go from the blueprint to the finished part

Precise machining and perfect surface finishes are just two of the demands made on the milling process chain. Especially in tool- and mold-making, the requirements for machining quality, speed and cost-efficiency are very high.

By using SINUMERIK 840D sl or SINUMERIK 828D, you benefit from:

- Integrated solutions that quickly take you from the CAD / CAM system to the finished part
- Graphical-based programming and simulation
- Simple and comprehensive setup functions
- Special tool- and mold-making functions, as well as milling cycles
- Time-optimized process sequences through high-speed CNC
- Surface quality that does not require refinishing

Always by your side during the entire process

From simple workpieces that are programmed directly on the machine based upon a sketch, all the way through to complex workpieces that are created in CAD / CAM systems, SINUMERIK CNCs support the entire process chain.

Advanced Surface and Top Surface — the intelligent path control

Top Surface optimizes CAM data for the subsequent SINUMERIK path control leading to better workpiece surface finishes. Advanced Surface has an optimized “Look Ahead” algorithm that leads to perfect workpiece surface quality through identical results in adjacent milling paths.
Whether you’re using our flagship CNC, the SINUMERIK 840D sl, or the mid-range SINUMERIK 828D, you have the advantage to use a three-axis milling machine to cut free-form parts — and complex molds can be cut quickly and precisely on a compact-class machine tool.
Siemens is your partner for industrialization

Currently, we are the only provider of a complete software and automation solution for entire additive manufacturing value-added chain—from product development to the automation of 3D printers, right through to production.

For machine automation, we offer a scalable product portfolio from the SINUMERIK, SINAMICS, SIMOTION and SIMATIC product families—a hardware platform optimized for motion control and relevant manufacturing processes. Thanks to our comprehensive portfolio for the automation and digitalization of manufacturing processes, Siemens has the expertise required to promote the industrialization of additive manufacturing. We rely on our comprehensive user expertise and research knowledge that we pool and develop in our own laboratories around the globe.

Additive manufacturing is a powerful lever for classic market requirements

Reduce time-to-market—virtually linking design and production, engineering data can be generated on the fly, which also means shorter innovation cycles.

Increase flexibility—volatile markets and customized mass production require flexible manufacturing that is highly productive at the same time.

Improve quality—a closed-loop control for quality assurance, as well as traceability and integrated genealogy enable complete process transparency.

Increase efficiency—optimizing resources for products and the manufacturing process ensures energy and resource efficiency as decisive competitive factors.

From the CAD model to the finished product

Additive manufacturing creates innovative products and corresponding product benefits that give mechanical engineers, machine users and contract manufacturers decisive competitive advantages. With the help of CAD, CAE and CAM, the value of additive manufacturing can already be seen in the design phase. Thanks to rapid prototyping, each step can be inspected during the development process, components can be optimized during simulation and adjustments to meet customization requirements can be carried out much more quickly and simply.
In additive manufacturing, components are produced layer-for-layer without the need for a mold. This means that prototypes or individual parts can be produced by simply transferring the part geometry to the machine.

Because some additive manufacturing processes combine different materials in one production process in a completely new way, downstream assembly processes are no longer required. Performance is considerably increased because even complex assembly parts can be created in one step. Another advantage: far less material is required compared to classic manufacturing processes. In this way, recycling processes that can be very time-consuming are eliminated (e.g. metal). Even the handling of spare parts is more efficient, because production can take place on-site and, therefore, storage and logistics costs are reduced or completely eliminated.

**Near-limitless design freedom**

The term additive manufacturing covers the most diverse of processes. Regardless of the chosen process, additive manufacturing enables component geometries that are not possible with conventional manufacturing methods. Additive manufacturing allows engineers and designers to achieve the full advantages of 3D printing and set out on new paths in product development. Thanks to additive manufacturing and freedom of design, it is now possible to create optimized components in terms of weight, performance, material and strength.
Always the perfect CNC

As the leader in machine tool automation, Siemens offers you an integrated and seamless CNC platform for your machine tools.

Our approach is simple — one CNC system and many options — from the CNC, all the way to the drives and motors, and even the complete control cabinet to help make your operation more innovative and competitive in today’s marketplace.

SINUMERIK is easy-to-learn, easy-to-program and easy-to-use. These CNCs offer you innovative functions and technology cycles for cost-effective manufacturing with programming methods that always fit your needs — no matter if you’re machining a small batch or a large series of parts.

Features of the SINUMERIK CNC system include:

- Scalable hardware and software
- Openness of the CNC, PLC and user interface
- Fast commissioning and automatic identification of drive components
- Powerful servo- and spindle motors
- Milling technology packages for perfect workpiece surfaces
- A new, very intuitive, graphical user interface
- Energy-efficient drives
- Efficient tool management
- Integrated safety for the protection of people and machines
The SINUMERIK system platform offers several versions for different machine tool requirements:

- **SINUMERIK 808D** — the entry-level CNC for standard milling and turning machines — is a compact and rugged CNC that’s easy-to-maintain. Together with SINAMICS V60 and V70 drives, along with SIMOTICS 1FL5 and 1FL6 servomotors, the 808D can be managed with minimal training.

- **SINUMERIK 828D** — the mid-range CNC for the job shop — is a new panel-based CNC that makes it perfect for demanding milling, turning and grinding applications. It’s a breakthrough CNC offering machine-enhancing performance capabilities, never seen before in a shopfloor control.

- **SINUMERIK 840D sl** — the universal and flexible CNC system featuring the SINAMICS S120 drive platform — is the ideal solution for high-performance and complex applications. It sets new standards when it comes to precision, performance and accuracy.
The small, robust and easy CNC — entry-level CNC for your milling and turning machines

This operator-panel-based CNC is extremely compact, rugged and very easy to maintain. Powerful CNC functions allow you to achieve excellent machining precision in a very short amount of time. The SINUMERIK 808D and 808D Advanced both offer you a broad performance range for entry-level machine tools, along with a high cost-performance ratio for basic, standard machines.

Highlights of the SINUMERIK 808D / 808D Advanced include:

- Technology-specific keyboard for milling or turning make the 808D completely easy-to-use.
- The elimination of a fan and hard disk make the 808D robust.
- Connectivity such as the front-panel USB for memory sticks and PC keyboards make the 808D easy-to-program.
- With an IP65 degree of protection rating, the 808D is easy-to-maintain.

Together with the SINAMICS V60 drive platform and SIMOTICS S-1FL5 servomotors, the SINUMERIK 808D is ideally-suited for standard milling and turning machines — up to four axes. Thanks to startGUIDE, every process step of the machine can be managed with minimal training.
The SINUMERIK 808D Advanced features SINAMICS V70 drives and SIMOTICS S-1FL6 servomotors to guarantee high system performance. Ideal for up to five axes, the 808D Advanced provides drive bus communication, auto-servo tuning and a wide variety of software options.

With intelligent, robust and easy-to-use hardware, the SINUMERIK 808D and 808D ADVANCED CNCs set the benchmark when it comes to basic, standard milling and turning machines.
Breakthrough CNC for the job shop—introducing the new CNC that will allow job shops to break free

Job shops have finally cracked the G-code. Performance-limiting, G-code-intensive CNC is a thing of the past. The new SINUMERIK 828D is a panel-based CNC that makes it the ideal solution for demanding milling, turning and grinding applications. It’s a breakthrough CNC that offers machine-enhancing performance capabilities you have never seen before in a shopfloor control.

What makes the SINUMERIK 828D family so perfect?

It’s compact—maximum power with compact dimensions
- 10.4” and 15.6” color TFT display options
- Full QWERTY CNC keyboard
- Maintenance-free (no battery, hard disk or fan)
- Vertical and horizontal variants
- USB, Compact Flash (CF) card, Ethernet on the front panel

It’s strong—powerful CNC functions
- Advanced Surface and Top Surface for perfect surface finishes
- 80-bit NANO floating point accuracy
- Simplified tool and workpiece management

It’s simple—easy-to-setup, easy-to-use
- ShopMill/ShopTurn graphical programming
- Interactive input help with Animated Elements
Advantages for job shop owners

- Shopfloor communications
- Automatic measuring cycles
- Interactive animated help elements
- Production-status text messaging
- ISO code programming

As a job shop owner or manager, you can expect higher CNC-driven performance across your operations. The bottom-line advantage is a time-savings that will equate to cost-savings in man-hours and greater profitability. Increase production efficiencies and take greater control of your shopfloor.

Advantages for job shop operators

- Simpler setups
- Simplified tool management
- Residual material detection
- Contour calculator and CAD reader
- Advanced surface

As a machine tool operator, programmer or maintenance technician, you can expect higher CNC-driven performance from your machines. Expand your professional capabilities by expecting more from your CNC.
SINUMERIK 828D Basic

Get your production up to speed—based upon the SINAMICS S120 Combi drive, SINUMERIK 828D Basic is tailor-made CNC for both milling and turning applications.

Compact, strong, simple — perfect for the compact-class machine tool

The design of the SINUMERIK 828D Basic features a compact screen, keyboard and CNC, along with fewer interfaces and cables. The operator panel consists of heavy-duty die-cast magnesium to keep the SINUMERIK 828D in perfect shape even in harsh application environments.

Features of the SINUMERIK 828D Basic include:

- 8.4” color TFT display with a full QWERTY CNC keyboard
- Maintenance-free (no battery, hard disk or fan)
- USB, Compact Flash (CF) card, Ethernet on the front panel
- Vertical and horizontal variants
- Simplified tool and workpiece management
- 80-bit NANO floating point accuracy
- Interactive input help with Animated Elements
- ShopMill/ShopTurn graphical programming
- Up to 5 axes/spindles
- 1 machining channel
- 128 tools, 256 cutting edges
Features of the SINAMICS S120 Combi drive include:

- Maximum performance in a minimum space

- Optimum dynamics and precision in a compact and integrated drive design with features such as Dynamic Servo Control (DSC), 80-bit NANO floating point accuracy and high-speed DRIVE-CLiQ communication.

- Uncompromising ruggedness caused by optimum protection against condensation, insensibility against a weak power supply and protection against short circuit, over-voltage and ground faults.

- Expandable up to two additional SINAMICS S120 motor modules
The next generation CNC with impressive innovation

The force behind today’s high-performance applications

The SINUMERIK 840D sl is a universal and flexible CNC system featuring the innovation of the SINAMICS S120 drive platform. The CNC is a distributed, scalable and open system offering a wide range of functions. It can be used for up to 93 axes/spindles and any number of PLC axes.

It is ideally suited for every machining application including milling, turning, grinding, drilling, stamping, nibbling, laser, waterjet, mill-turning and turn-milling. With the ability of up to 30 machining channels, the 840D sl sets new standards when it comes to accuracy, precision and performance.

Features and benefits of the SINUMERIK 840D sl include:

- Maximum performance and flexibility
- Integrated and certified safety functions
- System-wide open architecture
- Reliable operator and programming software such as the new SINUMERIK Operate graphical user interface

New generation of operator panel for high-end CNC applications

The SINUMERIK OP019 Blackline operator panel sets the standard in modern machine tool operation. It is perfectly matched to the SINUMERIK Operate graphical user interface and to the SINUMERIK 840D sl CNC.

Its inductive sensor technology enables rapid interaction with the user interface even when the machine operator is wearing gloves. Similarly, it prevents incorrect entries, for example caused by the heel of the operator’s hand.
The 19-inch display can show all the entries made in widescreen format at a glance.

- It has an integrated glass panel on the front side and is designed with IP65 degree of protection.
- The OP019 black is resistant to liquids and dust and can be operated even under harsh industrial conditions.
- This blackline panel also features durable LED background lighting, providing 40 percent energy-savings compared to conventional neon lamps.
SINUMERIK Operate

Combining HMI Advanced, ShopMill and ShopTurn into one, SINUMERIK Operate is the new graphical user interface for efficient machine tool operation.

Operation and programming has never been easier

As the state-of-the-art operating system for the 21st century, the SINUMERIK Operate graphical user interface clearly and intuitively combines every function needed for the programming and operation of a CNC machine. It provides a consistent look-and-feel and offers you the same usability for every machining technology, even when you switch between different technologies, such as multi-tasking machines.

SINUMERIK Operate has many new powerful functions. This permits the combination of machining step and high-level language programming under a single system user interface — it allows for very fast, rational and intuitive NC programming and job preparation.

Flexible and fast

G-code programming with cycle support is combined in programGUIDE. This ensures maximum flexibility and short machining times and is ideal for medium- to large-sized batches. SINUMERIK CNC also supports ISO code programming. ShopMill and ShopTurn are the tailored programming solution for single-part and small-batch production.
Support for every manufacturing technology

Complex workpieces demand cost-effective manufacturing methods and innovative CNC solutions. The SINUMERIK 840D sl supports multi-tasking machines for workpiece manufacturing in a single clamping — or even during the change between different technologies, such as mill-turning and turn-milling.
Energy efficiency in machine tool production

Through a simple keystroke, SINUMERIK CTRL-Energy provides a full assessment of the energy consumed by the machine tool. Siemens sets new standards for energy efficiency and energy management.

Energy efficiency in CNC and drive technology

Together with SINAMICS S120 drive systems and SIMOTICS motors, Siemens CNCs provide highly-effective, energy-efficient solutions that help to significantly reduce your machine tool's energy consumption.

SINUMERIK CTRL-Energy

With a simple touch of the CTRL + E keys on the operator panel, SINUMERIK CNCs allow you to quickly evaluate the energy consumption, along with the management of energy consumption, during times of machine standstill.

Energy efficiency in drive technology

Siemens supports its customers in every phase of the energy management process, not only on the product or system level, but also during the planning stages of new machines.
Identify — the energy flows
- Energy consumption displays

Evaluate — the savings potential
- Energy consumption calculation
- Energy optimal system solution

Realize — by optimizing machines and processes
- Energy management through controlled supply for energy feedback and reactive power compensation (cos φ = 1)
- Energy savings through common DC link
- Energy standby supply
All SINAMICS drives and SIMOTICS motors are modular, making it easy to achieve integrated solutions for both centralized and decentralized machine tool applications.

Easily-achieved integrated solutions

SINAMICS S120 drive system
The SINAMICS S120 drive system is the foundation for many Siemens machine tool solutions — including SINUMERIK solution line.

SINAMICS provides for less wiring and space-saving installations. Usability and diagnostics can be performed down to the component level via the internal DRIVE-CLiQ communication interface.
SIMOTICS motors for every application
The SINAMICS S120 system can drive multiple and different types of motors, including Siemens servo, linear, spindle, synchronous and induction motors.
SIMOTICS motors

SIMOTICS motors for machine tool applications are perfectly harmonized and coordinated for use with our SINAMICS S drive platform resulting in fast commissioning and optimal performance.

The balance between force and motion

1FT7 synchronous motors
The 1FT7 sets new benchmarks in motor technology from Siemens.

This high-performance synchronous motor is up to 30% smaller than the 1FT6 servomotor and offers users increased torque and a robust encoder attachment with convenient mounting options in this compact design.

Other innovative features include: twistable plug-in connector with quick-release lock; “cool jet” water-cooling; encoder technology for both SIMODRIVE and SINAMICS drives; and winding with individual tooth coils.

1FK7 synchronous motors
1FK7 rotary servo-drives are 25% smaller than previous 1FK synchronous models.

With high torques of up to 108 Nm and a particularly favorable torque-inertia ratio, this motor achieves a very high dynamic response resulting in decreased machine downtime.

The rugged, maintenance-free 1FK7 motor design ensures high operational reliability and is ideal for all mechanical engineering applications, particularly robots and handling tasks.
1PH8 main spindle motors
The new 1PH8 series offers compact main spindle motors with squirrel-cage rotors and IP55 / IP65 degree of protection. They extend the performance range of the proven 1PH / 1PM series and provide the correct version for every application.

Available with air blast or water cooling, with solid or hollow shaft and with a very wide range of storage concepts and various transmitter types for speed control and high-precision positioning operation.

1PH2 motors for direct drives
1PH2 built-in motors are fluid-cooled, three-phase asynchronous motors. They are used in cases where compact construction means that the motor has to be integrated directly into the machine.

The workpiece is processed with the highest level of precision and without the influences of lateral forces from the drive thanks to the quiet, precise spindle movement, even at very low speeds. Their performance range covers 7.5–30.9 kW.
Linear motors
Siemens offers two linear motor models to cover the increasing demand for high performance direct drive solutions.

The 1FN3-series offer high traversing speeds up to 360 m/min and peak force per motor of up to 20,700 Nm. The 1FN6-series is a linear motor designed for lighter-duty applications such as material handling and light-duty machine tools.

The design eliminates secondary track magnets and water-cooling, making them easy and economical to install, while offering peak force of up to 7,980 Nm.

Synchronous main spindle motors — highly dynamic, extremely compact
1FE1 built-in motors are compact, water-cooled synchronous motors which are supplied as stator and rotor components.

They provide maximum speeds of up to 40,000 rpm and performance of up to 104 kW (S1 operation) and are available in high-torque and high-speed versions. Permanently energized (PE) motor spindles increase the power density and cost-efficiency of CNC machines.
1FW6 torque motors
Operating as a synchronous motor with permanent magnets on the rotor side, the 1FW6 torque motor series has an increased torque range of up to 7,500 Nm offering maximum precision and dynamics for positioning and continuous-path control. Thus the motors can also be used as direct drives.

By increasing the torque range, the 1FW6 is ideal for large rotary table and rotary indexing applications. All motors are exclusively offered as integrated motors, consisting of stator and rotor, in two different fundamental designs.

Motor spindles with a high level of control dynamics
The advantages of motor spindles: rigid, compact design, extremely high power density and reduced overall mass and friction forces.

- Standardized motor spindles for milling machines (for use in vertical and horizontal machine concepts)
- Motor spindles for milling, drilling, turning and grinding
- Custom motor spindles specially develop according to individual customer specifications
Siemens and Weiss spindles

You can be certain that your Weiss spindle is in the hands of highly-qualified professionals. Our factory-trained technicians use factory-built repair and test equipment to ensure that you receive your spindle back — set to factory specifications.

Your spindle motor team

Why Siemens for your spindle motor repair?
In the United States, Siemens offers a complete set of spindle services that include:
- Repairs and upgrades for Siemens-Weiss and third-party spindles
- Fast replacement parts and spindle accessories that are always stocked
- Preventative maintenance that keeps machine downtime to a minimum while extending the spindle’s service life
- Technical consultations for the installation, handling and operation of Siemens-Weiss spindles
- On-site spindle service and training

We have the experience to prove our expertise.
Some of our satisfied customers from around the world include:
- Audi
- BMW
- Cincinnati Machine
- Deckel Maho
- DS Technologie
- EMAG
- General Motors
- Gleason-Pfauter
- GROB
- Hardinge
- INDEX
- MAG
- Zimmermann
- and many more...
SIMOTICS S-1FG1 and SIMOGEAR

Today’s manufacturers and machine builders face pressures to shorten the design phase, reduce the build and installation time, and get running quicker — and it all has to be done with fewer components, lower costs and with no compromise in uptime.

Geared motors for industry and automation

SIMOTICS S-1FG1 servo geared motors and SIMOGEAR geared motors help you meet the demands to save time, effort, energy and costs. These products consist of a servomotor or an induction motor directly coupled to a gearbox, which is available in helical, parallel shaft, bevel and helical worm gearbox types. Up to 25 transmission ratios are available for the gearboxes to closely match application needs of torque and speed.

SIMOGEAR is designed for automation engineering. It integrates smoothly with Siemens drives and automation products which enable simpler commissioning and faster start-ups. Options such as encoders and brakes give users the tools to meet the exacting demands of a wide breadth of applications. Motor connectors and SIMOLOC — the Siemens keyless tapered bushing hollow shaft mounting system — support fast installation.

SIMOTICS S-1FG1 servo geared motors are ideal for dynamic applications such as rapid speed changes or positioning of a load where a planetary gearbox is not necessary. A reduced backlash version of gearbox is available which provides low torsional backlash.

SIMOGEAR geared motors are ideal for applications which have less dynamic speed changes of a load where an induction motor is sufficient for application. SIMOGEAR geared motors are available as NEMA Premium® (NEMA license CC#0032) geared motor systems.
The safety system for machine tools

Safety functions meet the requirements of safety category 3 compliant with EN 954-1 and are an integral part of the basic system. No additional sensors or evaluators are necessary. For you, this means less installation effort on the machine and a “slimline” control cabinet.

- The safety functions are available in every operating mode and can communicate with the process by safety-orientated input/output signals.
- Safe shutdown brings the drives safely from motion to standstill when a monitor or sensor (e.g. light curtain) responds.
- Safe operation stop monitors the drives at standstill within an adjustable tolerance window. The drives are fully functional in position control in this case.
- Safe stop pulse quenching of drives and; therefore, safe, electronic isolation of the energy supply.
- Safe reduced speed monitoring of configurable speed limit values, for example, when setting-up without trimming key.
- Safe software limit switch variable travel range limits, can be configured axis-specifically
- Safe software cam range detection
- Safety-orientated input / output signals, interface to the process
- Safe programmable logic — direct connection of all safety-relevant signals and internal logic link.
An entirely new life for your machine — at a fraction of the cost

Retrofitting an aging machine with a new CNC can quickly improve its productivity, cut soaring maintenance costs and greatly extend the machine's life cycle. You can depend on Siemens to provide the level of retrofit assistance you need.

Retrofitting new “state-of-the-art” equipment on existing machines presents an attractive, viable alternative to maximize value and stretch the capital budget. Siemens can help you decide what you need. We’ll do a machine evaluation to determine the extent of the retrofit package that meets your needs and stays within your budget. A control retrofit package can help you keep pace with future demands at substantially less cost than purchasing a new machine.

Put the latest CNC technology to work

Let Siemens bring state-of-the-art technology to your existing high-dollar capital investment. The SINUMERIK family of controls are sophisticated CNC systems that offer a wide range of specialized functions for milling, drilling, turning, grinding and handling technologies.

Work with the global leader in machine tool automation

When it comes to machine tool retrofit, you can rest assured that you’ll receive all the advantages and security of working with a large company, but without the confusion. Siemens is the retrofit partner that will be there for you; an organization that you can count on now — and well into the future.
Digitalize manufacturing

Welcome to the digital machine shop of the future—digitally transform your machine shop and become more competitive, efficient and profitable.

Transform your business and realize innovation

Siemens is transforming manufacturing digitally from product design to production execution and closing the loop to ensure production runs as you planned it.

A digital machine shop is smart, flexible and connected. At its heart is the Digital Twin—of the product, production system and its performance. A Digital Thread is woven through every step of the manufacturing process and closes the loop between the virtual and real worlds of production. Start transforming your machine shop today with the Siemens Digital Enterprise Software Suite.

A digital machine shop transforms business by providing these unique and powerful advantages:

- It’s an adaptive system that continuously learns and improves
- It’s a data-driven environment that connects every aspect of the manufacturing operation—from idea to production
- It’s a powerful system that drives revolutionary technologies like additive manufacturing, advanced robots, and automation equipment

The Siemens Digital Enterprise Software Suite includes a comprehensive portfolio of product lifecycle management (PLM) software like NX and Tecnomatix, and its backbone is Teamcenter software, the world’s most widely used digital lifecycle management solution.
It’s never been easier to integrate a CNC machine into the entire production workflow. With smart operation, state-of-the-art work methods can be used during production without incurring high costs. This is especially true for small and medium-sized companies.

New concepts in machine operation

smartPrepare
Identical to the machine itself, the next order can be programmed at the PC—1:1 offline and even simulated. This maximizes your machine utilization times.

smartIT
Never look for documentation again — and never have memory limitations. All order documentation, such as part programs, DXF drawings and diagrams, are available on the SINUMERIK operator panel through your network.

smartOperate
State-of-the-art multi-touch screen technologies facilitate simplicity and efficiency at the CNC machine.

smartMobile
Even if you’re not at the machine, with smartMobile, you always know what’s going on. Machine information such as job status, part inventory, etc. is accessible on your own smartphone, tablet and PC.
Achieve higher manufacturing efficiency through intelligent IT integration

Manage MyPrograms
This powerful solution allows you to efficiently organize and centrally manage CNC part programs through your network — enabling paperless production.

Manage MyTools
Quickly determine the tools needed for production orders. Based upon a transfer list, Manage MyTools transfers the tool data and also provides a setup dialog for the loading and unloading of tools.

Analyze MyPerformance
Based upon machine and status data, Analyze MyPerformance calculates the efficiency of your entire plant. Through automatic recording of machine data and conditions, as well as a user dialog for the manual status recording by the operator, Analyze MyPerformance provides all the information required for production optimization.

Analyze MyCondition
SINUMERIK Integrate provides a progressive technique for condition-based maintenance. Machine builders can offer customized maintenance for their systems, and machine tool operators can benefit from optimized production based upon specific process knowledge.
Access MyMachine
Through secure and reliable functionalities, you can quickly and easily access your CNC machine via the web. Access MyMachine offers a comprehensive range of functions that can be adapted to your specific needs.

Access MyBackup
This client-server solution enables you to reliably and securely archive CNC data throughout the factory. CNC backups are generated and imported automatically.

Access MyData
Access MyData accesses NC/PLC data of the CNCs connected to the SINUMERIK Integrate server. It provides data and services for higher-level or supplementary software systems. Access MyData is based upon standardized web services from the Microsoft .NET Windows Communication Foundation (WCF).
Lifelong Educational Advantage Program

Siemens Lifelong Educational Advantage Program (LEAP) gives students a career-enabling, basic-to-advanced, machine tool knowledge foundation.

Prepare students for careers, not jobs

American manufacturing needs tech school graduates that are better prepared to ascend to high-performance positions: Graduates equipped with a more readily transferrable knowledge base. Graduates that can progress more successfully into advanced CNC positions. Graduates that have been trained on the one CNC technology platform that singularly supports basic-to-advanced machining.

- STEM jobs are growing at 1.7 times the rate of non-STEM jobs*
- Employers need career-ready graduates, not just candidates for basic parts cutting
- Siemens CNC instruction best supports this basic-to-advanced career path
- Siemens offers the instructional content and support your program needs

Only one technology platform supports comprehensive, basic-to-advanced CNC instruction—giving students the game-changing capabilities employers need

The SINUMERIK CNC technology platform features a universal interface for rapid knowledge progression across our basic-to-advanced control packages. As students learn to program and operate the SINUMERIK 828D job shop control, they become equally familiar with the SINUMERIK 840D sl. The 840D sl is preferred throughout the world for its capabilities in high-end machining.

*Source: U. S. Department of Education, STEM (Science, Technology, Engineering, and Math)
Develop your students to the level today’s leading manufacturers demand

Siemens provides robust training courses in the two major machine tool disciplines: Milling and Turning. Each of the course disciplines is divided into Levels that provide a pre-requisite approach for basic-to-advanced learning. Siemens provides the school with a complete installation of SinuTrain, our PC-based simulation software, to enhance the hands-on learning experience.

Each course level is provided as a complete curriculum with a combination of classroom and hands-on training modules designed to maximize student understanding and engagement throughout the course. Successful completion of each level of training and subsequent testing can provide students with up to five Certificates to help them begin their careers in CNC Machining.
The perfect introduction into the world of CNC

SINUTRAIN Operate — efficient SINUMERIK CNC training on the PC

In today’s competitive world, you not only need the newest technologies, but more importantly, highly-qualified people if you want to stay ahead of the competition. This is especially true when it comes to working with CNC machines. In order to train people to work with machine tools, it’s necessary to simulate real-life situations. That means that students must be able to learn the exact steps on a training PC before they can carry them out in daily life.

Based upon the new SINUMERIK Operate graphical user interface, you can use SINUTRAIN to generate and simulate NC programs based on the DIN 66025 programming language, as well as the Siemens ShopMill and ShopTurn products, plus language commands for the SINUMERIK 808D, 828D and 840D sl CNCs. Programs created with SINUTRAIN can be used on real machines provided that SINUTRAIN is adapted to the SINUMERIK control system on which the program is to be executed.

The feeling of being right at the machine

When running SINUTRAIN on your PC, you get the feeling as if you were standing in front of the machine. The machine control panel is emulated right on your screen — no additional hardware is needed.

SINUTRAIN speaks your language

We know that today’s CNC user speaks numerous languages. That’s why the software is available in English, Spanish, French, German, Italian and Simplified Chinese — with additional languages soon to come. SINUTRAIN requires minimum Windows® 7 (32-/64-bit).
Easy learning right from the start
With its integrated tutorials, SINUTRAIN allows you to learn at your own pace. Integrated online help provides you with the necessary information at the touch of a button.

Available for different needs and different budgets
- Trial version — explore SINUTRAIN Operate, free-of-charge, for 60 days.
- Student version — a low-priced, 300-hour license to help students learn how to operate and program SINUMERIK CNC.
- Single-user version — an unrestricted license for a single-user featuring operation and CNC programming.
- Educational version — a classroom license that enables professional instructors to teach multiple students the ins-and-outs of SINUMERIK.

Request a free trial version
www.usa siemens.com/cnc4you
Optimizing the productivity of your equipment and operations can be difficult, especially with constantly changing market conditions. Working with our experts makes it easier. Siemens Industry Services understands your unique processes and offers the services needed to address even your toughest challenges.

Support and Consulting Services
From the self-service advantages of a comprehensive online support website with FAQs and application examples, to technical specialists who work alongside your project managers and engineering staff, Siemens provides exactly the right amount of support and expertise—when you need it, how you need it.

Advice and support that ensures your projects run smoothly and deliver the desired outcomes, on time and on budget.

Initiate machine tool support requests via:
- Online support request support.industry.siemens.com
- Phone support 1-800-879-8079

Field and Maintenance Services
Our factory-certified field service specialists have the knowledge to get your equipment up and running in the shortest time. You can rely on our dedicated team of engineers and technicians to deliver the services you need—safety, professionally and in compliance with all local and governmental regulations.

We are on-call 24/7, throughout the year, to support you with installation, commissioning, maintenance, troubleshooting and emergency services.
Spare Parts Services
Leveraging our network of regional warehouses and state-of-the-art logistics ensures fast access to the spare parts you need. You can’t afford machine downtime—this service ensures a rapid response and reliable supply of spare parts, saving you time and money, and enabling you to reduce your own spare parts warehousing requirements. Whether you require same-day access to OEM quality parts or the peace-of-mind that comes from optimal stocking strategies, Siemens experts are available to consult and recommend the best option.

- Just call 1-800-879-8079 or email cncparts.industry@siemens.com.

Service Programs and Agreements
Designed for flexibility, a SIEPRO® Technical Service Agreement for Machine Tools lets you bundle the exact services you need in a preventive program that reduces unplanned downtime and operational costs. You select the level of service that best complements your equipment, processes, and existing capabilities, then tailor your program with optional services to meet specific demands.
Repair Services

Reliable electrical and electronic equipment is vital for operating continuous processes. To keep critical equipment such as motors, drives, and CNCs up and running requires highly specialized, factory-certified maintenance and repair. Siemens provides the full range of repair services you need via our certified U.S. repair centers.

The repair services include all measures necessary to quickly restore the functionality of inoperable units. Machine tool repair services include:

- Computer Numerical Controls (CNCs), including SINUMERIK and ACRAMATIC
- Low- and medium-voltage drive systems (AC and DC)
- Servo and spindle motors, motorized spindles
- Industrial PC, PLC and HMI repair

Training Services

In today’s competitive market, a highly-skilled workforce is vital for success. However, understanding how to deploy an effective learning strategy is a challenge. Siemens can help. Rather than offering a “one-size-fits-all” solution, our technical learning services offer both standard and customized solutions to your learning needs. These solutions are available in a variety of delivery methods designed to meet the needs of your organization.

Options include:

- Online, self-paced learning
- Instructor-led learning (classroom and online)
- How-to videos
- Simulation systems
- Workforce performance improvement (assessment and plan design)
Plant Data Services
Siemens leading role in industrial data technology, and its comprehensive industry knowledge, make it the ideal partner when it comes to using your equipment data to achieve improved availability, efficiency and performance. Plant Data Services gives you transparency in your industrial processes and turns gained intelligence into smart decision-making.

- Energy analytics
- Drive train and machine tool analytics
- Industrial network analytics
- Process data analytics
- Plant security services

Retrofit and Modernization Services
Keeping pace with the constant demand to improve productivity, reduce costs and increase quality is a challenge you deal with every day. In the case of stretched capital budgets, retrofitting or modernizing an existing product or system gives you access to new technologies and provides an attractive alternative that will deliver maximum value for your investment.

- CNC hardware and software upgrades
- Drive upgrades
Machine Tool Finance

Whether you are looking to acquire additional machinery or replace existing assets, our broad array of industrial finance solutions are designed to support your success.

Combining our financial expertise with in-depth industry knowledge, Siemens understands your needs and can provide workable solutions.

Our customized financing solutions help production companies acquire and upgrade machine tools to drive operational efficiency and profitability; from lathes and machining centers, to grinding machines and extruders. As part of the Siemens group which manufactures machine tool controls, drives and motors, we understand the benefit that up-to-date technology can bring to the manufacturing business.

Our comprehensive financing expertise, combined with our in-depth industry knowledge, makes us a competitive, flexible and understanding partner in financing materials processing technology.

We work with machine tool builders, captives, dealers and brokers across all areas of the spectrum.

What we finance:
- Horizontal and vertical machines, lathes and turning centers
- Cutting, stamping and grinding equipment, as well as water jet, fabrication, lasers and EDM machines
- Robots for Industrial use
- Plastics and injection molding machinery
- Production lines
Benefits of financing with Siemens:

- Access to latest industrial equipment without using capital resources
- Simplified budgeting and financial transparency with fixed payments
- Regular technology updates could provide increases in industrial productivity
- Cost-effective alternative to bank financing
- Often no deposit required, which can help cash flow
- Finance for Siemens equipment offers an integrated solution incorporating technology and financing from a single source

For more information on Siemens Financial Services, please visit: usa.siemens.com/finance

Or contact our North Americas Head of Sales for Vendor Finance, Peter Austin: peter.austin@siemens.com
The Romi DCM 620-5F comes equipped with the SINUMERIK 828D CNC and SINAMICS drives.

See it inside the Siemens booth (E-4502)

ROMI DCM 620-series

This machine consists of advanced vertical machining centers of 5-axis/5-sided, designed for machining parts with simple and complex geometry at high speeds. The machine configuration with 5-axis simultaneous or 5-sided allows machining complex parts in a single setup, making a remarkable shortage of machining time, with efficiency, accuracy and productivity. The bearing housing of the table assures total rigidity in high-load operations.

The headstock cooling system brings a great benefit of reducing possible heat distortions of the housing, assuring perfect alignment of the center line of the spindle in machining operations that demand high precision positioning of the Z-axis. Spindle cartridge is directly coupled to the main motor (direct drive) with great efficiency in power and torque transmission. It presents the advantages of low noise and elimination of gaps and vibrations if compared with pulleys and belt transmission system.

The base is robust and made of cast-iron. It supports the table assembly, comprised of B- and C-axes, column assembly and headstock assembly. X-, Y- and Z-axes have linear roller guides which offer high rigidity, stability, positioning accuracy and high quality surface finishing for machining processes with maximum efficiency and productivity.
EMCO Maier

The EMCOTURN E45 comes equipped with the SINUMERIK 828D numerical control, SINAMICS drives and ShopTurn.

See it inside the Siemens booth (E-4502)

EMCOTURN E45

3-axes CNC lathe with counter-spindle, driven tools, Y-axis and C-axis
Highly-efficient universal lathe with rigid and precise pre-loaded linear roller-type guide ways.

Main spindle:
Spindle nose A2–5 (DIN 55026)
Max. bar capacity ø45 mm
Max. drive power: 13 kW
Spindle speed range: 0–6300 rpm

Counter spindle:
Spindle nose A2-4 (DIN 55026)
Max. drive power: 10 kW
Spindle speed range: 0–6300 rpm

Tool turret:
12-station tool turret VDI25 radial with driven tools
Max. drive power: 4 kW
Max. torque: 16 Nm
Max. speed range: 6000 rpm
Fryer

The Fryer CM-series educational milling machine features the SINUMERIK 828D numerical control.

See it inside the Siemens booth (E-4502)

**Fryer CM-series**

The Fryer CM-series is the perfect tool for educational facilities, toolrooms, job shops and secondary operations. Built upon a solid cast-iron platform and using high-precision ballscrews, spindle and ATC, the CM-series can hold the demanding tolerances that industry requires.

Programming is accomplished with Siemens advanced ShopMill programming or industry standard G-code. Equipped with an impressive list of standard features, this machine is, by far, the best compact milling machine available today.
The Kuka KR AGILUS is controlled by the SINUMERIK 840D sl and Run MyRobot application from Siemens.

KR AGILUS

Compact, precise, agile and fast—the robots of the KR AGILUS-series are the new masters of speed. When it comes to handling tasks, the KR AGILUS offers impressive results combined with minimized cycle times. At the same time, the small robot family works with great precision, enabling manufacturing quality of the highest quality.

Its speed and accuracy make the performance of the KR AGILUS unique in its payload category. The basic model, KR 6 R900 sixx, weighing 51 kilograms, can carry a maximum payload of 6 kilograms. It is pre-destined for operation in general industry, wherever automation with low payloads is required.
Easy CNC and social media

The world of SINUMERK at your fingertips — or a click of your mouse.

We’ve got an app for that

Easy CNC mobile app
Our popular app has been expanded to include Android devices. Simplify your work, increase your productivity and stay informed with news from Siemens.

This app contains all of the current training manuals for SINUMERIK CNC and will ensure you always have the latest updates. With no more heavy manuals to carry, you have access to over 5,000 pages of vital CNC instruction and content.

In addition, a handy G-code compatibility tool lets you quickly find compatible codes for Siemens and ISO G-codes. The glossary feature is your reference guide to CNC terminology, and web-links to service, support and social media feeds open the door to our online user community.

Don’t wait — download the Easy CNC app for iOS and Android devices for free.

Social media
Like us and follow us — let’s be social. Stay up-to-date with the latest CNC information from Siemens. Make sure to follow us on Twitter and Facebook.

www.twitter.com/siemens_cnc_us
www.facebook.com/SiemensCNC
usa.siemens.com/cnc4you — the SINUMERIK CNC user community

CNC4you is the Siemens online community where you’ll find testimonial videos about our customers and their machine tool applications, webinar replays, how-to videos, virtual product tours, trial software and even technical documentation.

Discover the world of CNC4you
Machine tool manufacturers

Siemens customers at IMTS 2016
The gantry 3D-laser series is a processing center for large-volume components. All load-bearing parts are designed as welded constructions and the bridge construction is guided and driven on sturdy prop stands with synchronized servo axes. The processing optics are navigated as full flying optics in the 5-axis transformation. Material flow can be flexibly configured with automatic shuttle tables and vertical lifting gates or sliding doors on the front and back side (optional) enable component feed from both sides.

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Ann Arbor, MI 48108 USA
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+1 734 973 3053
sales@gmtamerica.com
www.gmtamerica.com

Siemens components

The 3D-laser machining center is controlled by the SINUMERIK 840D CNC with supplementary PLC control unit and HT8 handheld terminal. During operation, all of the essential operating states are displayed on the control panel monitor. Additional screens show visual images of the working chamber, the focusing optics including the camera and the Siemens operator panel.
Booth S-9184

Bertsche Engineering Corp.

The TCMILL is a powerful 5-axis high-performance travelling column machining center with standard travels of 236/275/315/470 inches in X and 40 inches in Y. With its high dynamics, feed and rapid rates provide the performance for high metal removal rates in aluminum monolithic parts and the dynamic agility for thick wall composite drilling, routing and milling. The “high feed force” is ideal for heavy steel or titanium machining with up to 5,200 lbs, high torque spindle and rigid machine structure. Designed and built in the USA, the TCMILL series is used in a number of industries including aerospace, automotive and power generation.

Bertsche Engineering Corporation
711 Dartmouth Lane
Buffalo Grove, IL 60089 USA

+1 847 537 8757 becsales@bertsche.com
+1 847 537 1113 www.bertsche.com

Siemens components

This milling machine is equipped with the SINUMERIK 840D sl CNC, the SINAMICS S120 drive platform, SIMOTICS S servomotors and SIMOTICS M main spindle motors. It features the SINUMERIK MDynamics five-axis milling package and collision avoidance.
The BC80 Bushing Center is an automated cutting and end finishing machine. It utilizes CNC, drives and motors from Siemens. The BC80 can produce pieces cut to length, chamfered and measured, starting from either tube or solid bar.

BLM Group USA
29380 Beck Road
Wixom, MI 48393 USA

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+1 248 560 0083  www.blmgroup.com

Siemens components

- SINUMERIK 840D sl CNC
- SINAMICS S120 drive system
- SIMOTICS motors
Bridgeport’s new generation full 5-axis vertical machining center is a fully digital, high-quality machine tool, designed to achieve maximum capacity and performance in the aerospace, mold-and-die, medical and automotive Industries, plus many other manufacturing sectors. This machine has been developed to provide a powerful and precise solution to meet the demands of the most demanding metal-cutting user.

Manufactured from quality-sourced grey cast iron to the highest standards, the Bridgeport Conquest XT 630 5-Axis is packed with features. Axis travels are:

- X: 762mm (30”)
- Y: 630mm (24.8”)
- Z: 600mm (24”)

Standard machine equipment includes Big Plus CT40 spindle, 15,000 rpm direct-coupled spindle with oil chiller, coolant chip flush system, 3 color stack light, 48 tool swing-arm ATC, pre-wiring for Renishaw part probe, through-ball screw chiller, preparation for through spindle coolant (with rotary union) and A- and C-axis encoder.

Siemens components

This machine is offered with the state-of-the-art, user-friendly SINUMERIK 840D sl CNC with a 19” operator panel. It features SINAMICS S120 drives, SIMOTICS S-series servomotors, SIMOTICS M main spindle motors and the SINUMERIK MDynamics 5-axis milling package with collision avoidance from Siemens.
The latest addition in terms of flexible machines is the Tran-N-Center ULTRA-52, flexible transfer machine with high productivity and precision weighing 90 tons. It is equipped with 52 spindles, all installed on CNC cross slides (3-axis), and 12 CNC rotating chicks for a total of 167 CNC axes suitable for the machining of extremely complex parts within a cube of side 200mm.

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Siemens components
BUFFOLI machines feature the SINAMICS drive platform from Siemens, SIMOTICS M-1PH8 series spindle motors, SIMOTICS S-1FK7 generation II servomotors with absolute encoder and PROFINET.
MCT—the Ultra-flexible series is the next generation of multi-tasking machining centers for milling, drilling, boring, turning and more—with high power density thanks to a CNC-controlled 5th axis spindle, a strong turning tool holder, and a fast-mill/turn torque table. Integrated horizontal and vertical turning and 5-axis machining replace the use of multiple additional lathes resulting in maximum efficiency through flexibility.

BW’s rotary tables with powerful torque motors for turning and generously dimensioned holding brakes permit demanding machining operations with maximum cutting performance in steel, cast iron, aircraft alloys and titanium. All BW options of other series are also available for the MCT series. The MCT machining centers can be operated together with other BW machining centers in one system because the same pallets are used.

Siemens components
SINUMERIK 840D sl CNC with SINUMERIK Operate graphical user interface, SIMATIC PLC, SINAMICS drives and SIMOTICS motors for all axes and spindles.
C.B. Ferrari S.r.l.

C.B. Ferrari is presenting the new 6 continuous axes Type A176 machine with digital and torque motors, designed and built with many technical innovations that combine high-precision, high levels of finishing and reduced execution times. The machine, thanks to its flexibility, is addressed primarily to the aerospace, energy, mold-and-die and precision mechanics industries.

The strokes are configured with the longitudinal axis of 1050 mm, while the transverse and vertical stroke are respectively 520 and 420 mm.

The speed rates of the machine are 40 m/min.

The machine is also comprised of a tool magazine of 30 positions, two opposite and synchronized dividing head with rotation of 360°.

The tilting head with 16,000 rpm, 33 WK and 105/140 Nm which includes a rotation of +/-91°

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21020 Mornago (VA) Italy

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www.cbferrari.com

Siemens components

This machine features the SINUMERIK 840D sl CNC including SINAMICS drives and SIMOTICS motors.
Current EDM offers a complete line of manual and CNC EDM drilling machines available in a wide range of sizes and levels of automation.

Options include:
- Automatic electrode and guide changer
- Micro-hole drilling systems
- High amperage power supplies
- Multi-axis positioning
- Multiple drilling heads
- Extended length drilling heads
- Water or oil dielectric fluid
- Vision hole inspection

Current EDM
2577 Leghorn Street
Mountain View, CA 94043 USA

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info@currentedm.com
www.currentedm.com

Siemens components

Current EDM machines feature the Siemens SINUMERIK 840D sl numerical control. Highlights include a highly functional control panel with high-resolution LCD display and heavy-duty switches. 5 GB program memory, 1,000 programmable power settings and automatic drilling and referencing cycles greatly simplify long and complex programming.
The Vector grinding machine has been designed for high-volume production with low cycle times. All machines are supplied with automatic loading and unloading. A number of options are available for component storage, from simple pallets stored in the front of the machine in two sliding drawers, from bowl feeders or from through feed conveyors. The machine can be equipped with a single spindle work head or the twin spindle version where loading and unloading takes place simultaneously with the grinding process. Wheel speeds up to 100 m/sec suitable for conventional grit or diamond grinding wheels.

Curtis Machine Tools Limited
Martells Industrial Estate, Slough Lane, Ardleigh
Colchester, Essex CO7 7RU  England

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+44 1206 231426 www.curtisgrinding.com

Siemens components

This machine is equipped with the SINUMERIK 840D control, OP10S operator panel, SINAMICS S120 drives, SIMOTICS S-1FK7 servomotors with all axes fitted with absolute encoders, SIMOTICS M-1PH8 main motors for wheel spindle drive, service and repair warranty.
The DMC 125 FD duoBLOCK® 4th Generation sets new standards for 5-sided and 5-axis simultaneous machining. Equipped with “Best in Class” FD-table with up to 500 rpm and 3,982.0 ft./lbs., as well as the innovative wheel magazine, it offers high machining performance and a space-saving pallet changer. The newly developed B-axis milling head offers a swivel range of 210° and the bigger axis bearing ensures 20% increased rigidity of the milling head housing.

- Travel in. (X/Y/Z) 49.2/49.2/39.4
- Table size in. ø 43.3
- Load weight lbs. 4,409.2
- Mill/turn table (FD) 500 rpm (max)
- Table size in. ø 43.3
- Rapid rotary pallet changer for set-up during main time as standard
- Milling and turning in one set up thanks to the direct drive table and speeds of up to 500 rpm

Siemens components

This machine is equipped with the state-of-the-art SINUMERIK 840D sl CNC with the fastest processing, powerful tool management, quick-view simulation of complex part programs and the easiest interactive 3D programming.
Deckel Maho Seebach GmbH

The HSC 70 linear offers precision and the best surface quality for mold-and-die. The thermo symmetric machine bed in bridge type design is the basis for highest long-term accuracy. New HSC spindles with shaft, flange and jacket cooling ensure thermal stability and an up 70% lower axial tool expansion.

- Linear drives in all axes with >2 g acceleration
- Highest long-term accuracy < 0.0002 in. by thermo symmetric design
- Best surface quality Ra < 0.000006 in. thanks to HSC spindles and shaft, flange and jacket cooling
- 5-axis simultaneous machining with direct drive in the spindle head and NC-rotary table (optional), 18,000 rpm motor spindle (standard), additional motor spindle option with 28,000 rpm (HSK-A63) or 40,000 rpm (HSK-E50)

Siemens components

This machine is equipped with the state-of-the-art SINUMERIK 840D sl CNC with the fastest processing, powerful tool management, quick-view simulation of complex part programs and the easiest interactive 3D programming.
Our customers at IMTS

Elb-Schliff Werkzeugmaschinen GmbH & aba Grinding Technologies GmbH

The smartLine covers the entire spectrum of travelling table grinding machines. Its versatile building block system is designed to allow almost any combination of components to solve your specific grinding task. The Kombi-version allows individual configurations all the way up to a complex creep-feed grinding machine. Grinding width, grinding height, type of table drive and spindle power, and all variations of dressing units — from simple table-mounted dressing diamond to CD-grinding with a head mounted roll dressing unit — as well as an automatic tool changer for grinding wheels and dressing tools can be selected to meet specific requirements. Automatic tool and diamond roll changing allows grinding, drilling, milling, laser cladding, measuring pre- and post-machining processes including rework in one set-up. Improved accuracy as a result of less part handling.

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Siemens components

- SINUMERIK 840D sl CNC
- SINAMICS S120 drive system
- SIMOTICS S-1FT7 servomotors
EMCO Magdeburg GmbH

Designed for heavy-duty machining, the VT 260 is equipped with an integrated self-loading system, yet it gets by with a small footprint. High productivity, high repeat accuracy and good operability are the impressive product features that characterize this machine.

The turning machine has an integrated pick-up system and self-loads chuck parts with a diameter of up to 260 mm, thus saving the user the additional costs and programming time involved with the use of an automated unit. It is no longer necessary to align the automated unit with the machine causing unnecessary downtime.

Max. tool length 180 cm
Main spindle — ISM
Speed range 0 – 5000 rpm
Drive power 29 kW (38.9 hp)
Torque 280 Nm (207.2 ft·lbs)
Spindle nose/DIN 55026 A2-6
Number of tool holders 12
Feed drives
Rapid motion speed X/Y/Z 60/15/30 m/min

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Siemens components

- SINUMERIK 828D CNC
- SINAMICS drive platform
Booth S-8780

EMCO Maier GmbH

The new Hyperturn 45 is characterized by its dynamics and great flexibility. With two high-performance spindles, two tool turrets and a Y-axis, it is designed to handle challenging production requirements with ease. Its compact dimensions and high static and dynamic rigidity provide the best possible conditions for manufacturing medium to large quantities of precision workpieces.

It is particularly suited for use in general machinery and equipment engineering, and also in high-precision areas such as medical part manufacturing and the jewelry industry.

Main spindle
- Speed range 0–7000 rpm
- Max. torque on the spindle 100 Nm (73.7 ft·lbs)
- Spindle nose DIN 55026 A2-5
- Spindle bearing (inner diameter at front) Ø 85 mm (3.3”)
- Spindle bore Ø 53 mm (2.1”)

Feed drives
- Rapid motion speed X/Y/Z 30/15/45 m/min
  1181 / 590.5 / 1771 ipm
- Number of tool positions 2 x 12

EMCO Maier GmbH
Salzburger Str. 80
5400 Hallein Austria

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Siemens components

- SINUMERIK 840D sl CNC
- SINAMICS S120 drives
Booth S-8129

Fair Friend Ent. Co., Ltd.

The FEELER TC-20 is a brand new model with clear design goals including the overall improvement of:

- Machine rigidity
- Shorter tool changing time compared to the existing model
- Better machining quality and efficiency than most competitive machines on the market today.
- Machine performance verification for mechanical performance and electrical parameters

Fair Friend Ent. Co., Ltd.
No. 12, Jingke Rd., Nantun Dist., Taichung City
408 Taiwan R.O.C.

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Siemens components

- SINUMERIK 828D CNC
- SINAMICS S120 drive system
- SIMOTICS M-1PH8 main spindle motor
- SIMOTICS S-1FK7 generation 2 servomotor
With the Felsomat Flexline — the future of lean gear manufacturing — we offer our customers a complete and highly-efficient gear manufacturing system — from green turning and all other processes required through to hard gear finishing. We will present standardized, modularly-configurable machines and automation modules in intelligently-configured soft and hard machining cells. Visit our booth and discover our compact and scalable Flexline — the system for value-added gear manufacturing.

Felsomat USA, Inc.
1700 Penny Lane
Schaumburg, IL 60173  USA
+1 847 995 1086  info@felsomat.com
+1 847 885 2691  www.felsomat.com

Siemens components
We use the Siemens SINUMERIK 840D sl CNC, the SINAMICS drive system and Weiss spindles in our product lines.
- SINUMERIK 840D sl CNC
- SINAMICS S120 drive platform
- SIMOTICS S-1FK7 servomotors
- SIMOTICS S-1FT7 servomotors
- SIMOTICS L-1FN3 linear motors
- SIMATIC PROFINET I/O
The Cincinnati XT Profiler is ideal for aerospace manufacturers working in hard materials, offering the highest single machine metal removal rate (MRR) in the industry — over 100 cubic ipm in titanium.

Features include:
- Structurally enhanced machine design delivers torque and stiffness for sustained, chatter-free cuts
- Choice of 3, 4 and 5 spindle models
- Choice of 3- or 5-axis contouring models
- Unlimited X-axis to meet individual needs
- Choice of spindle speed and torque

Benefits include:
- High dynamic accuracy — rapid, precise production throughput
- Produce up to five parts simultaneously in the same cycle time as a single part
- Install multiple gantries on common X-axis rails for greater productivity
- Flexibility to efficiently process different materials — aluminum, steel, titanium, inconel

Fives Cincinnati
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Siemens components

This machine features the SINUMERIK 840D CNC system with SINAMICS S120 digital feed and spindle drives from Siemens.
Booth N-7018

Fives Landis Corp.

Viking Centerless Grinding Machine
The Viking can process a variety of components within the agriculture, automotive (engine, transmission, fuel systems), aerospace, bearing, construction and power transmission industries
- Infeed or through-feed
- 3,000,000+ lb/in of static stiffness machine base
- Conventional or superabrasive capability
- Variety of wheel dress option
- Sub-micron control resolution 0.1 micron
- Variable frequency drive grinding wheel
- Variable speed control regulating wheel
- Grinding diameter: 1.2–60 mm (0.05-2.4”)
- Grinding length: 195 mm (7.7”)
- Max. plunge infeed: 1,500 mm/min
- Motor power GW: 15 (30) kW

Fives Landis Corp.
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Hagerstown, MD 21740 USA

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+1 301 797 2820  grinding.fivesgroup.com

Siemens components
This Fives Landis machine utilize the SINUMERIK 840D CNC from Siemens.
With the POWERMILL series, Fives Liné Machines meets the needs required for high-speed and accurate machining.

Features of the POWERMILL series include:
- High rail-type gantry machine
- Powerful and rigid design
- 5-axis/5-sided contour part processing
- Linear motors or conventional drive
- Up to 3,000 ipm and up to 0.5 G
- Automated pallet system available
- Large choice of milling heads

Benefits include:
- High dynamic accuracy — rapid precise production throughput
- Capacity to process extremely long, wide and tall parts including lay-up tools, aircraft structures and wing panels
- Capacity to efficiently process different materials such as aluminum, composite, invar and titanium

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Siemens components

Fives Liné machines utilize the SINUMERIK 840D sl numerical control with SINAMICS S120 drives, SIMOTICS S-1FT7 servomotors and SIMOTICS L-1FN3 linear motors from Siemens.
Our customers at IMTS

Fives Machining Forest-Liné Albert

With the VECOMILL series, Fives Forest Liné meets the needs required for heavy-duty and accurate machining.

Features of this machine include:
- Low rail-type gantry machine
- CNC continuous positioning of the crossrail
- Powerful and rigid design
- 5-axis/5-sided contour part processing
- Up to 5,000 Nm (3,700 lbf.ft) continuous spindle torque
- Rotary table available
- Large choice of milling heads

Benefits include:
- High dynamic accuracy — rapid precise production throughput
- Capacity to process extremely long, wide and tall parts for the marine, energy and transportation industries
- Capacity to efficiently process different materials including aluminum, steel and titanium

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Siemens components

Fives Forest Liné machines utilize the SINUMERIK 840D sl CNC with SINAMICS S120 drives, SIMOTICS S-1FT7 servomotors and SIMOTICS M-1PH8 main spindle motors from Siemens.
Booth S-8109

**Fives Machining Forest-Liné Capdenac**

With the AEROMILL series, Fives Forest Liné meets the needs required for high-speed and accurate machining.

Features of the AEROMILL series machine include:

- Standalone or cell configuration with pallets
- Closed-loop gantry design
- 5-axis / 5-sided contour part processing
- Linear motors drive system
- Pallet size up to 3 x14 meters (10 x 46 feet)
- Cell management software (pallet, parts and tools)

Benefits include:

- High dynamic accuracy — rapid precise production throughput
- Capacity to process long and wide parts on pallet — full wing panels and aircraft structures
- Capacity to efficiently process different materials including aluminum and composite

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**Siemens components**

Fives Forest Liné machines utilize the SINUMERIK 840D sl CNC with SINAMICS S120 drives, SIMOTICS S-1FT7 servomotors and SIMOTICS L-1FN3 linear motors from Siemens.
Our customers at IMTS

Booth S-8719

Fryer Machine Systems, Inc.

The Fryer SX 5-axis machining centers feature a swivel head that moves +/- 110°. Available with either a 24” flush mounted rotary table or a table mounted rotary. This configuration allows you to customize the machine to your needs. It features a 40 tool ATC, 16,000 rpm spindle, 40 hp and 1,400 IPM rapids.

Fryer Machine Systems, Inc.
70 Jon Barrett Road
Patterson, NY 12563 USA

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📧 sales@fryermachine.com
🌐 www.fryermachine.com

Siemens components

The standard SINUMERIK 840D sl CNC with SINAMICS S120 drives features the ultimate in 5-axis operation and programming convenience.
The Lifehone L630 from the Gehring modular standard honing machine line offers a systematic approach that is advantageous in establishing a highly-efficient manufacturing process. Standard part applications that can be honed on this machine range from sun gears, connecting rods, hydraulic sleeves, and injector pump components. The L630 Lifehone is a honing center that can be equipped with 1 or 2 honing spindles. Depending upon the machining task and the batch size, this type of machine can be equipped with a fixed or rotary table and up to 8 stations. These stations can also be used for measuring or brushing operations. Upgrading options and standardized modules allow for the machine to be configured to match customer-specific requirements.

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Farmington Hills, MI 48335 USA

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www.gehringlp.com

Siemens components

- SINUMERIK 840D CNC
- SINAMICS S120 drive system
- SIMOTICS servomotors
- SIMATIC safety PLC
GILDEMEISTER Drehmaschinen GmbH

The CTX gamma 2000 TC is one of the most recent turn-mill machining centers of the second generation with new Turn-Mill spindle compactMASTER® II. The length of the compactMASTER spindle has been reduced to 17.7 in. — this with a 120% higher torque to 162.3 ft lbs. The interplay of the 5.9 in. larger X-axis (-1 / +30.5 in.) and the 0.8 in. longer Y-travel of ± 8.3 in. brings an enormous gain in freedom for users.

- compactMASTER II — 120% greater torque for 162.3 ft./lbs. and 2.8 in. shorter lengths
- 5.9 in. larger X-travel and 0.8 in. larger Y-travel for enhanced radial machining flexibility, workpieces up to Ø 27.6 in.
- 21.7 in. long tools, horizontal drilling or hollow through turning of workpieces up to 21.7 in. length
- 6-sided complete machining with main spindle rated at up to 2,950 ft./lbs. and counter-spindle* rated at up to 1,623 ft./lbs., chuck size* up to Ø 24.8 in.

Siemens components

This machine is equipped with the SINUMERIK 840D sl CNC with powerful tool management, quick-view simulation of complex part programs and the easiest interactive 3D programming.
The 400HCD is another advanced machine in our Genesis line of cylindrical hobbing machines. Designed with dry hobbing expressly in mind, the clean internal chamber controls the process media effectively and the unique chip collection system provides an added level of thermal stability during cutting. The sound construction is executed to exploit the benefits of the latest dry cutting tools with higher spindle speeds, rigid structures, and high inertia spindles. This makes the 400HCD well suited for a wide variety of parts and aggressive productivity. Customers in the truck, agricultural and jobber markets will appreciate the easily accessible machine components for simple maintenance and the ergonomic hob change position for tool changes.

To compliment the flexibility of the main hobbing process, the 400HCD also includes parallel chamfering achieved by a fly cutting process. This process uses a universal tool to create a chamfer along the newly created tooth profile on both sides of the workpiece or other desired feature. A single, low-cost tool can be used for a wide variety of parts, and no additional machining time is required. When the workpieces exit the machine, they are hobbed, chamfered and ready for the next step in the process.

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Siemens components

- SINUMERIK 840D sl CNC
- SINAMICS S120 drive system
- SINUMERIK Operate graphical user interface
Booth N-7000

Gleason-Hurth Maschinen und Werkzeuge GmbH

The 260GX Threaded Wheel Grinding Machines, its latest addition to the highly successful Genesis® series. The twin spindle concept combines maximum productivity with minimum idle and set up times. Fast, easy, software-guided setup of the machine allows users to set-up the GX-series from one workpiece to another in just 20 minutes using a single tool.

“First Part Cycle” features a fully-automatic workflow from setup to grinding the first workpiece. In addition, the machine is equipped with latest innovative technology features such as twist-controlled grinding, automated process data proposal, variable rate method (VRM) for a favorable surface structure and polish grinding for an excellent surface finish. In addition, productivity of the GX-series is further enhanced when paired with automation solutions from Gleason Automation Systems.

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Siemens components

- SINUMERIK 840D sl CNC
- SINAMICS S120 drive system
- SIMOTICS S-series servomotors
Gleason’s power skiving concept is ideal for the highly-productive manufacturing of cylindrical internal and external gears with outstanding gear quality and significant reductions in cost-per-piece, when compared with the gear shaping process, for example.

Gleason’s tool concept gives the power skiving process unprecedented flexibility and simplicity of process management. This makes the process equally suitable for small lot runs, as well as mass production.

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Siemens components
The Gleason 300PS machine features the SINUMERIK 840D CNC from Siemens.
GROB Systems brings the G-series universal machining centers to IMTS. Based upon a proven horizontal machining center platform, these 5-axis machining centers are like no other. GROB machines are highly-precise, remarkably low maintenance, and ideal for shops requiring ultimate precision and accuracy. A unique retractable spindle and swivel-rotary table provide unmatched accessibility to the workpiece, even with long tools.

Visitors will see the next generation of universal machines in the new G350. Also on display: a mid-size G-550T with the high-speed turning option, as well as a new rotary pallet storage system (PSS-R) for unmanned machine loading and unloading. The compact PSS-R is easily integrated or retrofitted to existing machines.

Siemens components

The G-series is equipped with the Siemens SINUMERIK 840D sl numerical control including the 5-axis SINUMERIK MDynamics milling technology package, SINAMICS S120 drives and SIMOTICS S-1FK7/1FT7 servomotors.

This solution offers easy-to-use programming, which ranges from the ShopMill workstep programming system from Siemens, visual workpiece programming, to the use of all necessary milling, swivel and measuring cycles.
The Tool Dynamic TD 2010 Automatic is a truly universal CNC-based balancing machine with automated correction of the unbalance. It automatically compensates the unbalance in one or two planes by drilling or milling. The machine can work vertically and horizontally. The balancing machine is controlled by an integrated 19” touchscreen.

The numerical control is a SINUMERIK 840D sl, which can be accessed simultaneously with the balancing software.
Hanwha Corporation

The easy-to-use STL-series features distinguished power, large output and the greatest compound multi-function processing capability.

Main features of this machine include:

- Turret mounted for complex-machining parts
- Powerful built-in motor (8.0 kW) on main and sub-spindle
- 60-degree slant bed structure makes better chip discharge and coolant oil flow
- Y2-axis on back tool post available

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Siemens components

- SINUMERIK 840D CNC
- SINAMICS S110 drive system
- SIMOTICS S-series servomotors
HELLER Machine Tools introduces the top range of its highly-productive 4-axis H-series horizontal machining centers, the H 14000. This large-capacity machine combines a super-robust machine design with the structural stiffness and high torque required for making the deepest cuts in the toughest alloy steels and irons. HELLER’s H-series is ideal for machining large pumps and housings for power and fluid transmission. The capacity of the H-series machines to make roughing cuts all day long, while still providing finishing accuracies for XYZ positioning of 0.010mm, make them ideal for large, difficult-to-machine alloy steel and iron components. The HELLER H 14000 is the part of the H-series, featuring a work area of 2400 x 1600 x 1600mm in X/Y/Z over a 1000 mm pallet capable of handling a 4000 kg workpiece load and feed forces of 20,000 N make it capable of demanding cuts.

**Siemens components**

- SINUMERIK 840D sl CNC with NCU 720 (optional NCU 730)
- 12” operator panel with SINUMERIK Operate graphical user interface
- SINAMICS S120 drive system
- SINUMERIK Safety Integrated
- SIMOTICS 1FT7 servomotors
- SIMOTICS 1FK7 servomotors
Our customers at IMTS

Booth S-8136

Hermle Machine Company, LLC

The C52 UMT is intended for the simultaneous 5-axis machining of workpieces weighing up to 2000 kg — with unbeatable accuracy and precision. Parameters that always represent a challenge for the machine dynamics. Hermle has overcome these challenges by developing and designing a precise and high-performance machining center. The Mill-Turn version also adds the capability of simultaneous 5-axis turning to the milling operation. Travel path: 1000-1100-750 mm / 12,000 rpm spindle (HSK-T 100) / 1000mm torque table (500 rpm) / max turning table load: 1000 kg / total of 150 tool pockets.

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info@hermlemachine.com  www.hermlemachine.com

Siemens components

This Hermle machine is equipped with the innovative and state-of-the-art SINUMERIK 840D sl CNC and SINAMICS S120 drive system from Siemens.
Höfler (Klingelnberg)

The VIPER 500 gear grinding machine is designed for component diameters up to 500 mm and is optimally suited for small- to medium-sized batches. To suit individual requirements, the machine is available in three different configurations: profile grinding, small grinding wheels for custom jobs and multiple-wheel technology (K) and generation grinding (W).

The VIPER 500 W configuration allows both profile grinding and continuous generation grinding on the same machine — with minimal retooling time. To change the grinding technology, just swap out the grinding wheel, the grinding wheel flange and the dressing wheel. On all variants, the optional internal gear grinding arm allows retooling from external to internal gearing.

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Siemens components

This machine is equipped with the Siemens SINUMERIK 840D sl CNC and SINAMICS S120 drive system.
Huron Graffenstaden

The HSM (High-Speed Machining) concept, KX FIVE-series machine enables operations in five simultaneous axis, from roughing to finishing, of all types of complex workpieces. These fixed portal type 5-axis machines combine high dynamics and machining accuracy to obtain the best surface finish even during the machining of complex contours and profiles. The table is equipped with TRIM technology inclined at 55° plane allowing a tilting from -30° to +180° with a rotational speed of 50 rpm and 0.001° incremental measuring. Pallet and other spindle options available.

- Travel (X/Y/Z): 780 x 700 x 500 (mm)
- A axis: -30~180deg
- C axis: 360° rotary table
- Rapid feedrate: 50 m/min
- Acceleration: 5 m/sec²
- Spindle: 24 kw, 24000 rpm, HSK A63
- ATC: 20 tools

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Siemens components

- SINUMERIK 840D sl CNC
- SINAMICS S120 drive system
- SIMOTICS S-series servomotors
Hyundai-WIA Corporation

Vertical Machining Center / High-Speed Tapping Center

Hyundai WIA, a Korean manufacturer of traditional machine tools that are built with the power of precision and state-of-the-art technology, developed the Vertical Machining Center i-CUT400 Series — a machine that maximizes productivity, while maintaining rigidity and accuracy.

Main features include:

- Direct, 24,000 rpm of spindle
- Spindle acceleration/deceleration 0–24,000 rpm: 1.6 sec
- Spindle taper: BBT30
- Rapid feedrate each axis 56 m/min, acceleration/deceleration “1.27G”
- Rigid tapping 6,000 rpm
- Tool change time (C-C): 1.89 sec
- CNC: iTROL

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Siemens components

- SINUMERIK 828D CNC
- SINAMICS S120 drive system
- SIMOTICS S-series servomotors
Hyundai-WIA Machine America Corp.

5-axis Vertical Machining Center

The XF6300 Vertical Machining Center, designed by Hyundai WIA with years of expertise and the latest technology, is made to meet the intense performance requirements of the mold industry.

Cutting-edge high-speed and high-precision 5-axis machining center:
- Increases strength with all-in-one bed and column structure
- Machines high-precision parts with X-axis box-in-box structure
- Built-in DDM table
- Standard 34-tool ring-type ATC (C-C time: 4.5 sec.)
- 19” LCD operator panel monitor

The XF6300 is designed with unified column-bed structure, and when compared to separate structure, it has better structural stability. The machine demonstrates excellent performance in high-quality machining with high rigidity and excellent vibration absorption.

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Siemens components
- SINUMERIK 828D CNC from Siemens
- SINAMICS S120 drive system
- SIMOTICS S-series servomotors
INDEX Corporation / INDEX Werke (Esslingen)

INDEX MS16C Plus — up to 22 mm bar capacity, 10,000 rpm, 6 fluid-cooled motorized spindles, infinitely variable speed range, high torque, C-axis and live tools, fully CNC-controlled slides, double synchron spindles, flexibility for the highest productivity.

Combines the flexibility of modern INDEX CNC multi-spindle technologies with the productivity of CAM-controlled machines.

Freely accessible work area, shortest possible changeover, ultra-high dynamics, lowest idle times with minimum footprint, resulting in minimal cost per part.

High thermal stability, non-wearing Z-axis quills in hydrostatic bushings, X-axis slides in box type design, harden steel on coated harden steel, match ground, for highest surface finishes and smallest tolerances resulting in the highest cpk requirements.

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www.indextraub.com

Siemens components

The INDEX MS16C Plus machine is equipped with

- Double SINUMERIK 840D sl CNCs in multi-axis application based upon NCU-link technology.
- Customized user interface for best multi-spindle operation realized with the SINUMERIK Operate graphical user interface.
- SINAMICS S120 drives with SIMOTICS 1FT7 servomotors for high dynamic and high-speed machining.
- INDEX also offers a MS16C Plus Virtual Machine on PC, based upon the SIEMENS VNCK (Virtual NC-kernel) for programming, optimization and training off the machine.
INDEX Corporation / INDEX Werke (Reichenbach)

INDEX G220, milling / turning center, ideal for complex parts, highest degree of rigidity, thermal and dynamic stability and vibration dampening — Y/B-axis guided in hydrostatic bushings, B-axis driven by powerful torque motor — parts can be machined on six sides with the highest precision.

- Main and counter-spindle through capacity DIA 65 mm/5,000 rpm/170 Nm
- Option: main and counter-spindle through capacity DIA 90 mm/3,500 rpm/310/207 Nm
- Motorized milling spindle — HSK40/18,000 rpm/30 Nm
  Option: HSK63/12,000 rpm/68 Nm
- Y-axis — 160 mm, B-axis – 280 degrees, 5-axis machining
- Tool magazine with up to 140 stations (HSK40) / up to 100 stations (HSK63)
- Fast tool change of approx. 6 s (chip-to-chip)
- Lower turret with up to 18 stations (VD125), all stations driven 7200 rpm/18 Nm, Y-axis 100 mm, 3 dim. machining on main or counter-spindle

Siemens components

This INDEX G220 machine is equipped with
- SINUMERIK 840D sl CNC
- SINUMERIK MDynamics 5-axis milling technology package
- SINAMICS S120 drives
- SIMOTICS S-1FK7 servomotors
- SIMOTICS S-1FT7 servomotors
- SIMOTICS M-1FE1 built-in motors
- SIMOTICS T-1FW6 torque motors
Ingersoll Machine Tools, Inc.

Ingersoll Machine Tools is the leader in hard metals machines. Designed and built in Rockford, Illinois, Ingersoll offers a complete line of products for every material and application. From metal removal to automated fiber placement (AFP) machines for the manufacture of composite structures, Ingersoll has a solution. Metal-cutting machines include a range of titanium and hard metals milling machines, general milling machines, rotor slotters, scalpers, multi-spindle solutions and many more. In addition to AFP, Ingersoll also offers composites milling machines. Ingersoll serves global markets for titanium, hard metals, aluminum, steel and composite materials across a wide range of industries.

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Siemens components

Ingersoll utilizes the latest Siemens SINUMERIK 840D CNC and SINAMICS S120 digital drive technology to ensure maximum machine performance and compatibility of all drive and control components. Moreover, the global presence of Siemens assures superior technical support and service throughout the entire lifecycle of the machine.
Booth S-8262

Jyoti CNC Automation Ltd

More automation is the only solution for mass production components. Production lines with long unattended operation shall require machines like the TS 120 — a perfect production line with twin spindle and twin spindle chuckers with complete automation. These machines are equipped with integral gantry for loading and unloading of jobs with changeover station for job setup, enabling long hours of unmanned operation.

- Travel: (X/Z): 130 mm/145 mm
- Main spindle: 2 nos., 7/10.5 kW (both), 50–4,500 rpm, A2-5 type
- Turret: 2 nos., 8 tools per turret, indexing time: 0.5 s
- Chuck size: 170 mm
- Loader capacity: Ø 120 x 80 mm
- Automated gantry loader

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Siemens components

- SINUMERIK 828D CNC
- SINAMICS S120 drive syste,
- SIMOTICS S-series servomotors
- SIMOTICS M-series main spindle motors
KAPP NILES presents a highly-productive manufacturing cell for grinding planetary gears for automatic automobile transmissions. The KX 100 Dynamic expands on the technology previously applied in the KX 160 TWIN multiple spindle design. This patented machine makes it possible to minimize auxiliary process and setup times. An integrated loading function, coupled with an optional automatic changeover of the workpiece, makes this machine the perfect solution for medium- and large-batch production of external spur and helical gears.

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Siemens components

The SINUMERIK 840D sl control system is equipped with an operator-friendly, menu-driven, graphical user interface, developed by KAPP NILES to match the specific machining requirements. In addition, the following components from Siemens are used:

- SINUMERIK 840D sl CNC
- SINAMICS S120 drive system
- SIMOTICS S-1FK7 servomotors
- SIMOTICS S-1FT7 servomotors
- SIMOTICS M-1FE1 built-in motors
KR AGILUS—Compact, precise, agile and fast — the robots of the KR AGILUS-series are the new masters of speed. When it comes to handling tasks, the KR AGILUS offers impressive results combined with minimized cycle times. At the same time, the small robot family works with great precision, enabling manufacturing quality of the highest quality. Its speed and accuracy make the performance of the KR AGILUS unique in its payload category. The basic model, KR 6 R900 sixx, weighing 51 kilograms, can carry a maximum payload of 6 kilograms. The KR AGILUS is pre-destined for operation in general industry, wherever automation with low payloads is required.

Siemens components

- SINUMERIK 840D sl CNC with Run MyRobot functionality
In today’s technologically-advanced world, there are a growing number of applications where conventional machining techniques just aren’t accurate enough to meet precision surfacing requirements. Precision surfacing with abrasive media, a technology developed and refined by LAPMASTER WOLTERS over the past 200 years, can often be the answer.

The Peter Wolters AC microLine® 700 double-side batch processing machine has been designed for high-precision series processing of small and medium size work pieces. Due to its modular construction, it is already in use as a precision fine grinding, lapping, honing, polishing and deburring machine.

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Siemens components

The AC microLine® 700 double-sided-fine grinding machine is equipped with maintenance-free servo-drives from Siemens. All working, control and adjustment processes are controlled by the SIMATIC S7-300 PLC. Data exchange from and to the I/O-periphery is achieved via PROFIBUS. The operator interface is a KP1200 Comfort from Siemens with a color TFT display and foil keyboard for function buttons and an alphanumerical keyboard. The Human Machine Interface (HMI) is designed with Siemens “Totally Integrated Automation (TIA)”.

Booth N-7451
Our customers at IMTS

Booth N-7451

Lapmaster Wolters Limited

In today's technologically-advanced world, there are a growing number of applications where conventional machining techniques just aren't accurate enough to meet precision surfacing requirements. Precision surfacing with abrasive media, a technology developed and refined by LAPMASTER WOLTERS over the past 200 years, can often be the answer.

The LAPMASTER WOLTERS SPL has been developed to produce a convex or concave scratch-free, high-quality surface on sphere components. This system is effective on most materials including ceramic, glass, graphite, ferrous metals, alloyed metals and sterlite coatings.

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Siemens components

The SPL1 Special Purpose Lapping Machine is equipped with three SINAMICS G110-driven variable speed drives. All working, control and adjustment processes are controlled by SIMATIC S7-1200 PLC. The data exchange from and to the I/O-periphery is achieved via PROFIBUS. The operator interface is a KTP600 Basic 6” HMI from Siemens with a mono TFT display and foil keyboard for function buttons and shortcut keys.
Siemens solutions and services for the machine tool industry

Booth S-8129

Leadwell CNC Machines Mfg Corporation

High Rigidity —
FEA Analysis, high rigidity structure design, six guideway blocks in X-axis, 3-axis ball screw pre-stressing

High Reliability —
Roller type motion system, 3-axis absolute motor

High Efficiency —
Rapid feed rate 48/48/36 mm, spindle speed 12,000 rpm (optional), tool change time T to T 1.8 sec, tool change time C to C 4 sec

High Flexibility —
30 tool magazine available, 4/5 axis rotary table available, front/rear chip disposal available

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Siemens components

- SINUMERIK 828D CNC
- SINAMICS S120 drive system
- SIMOTICS M-1PH8 main spindle motor
- SIMOTICS S-1FK7 generation 2 servomotor
- Functions of the Siemens system include:
  Managing of network drives, extended operator functions, ShopMill and ShopTurn machining step programming, residual material detection, simultaneous recording (real-time simulation of the current machining), 3D simulation and measuring cycles
Our customers at IMTS

Booth N-6930

Liebherr-Verzahntechnik GmbH

Single-table solution with short cycle times — the new generating and profile grinding machine is available in two versions: the LGG 180 for all gears up to 180 mm in diameter and the LGG 280 for gears up to 280 mm in diameter, and workpiece lengths up to 500 mm. The grinding machine combines short grinding times with consistently high-quality in high-volume operations, which is made possible by the single-table solution. Extremely fast load/unload times of 4-seconds, chip-to-chip, with a single-table

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Siemens components

This Liebherr grinding machine is equipped with the SINUMERIK 840D sl numerical control with SINAMICS S120 drives, and is ideal for use in the automotive, aerospace and power generation industries, along with tool-and mold-making.
Pictured above shows the smallest ‘foot print’ 0550 external thread / worm grinding machine from Matrix Machine Tool (Coventry) Limited. This machine is supplied to many diversified Industries producing different parts such as, thread gauges, steering system parts, multi-start worms and thread rolls to name but a few.

This external machine compliments our internal thread grinding machine, which similarly produces internal parts again for diversified industries.

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Siemens components

- SINUMERIK 840D sl control system with PCU 50.5, HMI Advanced software
- Thin Client Unit (TCU) with OP08T or OP10 operator panels and machine control panel MCP 310/483.
- SINAMICS S120 booksize drive unit with NCU 710.3
- SIMOTICS S-1FK7 generation 2 servomotors
- SIMOTICS M-1FE1 built-in motors
- SITOP 24V 3 phase 400V power supply
Booth N-7036

NILES Werkzeugmaschinen GmbH

The state-of-the-art KAPP NILES ZE 800 Gear Grinding Machine with more than 250 installations worldwide offers a modular machine concept which is designed to meet the demand for utmost flexibility, best possible productivity and the highest precision in grinding of external and internal gears with involute profiles. Discover the outstanding performance of the ZE 800 and visit us in our booth.

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Siemens components

The SINUMERIK 840D control system is equipped with an operator-friendly, menu-driven, graphical user interface, developed by KAPP NILES to match the specific machining requirements. In addition, the following components from Siemens are used:

- SINUMERIK 840D sl CNC
- SINAMICS S120 drive system
- SIMOTICS S-1FT7 servomotors
- OP15A 15" operator panel
OERLIKON (Klingelnberg)

Thanks to continual development of the vertical concept, the Oerlikon bevel gear cutting machine C 30 sets new standards in dry processing. All bevel gear machines in this series are equipped with a thermostable, vibration-damping machine bed. The cutting machine utilizes an optimized axis arrangement, resulting in reduced traversing paths that ensure a significantly reduced load on the drive components and at the same time a stiffer design of the complete system. Above and beyond this, an integrated deburring tool enables maximum productivity and utmost process safety through the use of the PULSAR method. A key highlight of this machine series is its innovative operating concept and ultra-modern control technology. The modern touchscreen display and the newly developed operating concept make the C 30 more intuitive to operate compared with standards commonly found on the market.

Siemens components

This machine is equipped with the Siemens SINUMERIK 840D sl CNC and SINAMICS S120 drive system.
Our customers at IMTS

Booth S-8959

Parpas S.p.A.

PARPAS, the main brand of GRUPPO PARPAS and well-known within Italian machine tool builders, is presenting one of the most innovative, high-speed machines — the DIAMOND LINEAR gantry machine.

The complete design has been developed using computers with FEM software, giving particular attention to the size of the structure to obtain maximum rigidity and accuracy.

The machine has linear motors on the X-Y-Z axis, as well as torque motors for the rotative axis of the milling head. An innovative, patented system controls the thermal deviation on the structures enabling very high accuracy values in 5-axis machining in any environmental condition.

The Diamond Linear machine is equipped with 5-axis milling head configuration with high-speed spindle at 20,000 rpm, with 30 kW power and 100 Nm torque. This results in excellent roughing, semi-finishing and finishing operations, and is ideal for mold-and-die and aerospace applications where all kinds of materials — from steel to aluminum to composite — are machined.

The capacity of the machine is 2200 x 1500 x 1000 mm.

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Siemens components

This machine is equipped with the SINUMERIK 840D sl CNC with NCU730.3B and the new Siemens HMI software version 4.7. It also features the SINAMICS S120 drive system, SIMOTICS S-1FT7 servomotors and SIMOTICS L-1FN3-series linear motors.
Pittler T & S GmbH

The PV³ is the innovative solution for complete machining of rotationally symmetrical and cubic parts. The modular concept allows the machine to be produced with one or two independent spindles and with one or two cross slides. The PV³ combines technologies such as turning, drilling, thread cutting, milling, skiving, grooving or grinding and gear hobbing, as well as hard turning and grinding including integrated quality check in a monitored process, all in one machine.

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Siemens components

The PV³ features the SINUMERIK 840D numerical control from Siemens.
Präwema Antriebstechnik GmbH

The SynchroFine® 205 HS — (W) is a high performance gear honing machine with directly-driven, digitally-controlled spindles for the tool and the workpiece. In combination with the high drive power installed, the SynchroFine® provides extremely precise and rigid coupling between the tool and workpiece even at the highest speeds. The entire machine rests on a natural granite base and the workpiece spindle is positioned on a separate granite support to minimize vibration and temperature influences. The X and Z axes on the SynchroFine® 205 HS are equipped with linear motors ensuring higher dynamics for even better machining quality while simultaneously reducing the cycle times.

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Siemens components

The SynchroFine® 205 HS is equipped with the SINUMERIK 840D numerical control from Siemens.
Booth N-6924

Profilator GmbH & Co. KG

The Profilator S-Type is a highly productive, highly flexible gearing system available in three machines sizes with single- or multi-spindle options. Suited for general drive applications, as well as for gear production for the automotive and commercial vehicle markets, the S-500 is a vertical, single spindle pick-up gear cutting machine for gears up to a diameter of 500 mm.

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Siemens components

Profilator S-Type machines are controlled by the SINUMERIK 840D CNC.
RedViking designs, builds and implements virtually everything that goes inside a factory. From individual cells to complete turnkey assembly lines, RedViking is the choice for aerospace, automotive, commercial vehicles, off-highway and defense manufacturers. Our offerings include:

- Wingspan Battery-free AGV® assembly lines
- Complete turnkey assembly lines, from greenfield or brownfield
- Single and multi-model powertrain test systems with Vsync dynamic testing software
- Complete MES systems, including Argonaut™ manufacturing process platform
- Full MES/OEE design and implementation
- Custom specialty machines and assembly cells
- Custom robotic cells and lines Dimensional gages (ISO 17025) and leak testers
- Mobile factory apps

RedViking currently supports customers in North, Central and South America, as well as western Europe, Asia and the Middle East.

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Siemens components

A full Siemens controls option is available for Battery-free AGVs. SINAMICS drives and SIMOTICS motors are used in RedViking powertrain test systems for helicopters, fixed wing aircraft, automotive, commercial and off-highway vehicles. Siemens controls are used in many RedViking specialty machines and assembly cells.
The RZ 260 gear grinding machine equipped with two work spindles making it a highly-productive machine developed for the automotive/truck, construction and marine industries for grinding gears and pinions. We will demonstrate a new process called polish and fine grinding, achieving surface finishes never before possible associated with the grinding process. The machine has been optimized to achieve the shortest possible cycle as all idle time or non-productive times have been slashed allowing typical floor-to-floor cycle times of under one minute. The Felsomat FSC 600 Flex Stacking Cell loader has been optimized to take advantage of the short cycle times allowing the machine to run unattended for several hours. Learn why Reishauer has become the “Industry Standard” for hard gear finishing, allowing users to achieve shortest possible cycle times, uncompromised quality, lowest cost-per-piece and highest reliability in the industry today. Learn about our other models with capacities up to 1000 mm.

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Siemens components

The Reishauer RZ 260 Gear Grinding machine features the SINUMERIK 840D sl numerical control, SINAMICS S120 drive system, SIMOTICS 1FE1 built-in motors, and SIMOTICS 1FK7 servomotors from Siemens.
Romi (Brazil)

ROMI DCM 620-series consists of advanced vertical machining centers designed for the machining of parts with simple and complex geometry at high speeds. The machine configuration with 5-axis simultaneous or 5-sided allows the machining complex of parts in a single setup, greatly reducing machining time, with efficiency, accuracy and productivity. The bearing housing of the table assures total rigidity in high-load operations. The headstock cooling system brings a great benefit of reducing possible heat distortions of the housing, assuring perfect alignment of the center line of the spindle in machining operations that demand high precision positioning of the Z-axis. Spindle cartridge is directly coupled to the main motor (direct drive) with great efficiency in power and torque transmission.

The base is robust and made of cast iron. It supports the table assembly, comprised of B- and C-axes, column assembly and headstock assembly. X, Y and Z-axes have linear roller guides which offer high rigidity, stability, positioning accuracy and high-quality surface finishing with maximum efficiency and productivity.

Siemens components

This ROMI machine is equipped with the SINUMERIK 828D CNC with a 10.4” operator panel, a full QWERTY keyboard and USB, Compact Flash card and Ethernet connectivity on the front panel. Featuring 80-bit NANO floating point accuracy and Advanced Surface for mold-and-die applications, the 828D offers a number of powerful CNC functions. ShopMill and ShopTurn graphical programming make the ROMI DCM 620-series easy-to-setup and easy-to-use.
Romi Machine Tools, Ltd

ROMI C-series lathes are machines with great versatility for machining different types of parts, with great levels of power, quick movements and machining accuracy. With robust structure, high rigidity and stability, it provides great performance in the most varied conditions. Using the resource Kit Multiplic, the machine can be operated in manual mode, by electronic handwheels and also in automatic mode (joystick and cycle start). Headstock has robust framework that incorporates the cartridge. The spindle is supported by precision bearings with high-load capacity offering rigidity and great vibration absorption under severe cutting conditions, allowing workpiece machining with excellent geometric accuracy. They are driven by AC motor through pulleys and micro-V belt, which delivers high torque.

Siemens components

C-series lathes from ROMI are equipped with the SINUMERIK 828D CNC with a 10.4” operator panel, a full QWERTY keyboard and USB, Compact Flash card and Ethernet connectivity on the front panel. The 828D offers users excellent resources for creating and editing part programs such as canned cycles for turning and drilling. ShopTurn is available and allows operators and programmers to quickly and easily create part programs in a quick and easy manner with the need to know ISO-code.
Safop S.p.A

The Ball Matic-series includes special machines designed for turning and grinding operations on spheres of ball valves.

- **BM 24”** — for ball valves with internal diameter up to 24”. The machine is equipped with a hydrostatic system on the cross slide.
- **BM 36”** — for ball valves with internal diameter up to 36”. The machine is equipped with one longitudinal and two cross carriages (all hydrostatic).
- **BM 48”** — for ball valves with internal diameter up to 48”. The machine is equipped with a dedicated bed and carriage for grinding operations.
- **BM 64”** — for ball valves with internal diameter up to 64”. This machine allows both turning and grinding operations on ball valves of extremely large dimensions.

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Siemens components

- SINUMERIK 840D sl CNC
- SINAMICS S120 drive system
- SIMOTICS S-1FT7 servomotors
- SIMOTICS M-1PH8 main spindle motors
- SIMOTICS M-1PH7 main spindle motors
Samputensili Machine Tools S.r.l.

The Samputensili SG 160 SKY GRIND is a new, revolutionary machine, based upon a ground-breaking concept that totally eliminates the need for cutting oils during the gear grinding after heat treatment.

The machine removes most of the stock allowance with the first pass using a skive hobbing tool, which has the advantage of not heating the workpiece excessively. With the second finishing pass, a grinding wheel removes the remaining stock without causing problems of overheating the workpiece.

The innovative structure with two spindles, actuated by linear motors and the simultaneous use of more channels, ensure a chip-to-chip time of less than two seconds.

The final result is an environmental sustainable and amazingly-productive machine, characterized by a very small footprint and a lower cost of investment for auxiliary equipment.

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Siemens components

The machine features the SINUMERIK 840D sl CNC. The high performance of the NCU730.3 PN is supplemented with the intuitive design of the SINUMERIK Operate graphical user interface, which not only makes life easier for the operator, but also allows the designer to implement his or her own expertise using customizable pages.
Our customers at IMTS

SAUER GmbH

Booth S-8900

The completely redesigned ULTRASONIC 20 linear 2nd Generation offers a new functional design and a reduced footprint of 37.7 ft² along with improved rigidity and dynamics. Furthermore, a higher spindle speed up to 60,000 rpm for high-speed cutting (HSC) and up to 50,000 rpm for ULTRASONIC applications are possible. The optional mill-turn-table also allows economical ULTRASONIC cylindrical grinding operations in advanced materials.

- ULTRASONIC-Grinding and HSC-Milling with 42,000 rpm on one machine: flexible interchange based upon a standard HSK-32 / 40 tool holder
- Optional, high-performance spindle for HSC-milling with up to 60,000 rpm and ULTRASONIC with up to 50,000 rpm
- Linear drives in X, Y, Z with > 2 g acceleration and 40 m/ min rapid traverse
- Optional, mill-turn-table with max. 1,500 rpm

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Siemens components

This machine is equipped with the Siemens SINUMERIK 840D sl CNC with powerful tool management, quick-view simulation of complex part programs and the easiest, interactive 3D programming.
Booth N-7516

Schütte GmbH Co. & KG

The high-precision 5-axis CNC grinding machines of the 325 series are extremely flexible and universal. They are used for machining cutting tools, medical and production parts. 325-series machines are equipped with five CNC axes and the most modern digital control technology. The open structure of the SINUMERIK 840D sl permits the introduction of specific functions. The Schütte SIGSpro enables simple operation and programming for users, even of complex kinematic sequences. 3D simulation integrated into SIGSpro can check and guarantee the process sequence with regards to the quality of the ground tools and also collision-free machine operation.

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Siemens components

- SINUMERIK 840D CNC
- SINAMICS S110 drive system
- SIMOTICS M-series main spindle motors
- SIMOTICS L-series linear motors
- Weiss spindles
Booth N-7516

**Schütte L.L.C.**

The SCX machine consistently unites the tried-and-tested features of the classic multi-spindle automatic (speediness, rigidity, reliability and productivity) with the requirements of a modern NC machine — wide range of functions, precision, flexibility, easy setup and operability. The vision of a “multi-single-spindle automatic” has been put into practice. The SINUMERIK 840D sl control system is used which, thanks to its channel structure, fully embraces the concept of a multi-single-spindle automatic machine. Extensions to operation and programming support users with the organization of the multi-spindle automatic machining operations, management of tool corrections and the use of frequently-required machining cycles.

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**Siemens components**

- SINUMERIK 840D CNC
- SINAMICS S110 drive system
- Weiss spindles
BA W02 The two-spindle machining center with linear and torque motors is setting new standards in 5-axis machining. On just 4 square meters of installation surface, you can manufacture complex workpieces made of non-magnetic materials at high speeds. That makes this machine ideally-suited for a highly diverse range of applications in precision engineering, including the watchmaking industry, and impeller manufacturing in automotive.

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Siemens components

This machine features the SINUMERIK 840D sl control system and SINAMICS S120 drive platform. They are also equipped with motor spindles and linear motors from Siemens.
Sunnen Products Company

Sunnen’s SH-4000 power-stroked honing machine merges a SIMATIC IPC and digital-servo drives with a patent pending servo-hybrid tool feed system, extreme repeatability, and clear adjustable guard/light curtain for faster, operator-friendly setups. The SH-4000 is engineered as an easy-to-use, flexible hone for medium to high production of parts with bore diameters from 1.5 to 101.6 mm (0.060”–4.0”). It is capable of processing a wide variety of part sizes and configurations, and cutting all kinds of materials quickly and efficiently. It features a 4.1-kW (5 hp) spindle drive and 1.1-kW (1.5 hp) stroker drive, with stroke travel up to 392 mm (15.43 in). Spindle speed is infinitely adjustable from 200 to 3,000 rpm, with stroke rates of 10–550 SPM.

Siemens components

The Sunnen SH4000 is a precision, power stroked, 2-axis horizontal honing machine incorporating a SIMOTION D410-2 controller, and both SINAMICS S (ball screw stroker) and G (spindle) variable frequency drives along with a SIMATIC IPC for software control and user interface.
The excellent ultrasonic control technology can ensure the stability of long-term machining. Frequency scanning and power setting can be automatically completed by the controller to improve productivity.

Periodical tool axial vibration (15–45 kHz) decreases the cutting resistance and increases the surface quality. Modular design, equipped with BBt-30 tool holder and high-speed spindle, allows high efficiency machining. Coolant through the spindle is available for chip disposal and to reduce tool wear caused by increased temperature and cutting resistance.

The roughness of the metal-cutting surface is around Ra 0.2 μm, which reduces the polishing procedure and achieves the quality of final finishing. Ultrasonic machining technology not only reduces chipping, but also has the ability to process micro-hole machining on hard and brittle materials.

Siemens components

- SINUMERIK 840D sl CNC system with optional 19 “ TFT operator panel
- SINAMICS S120 drive system
- SIMOTICS M-1PH8 main spindle motor
- SIMOTICS S-1FK7 servomotors
- SINUMERIK MDynamics 5-axis milling technology package
Our customers at IMTS

Booth N-6800

United Grinding North America

The PLANOMAT HP combines reproducible precision and powerful speed with high flexibility — it’s the ideal combination for efficient profile grinding. This robust, inherently stiff design with 3-point installation ensures the exactness of modular PLANOMAT HP machines. A driving power of up to 24 kW, combined with high-precision, digitized ball-type drives, guarantees high infeed speeds and accelerations. Table speeds of up to 40 meters-per-minute reduce grinding times and increase productivity. Almost maintenance-free linear guideways and highly efficient, lifetime-lubricated grinding spindles reduce the maintenance requirement to a minimum. The PLANOMAT HP-series offers six different working ranges: from 400 mm x 800 mm to 600 mm x 2000 mm. In addition, two different control concepts enable optimal adaptation to the respective grinding task.

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Siemens components

The EasyProfile control unit, an innovative BLOHM user interface on a Siemens platform with touch screen, ideally handles all routine shopfloor requirements, thanks to its intuitive operation. If the PLANOMAT HP is equipped with the state-of-the-art SINUMERIK 840D CNC system, complex machining applications in tool-making and serial-production are possible.
Usach 100-T4 — 100 for dedicated ID, multiple IDs or combination ID and face or ID and OD grinding up to 17.71” (450 mm) swing diameters, and configurations with two or three spindles side-by-side or multi-spindle turret. Turret version for up to four spindles for grinding IDs and ODs.

Siemens components

This Usach machine is offered with the state-of-the-art, user-friendly SINUMERIK 840D sl control system with a 19” operator panel from Siemens.
Booth S-9276

Waldrich Coburg NA, Inc.

Perfect for a wide variety of workpieces —
- Steel construction; frames, railway bogies, fixtures, housings
- Gearboxes, turbine housings, pump housings, printing machine parts
- Machine tool components; machine beds, saddles, spindle housings
- Engine blocks, base frames
- Tooling, aerospace and die components; fixtures, mandrels, form dies
- Effectively machined materials; steel, aluminum, titanium, cast iron, composites, all types of exotic alloys
... and for your application

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Siemens components
- SINUMERIK 840D sl CNC
- SIMOTICS S-1FT7 servomotors
The WEILER 4-way precision lathe Model V90/V110 with automated cycles takes its name from the four guideways along which the slides, tailstock and steady rest are moved.

The V-series has been especially developed for the economic machining of long workpieces. To enable this, the slides can over-run the steady rest and tailstock.

The advantages of cycle-controlled precision lathes:

- Rapid implementation from the drawing to the finished workpiece
- Optimum ergonomics and accessibility for the operator
- Extremely short setup times
- Distance between centers from 118–472 inch
- Swing over cross slide 23.22–31.88 inch
- Spindle bore 6.49 / 10.31 / 14.25 inch
- Drive power: 60 hp
- Display unit with 15” TFT screen
- Increased machine accuracy to DIN 8606

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Siemens components

This WEILER machine is equipped with the user-friendly SINUMERIK 840D sl CNC with customized WEILER software.
To machine large, complex and highly-precise parts, Weingärtner offers a comprehensive and flexible multi-product machining center (mpmc). These customized and dedicated machines are in operation worldwide. Workpieces such as generator shafts, barrels, crankshafts, landing gears, steam and gas turbine shafts, tubing hangers, compressor shafts and many other types of large turning/milling parts are machinable in a highly economical way from blank to finished part. Weingärtner mpmc machines are available in several sizes, starting with the 600-series up to the mighty mpmc 2000. Based upon the respective model, a maximum turning/milling diameter of 2000 mm (78”) and machining lengths up to 15 m (50’) are available.

Siemens components

- SINUMERIK 840D sl CNC
- 15” SINUMERIK blackline operator multi-touch panel
- HT8 hand-held unit
- SINAMICS S120 drive system
- SIMOTICS S-1FT7 and1FK7 servomotors
- SIMOTICS M-1PH8 main spindle motors
- Weiss spindle
Werkzeug-maschinenbau Ziegenhain GmbH

The C200/CM200 is a center-drive lathe where the workpiece can be clamped in the middle, allowing for simultaneous machining of both ends of the workpiece in one setup. The center-drive technology is especially suited for converted workpieces with little allowance or highest requirements on running precision of the right and left workpiece side related to complete concentricity, circularity and tolerance of bearings.

German Machine Tools of America (GMTA)
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Siemens components

The C200/CM200 features the SINUMERIK 840D CNC from Siemens.
Wes-Tech Automation utilizes the Siemens SINUMERIK 840D sl with integrated PLC to control both our 4-axis gantry and associated material handling automation. Wes-Tech’s TCL-series of gantries have been designed to complement any OEM machine tool (vertical and horizontal) and can handle products up to 70 kg. With a wide variety of standard infeed, outfeed, access, inspection, data handling and batch control options that can be configured to easily meet your needs — Wes-Tech has the automation solution to maximize your manufacturing throughput and increase your profitability.

Siemens components

- SINUMERIK 840D sl CNC
- SINAMICS S120 drive system
- SIMOTICS S-series servomotors
The M120 MILLTURN/3,000 mm convinces customers with machining lengths from 78 to 315 inches and a swing of up to 48 inches. Along with superior power ranges (up to 168 hp) and torque values (up to 8680 ft lb) of the main spindle, enormous feed rates on all axes make for impressive dynamics and utmost productivity. The 74 hp direct-driven milling spindle guarantees maximum power even at low speed rates — a huge advantage when using large drills and milling cutters. Phenomenal clamping forces of the B-axis allow for the use of damped boring bars with a diameter-length ratio of up to 1:14.

A separate pick-up magazine is available optionally for heavy ID-machining tools of up to 5 ft length and 320 lb weight. Additionally, WFL offers another fully-automated solution for tool use up to 8 ft. Turning, boring, milling, gear cutting, deep-hole boring, as well as ID-machining are possible in any angle.

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Siemens components

All WFL MILLTURN centers are exclusively equipped with:

- SINUMERIK 840D sl CNC
- SINAMICS S120 drives
- SIMATIC panel PC
- SIMOTICS S-1FK7 servomotors
- SIMOTICS S-1FT7 servomotors
- SIMOTICS M-1PH8 main spindle motors
Ideal for the grinding of parts such as sleeves, this machine is capable of one-time clamping for multi-surface grinding. It is equipped with a CBN grinding wheel, diamond roll dresser and a specialist clamp with stable and reliable air-tight seal; a servo-drive for the workpiece spindle; and a built-in robot for automatic loading/unloading of parts. The machine is sufficient for high precision, high efficiency and automatic production. Depending upon the customer’s requirement, the loading/unloading mechanism can either be in the outer truss manipulator or in the outer robot for several machines.

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Siemens components
This machine is equipped with the SINUMERIK 840D sl control system, SINAMICS drives and SIMOTICS motors.
**Zhejiang Zhenhuan CNC Machine Tool Co.**

AutoMateCNC Raptor TS-6, CNC slant bed lathe with turret, parts making - power and precision

True slant bed design with headstock and turret designed on the same bed plane. Mono-bed design, plus heavy cast base, results in minimal thermal expansion resulting in highest precision. Maintains precision during heavy cuts, as well as providing mirror finishes. Additional benefits include reduced warm-up times and less power consumption. High quality 8-position turret has high positioning accuracy and repeatability.

Performance details include

- True Slant Bed — Mono-Block Casting
- Bi-directional indexing turret
- 3000 rpm 5 hp servo spindle
- 2-inch spindle bore
- 800 ipm feed rates

Detroit Machine Tools
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**Siemens components**

The Raptor TS-6 comes standard equipped with the SINUMERIK 808D Advanced control system and SINAMICS drives.
Zimmermann GmbH (Denkendorf)

Zimmermann has brought its first horizontal machining center onto the market. The new model range is particularly useful for the efficient machining of standard components for the aircraft industry. It has two newly-developed, special features — the pallet handling and the travelling column. The new machining center also stands out for its unbeatable value. The key element of the new FZH400 5/6-axis horizontal machining center is a robust, water-cooled travelling column for increased rigidity. Already in the standard version, the FZH400 features an integral pallet handling system with pallet changing during machine time. Turnkey solutions are available from Zimmermann upon request.

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Siemens components

Zimmermann machines are equipped with the SINUMERIK 840D sl CNC system and SINAMICS S120 drives.
With the new FZ 100 portal milling machine, Zimmermann has managed to achieve six-axis machining using the newly developed M3 ABC three-axis milling head. This concept sets new standards in the volume machining of aluminium, composite and model-making materials, as well as in the high-speed cutting of steel and cast iron. Typical structural components for aircraft manufacturing have inner sloping sides with a setting angle of three to five degrees. The machining time of those parts can be drastically reduced by the additional B-axis as the machining of pockets with the M3 ABC milling head in combination with an ideal feed rate is perfect.

Minimum rotation is needed to achieve any angle of orientation with the three axes available. In almost every other case, simultaneous machining using the M3 ABC becomes even more productive.

Siemens components

- SINUMERIK 840D CNC
- SIMODRIVE 611D drive platform
- SIMOTICS S-1FT6 servomotors
- Weiss spindles
- 15” OP15 operator panel
- Machine control panel B-MPI
- SIMATIC Microbox PC 427B