SIEMENS

Industrial Solutions and Services

Completely Integrated Solutions
for the Metals Industry

# SIMELT$^{CIS}$ and SIROLL$^{CIS}$ –
# More productivity
# More performance
# More power

**Your Success is Our Goal**

In the demanding metals industry,

# continuous improvement

is necessary to keep pace with the competition:

- Costs are rising and the pressure of competition is growing everywhere in the world.
- Your products have to meet more and more stringent requirements, chemical, physical and geometrical.
- Processes in your plants – often involving facilities distributed the world over – are becoming increasingly complex.
- Freedom for entrepreneurial decisions is diminishing.
- The productivity edge that distinguishes who is the best and who is among the rest is becoming finer and finer.

Optimizing production processes. Utilizing industrial IT to boost efficiency. Maintaining competitiveness throughout plant life cycles. Can you afford to ignore the big picture and look at these aspects as if they were separate issues?

**Isn't it time to take a new, integrated approach to ensure that performance improves right across the board?**

Our portfolio has always had the power to sustain and improve the competitiveness of your plant – in all dimensions:

**Horizontally** along the entire production process from the ore to the first finished coil, with products, systems and technological solutions for high production dependability, process efficiency and product quality.

**Vertically** from sensor technology from the production to the ERP level, with industry-specific IT solutions that directly intervene in the production process as well as gather and process data from every source in the company so you can make better based decisions.

**Over the entire plant life cycle,** with services from consulting and plant construction through maintenance to modernization. This serves as the basis for speedy production rollout, economical manufacturing, continuously high availability and sustained competitiveness.

Now we've taken things

a decisive step further...

...and developed the SIMELT$^{CIS}$ and SIROLL$^{CIS}$ product families.

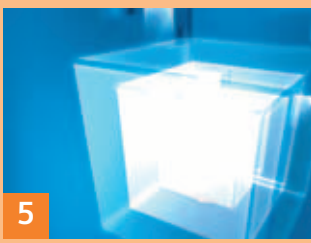
The SIMELT$^{CIS}$ and SIROLL$^{CIS}$ product families consolidate all our capabilities into one integrated offer – our Completely Integrated Solutions. We've made sure that every solution that's related to process improvement is also designed for the integration into the corporate information structures and for the optimization of plant life cycles.

The process of networking.
The networking of processes.

# Solutions and services become Completely Integrated Solutions





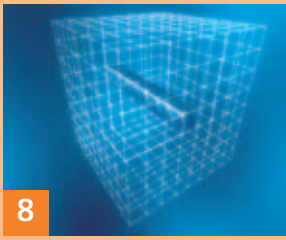


1 To perform competitively today, it's **no longer sufficient** to optimize the value-added chain, the information structures and the life cycle of a plant in isolation from each other.

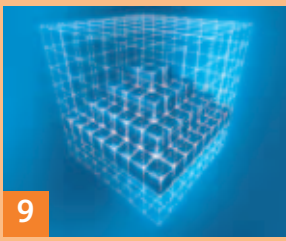
2 Therefore we have **restructured** our offer...

3 ...and defined a **standardized solution core** for each plant function that demonstrates its reliability a thousand times every day in almost every industry.

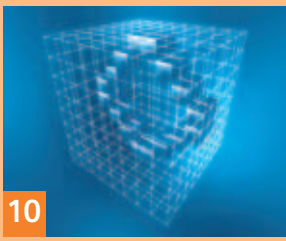
These solution cores are not only oriented to **performance** in the production process; they also comprise integration in an end-to-end **communications flow**, in our service concepts and technological developments as part of future **plant modernizations.**



4 Starting from this core, we create **industry-specific solutions** that incorporate our extensive technological experience and systematically improve the process...

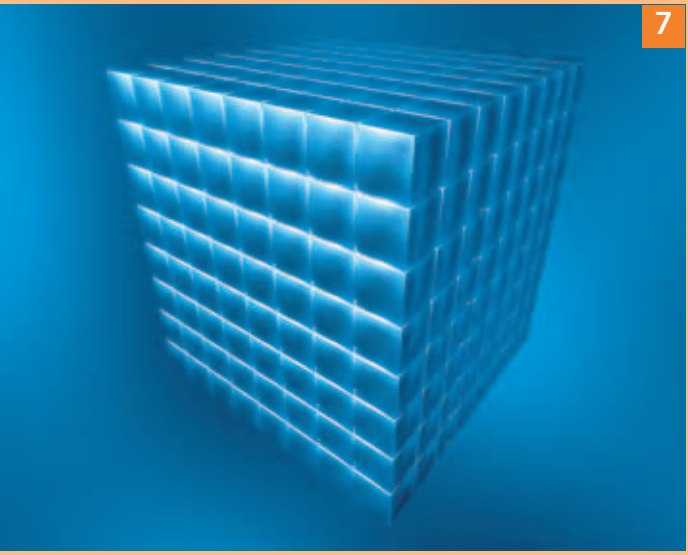


5 ...adding **customer- and plant-specific customizing** to tailor an exact solution to your individual requirements.



6 As such, just as every one of our individual solutions is **already optimized within itself**,...

7 ...the totality of these solutions is merged in the **SIMELT**[CIS] and **SIROLL**[CIS] product families for your industry – open to future developments and flexibly scalable to meet your requirements.




8 **So for the first time technical and technological solutions for plant and process optimization,...**

9 **...industrial IT solutions for the optimal flow of information...**

10 **...and services for the entire plant life-cycle are integrated into a seamless portfolio.**

More productivity.
More performance.
And more power.

# Consistency from the component to the solution.

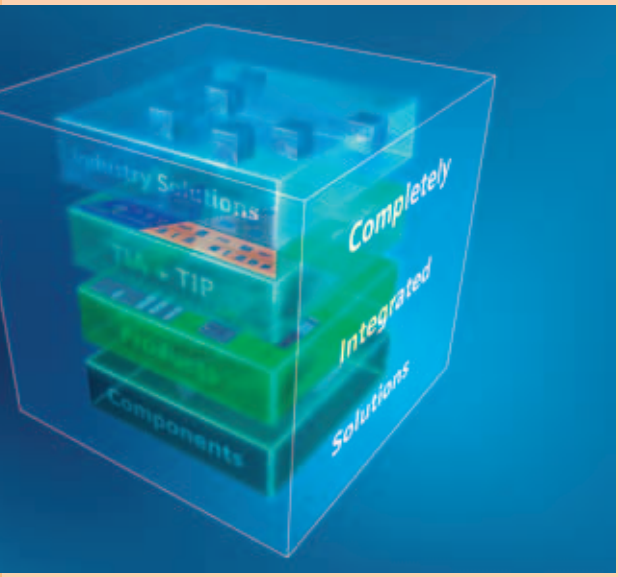
## Only Siemens offers such a consistent, comprehensive package for cutting costs and boosting performance.

Integration efforts normally represent a significant block of costs during the life cycle of a plant. That's because components and products need to first undergo a complex adaptation process, both during the original installation and during ongoing upgrades, in order to ensure that they **work smoothly together**.

At this point, other suppliers need to to go and purchase additional resources, from automation products to technology expertise or services. Under these circumstances, it's unlikely that an **integrative solution** without start-up difficulties and interface problems will result.

Here's where our approach makes a decisive difference: Cost avoidance and **high productivity** right from the start – through implementation of a comprehensive concept from the components to the holistic industry solution. And only Siemens has the expertise and the portfolio to do so.

- Electrotechnical and electronic components that have been proven millions of times...
- ...form the basis for our globally leading products in drive, automation and energy supply engineering.
- Through the Totally Integrated Automation and Totally Integrated Power platform strategies, these products are combined into cost-optimized, investment-safe "landscapes."
- Supplemented by industry-specific IT and service solutions, we use this as a basis for providing comprehensive solutions for the metals industry – the SIMELT$^{CIS}$ and SIROLL$^{CIS}$ product families.

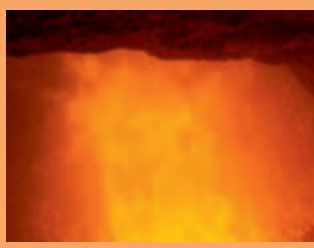


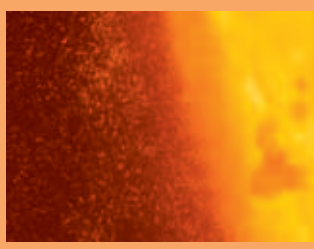

*Uniquely integrated capabilities – from individual components to entire solutions.*

Because they network the horizontal, vertical and chronological dimensions, our solutions intrinsically address the three decisive factors for your plant's production capability:

- Improving the production process.
- Directly intervening in the process in real time and the preparation of all relevant information from the production and secondary processes to the decision-making process for all levels in the organization.
- Maintaining competitiveness using a service that is targeted to optimizing the process and not just individual components.

You are already familiar with the names of these Completely Integrated Solutions: SIMELT$^{CIS}$ for the smelting process, SIROLL$^{CIS}$ for the casting, the hot and cold rolling and for the processing lines. However, now they are more than just process automation systems. They now unite the totality of our networked and integrated offering – to achieve a uniform increase in performance.





# Competitiveness in every dimension. Completely Integrated Solutions mean …

## Rapid and long-term productivity for your investment

Our portfolio includes a solution with standardized core for every task that occurs in the plant. So these tried-and-tested solutions have inherited the wealth of **experience and proven ability** from thousands of applications in virtually every sector of industry. Having this "in their genes" is the best possible way of ensuring **smooth operability** and high productivity.

At the same time, the standardized core means that each solution can be efficiently configured and parameterized to suit your plant. By comparison with a custom solution that has to be built from scratch, the time to productive rollout is significantly shorter.

## More dependable operation, more effective service

Because of the standardized solution cores, operators and service personnel need **less training and familiarization**. There is less room for human error and diagnosis is faster and more reliable. You can seriously **reduce spare part efforts** – even forming sharing alliances – and restarts after routine maintenance or modernization outages are more streamlined. This all adds up to lower costs, higher availability and shorter downtimes.

Standardization also permits **more flexible utilization of human resources** and faster troubleshooting, because the knowledge base is globally applicable.

## Greater solution performance

The standardized solution cores represent a **wide range** of solutions that are globally applicable. As a result, the metals industry profits from experiences that we acquire and utilize in every sector of industry. The result is the **continuous improvement** of our solutions – and their performance.

This goal is further supported by straightforward access to secure, unified documentation.

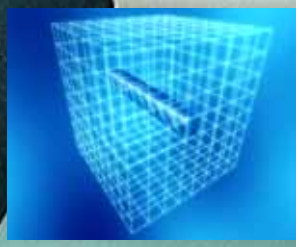
## Long-term innovation and investment security

The product family for your industry consists entirely of solutions conceived and implemented with an eye to long-term **rolling development**, and that includes future modernizations.

And you'll find more or less automatically that you benefit (and considerably quicker and cheaper) from the state of the art as each **product innovation** comes along.

At the same time, you have the assurance of working with **unified**, harmonized solutions across all your production facilities, even if you opt for step-by-step installation, one plant or one process at a time. This uniformity affords you the long-term technological and economic **security** you look for in all your investments.

# Products and solutions for three-dimensional integration



Horizontal integration
with SIMELT$^{CIS}$ and SIROLL$^{CIS}$:

# Supply the very best to the global market.

**Today's global market for the metal industries is characterized by two juxtaposed requirements manufacturers have to meet: on the one hand, continuing price pressure on all products; on the other hand, increasingly demanding requirements regarding the chemical, physical and geometric material properties.**

In the face of this dual challenge, you need solutions that transcend the limits of what had been feasible in the past while they also provide the required high level of process stability and systems productivity.

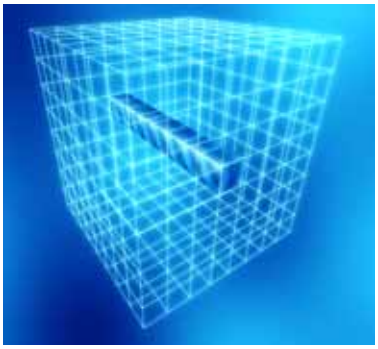
Our Completely Integrated Solutions for the metals industry – SIMELT$^{CIS}$ for the smelting process, SIROLL$^{CIS}$ for casting, hot- and cold-rolling and processing lines – now encompass much more than process automation.

They stand for high intrinsic stability through products and systems that have been proven a thousandfold – with the assurance of continuing upgrade capability and a high degree of investment protection.

Building on automation, we continue in every phase of the life cycle to integrate “process intelligence” – in other words, technology solutions that enable you to gain vital additional percentages in productivity and product quality.

Our solutions reflect a century of know-how we have developed in concert with our customers. We know that the global market demands a great deal from you. Supply it with the very best!

***Horizontally,*** *SIMELT$^{CIS}$ and SIROLL$^{CIS}$ provide solutions primarily designed to optimize production processes in the metals industry. These include drive and automation systems as well as power distribution and optimization concepts. These solutions deliver their full potential only when integrated with the appropriate systems in the vertical dimension (for instance by IT integration) and over time (for instance through maintenance programs) into a unified whole.*



## Power supply: secure production, limit costs

The metals industry is characterized by extremely energy-intensive processes. Our energy systems lay the foundation for secure production:

– Based on our "Totally Integrated Power (TIP)" approach, we offer coordinated, future-oriented solutions for **power supply** and distribution.

– Our solutions for **energy quality** create the basis for preventing damaging consequences on the public network caused by large consumers, which could lead to additional costs.

– Our **energy management** solution optimizes consumption, prevents expensive peak loads, and takes advantage of potential savings in energy purchases.

## Drive systems: the right drive for more productivity

In all processes – from the hot-rolling mill to the processing line – the quality of the end product is basically determined by the drive engineering.

As the largest manufacturer of industrial drives in the world, we have the **perfect solution** for every requirement ranging from fixed-speed induction motors to the largest and most dynamic mill drives in the world.

Our customers know what they get with our products: simple integration into automation systems, low operating and maintenance costs, high performance and **reliability** they can count on, especially when replacing existing direct-current drives with our easy-to-use, maintenance-friendly three-phase drive systems.

## Automation: the security of a global standard

For years the name SIMATIC has been setting the standards in all industrial sectors. It stands for high reliability, for innovation on a proven basis, and for consistent use of **synergies** of the "Totally Integrated Automation" world from engineering to spare parts inventory – and for seamless integration between the process level and the MES and ERP landscape.

A unique feature is how the optimized "plug and play" SIMATIC modules are linked to the controllers, models and neural networks for continually ongoing **optimization of the process** and how they can be exchanged flexibly in the plant.

## Process models: knowledge for more productivity

Our present knowledge about the process makes it possible to endow iron, steel and aluminum with entirely new **material properties** and geometries – while minimizing materials consumption, shutdown times and maintenance costs.

Models help us calculate what can't be measured and recognize the behavior of materials earlier. Neural networks enable the process to optimize itself.

Examples range from the optimization of arc furnace operation by reliable quality prediction to the prevention of break-outs in continuous castings to enhanced mass flow control that assures optimum strip thicknesses in cold-rolling.

## Infrastructure and water: Subsystems are important too

What lighting and grounding systems, lightning protection, fire detection schemes and control consoles have in common is this: they're not core processes, but they're essential to **trouble-free operation**.

We make sure that your infrastructure functions safely and economically, and that it provides optimal conditions for the production process.

A particularly important subject is **water supply and disposal**. So take advantage of our comprehensive process know-how in industrial water systems – from the production of process water to purified or highly purified water, from desalination of seawater to wastewater and sludge treatment.

Horizontal integration
with SIMELT$^{CIS}$:

# Solutions for iron and steel production.

***Case study:*** *Pohang Iron & Steel Company in South Korea uses the latest automation and drive technology from Siemens. Proven standards result in demonstrably reduced maintenances costs and minimized downtimes. On the very first day following the completion of the modernization, the system processed more than 46 batches – 16 more than contractually agreed upon as a performance test.*

## Blast furnaces and direct reduction systems: more stable processes, lower costs

Along with the traditional blast furnace process, direct reduction has established itself as a method for producing pig iron and steel. We supply specialized solutions for both methods.

In this way we achieve a comprehensive increase in **blast furnace** performance, from increasing the process stability to extending the life cycle. For example, our solutions ensure an extremely short **startup time**, resulting in drastic reductions in production and cost-related risks. We furthermore support the reduction of a substantial cost factor in daily operations through intelligent utilization of the energy produced in the process.

A key factor for high availability, improved product quality and reduced maintenance as well as operating costs in **direct reduction units** is the prediction of iron quality even during the process. Our solution provides **optimized system operation** that's based on knowledge and transparency. Other important objectives include systematic reduction of energy consumption and costs in the sub-processes.

## Arc furnaces and converting steelworks: Technology boosts productivity

How quickly and dramatically technology solutions for process optimization pay off is well illustrated by an example from the **arc furnace**. Our process model for reliable control of the reactances is often **amortized** in less than six months. Another example is our electrode control, which further boosts production through optimized working points while also substantially reducing energy consumption and electrode wear.

In **converting steelworks** too, quality increases, cost reductions and throughput increases are the right answers to competitive comparisons and price pressures. Across the entire range of process automation with the SIMATIC PCS7 open system, which is intrinsically designed for high **reliability** and low life cycle costs, our technology modules for selective optimizations can be flexibly retrofitted.

## Secondary metallurgy: the productive route to high-quality steel

The core of our solution for secondary metallurgy systems is formed by the SIMATIC PCS7 process control system in conjunction with a proven **industry standard** that stands for high uptime reliability, low hardware costs, efficient engineering and high flexibility that facilitates adaptation for new tasks.

But the real **leap in productivity** is achieved through the combination of automation and technological process optimization in a unique, interface-optimized solution.

Horizontal integration
with SIROLL[CIS]:

# Solutions for hot-rolling mills.

***Case study:*** *Siemens provided three-phase drives, automation, technological controls and process models for the blooming and finishing lines and for the cooling line of the he hot-rolling mill of the Wuhan Iron & Steel Corp., China. The plant is very reliable and achieves excellent product quality. All the warranted values were achieved, if not exceeded, within a very short space of time.*

## Continuous casting and thin-strip casting systems: New dimensions

In casting processes, our solutions provide results today that were inconceivable a few years ago. Reliable **management** of the mold level, the controlled hardening of the molten material, combined with the early detection and prevention of break-outs along with the high associated costs, have become virtually "standard".

We have achieved a real quantum leap with the world's first commercial **thin-strip casting plant**. This application proves that even this technologically very difficult process can be reliably controlled – with material thicknesses of 1.5 mm and less, which can be sold in the **global market** at substantially higher prices. An additional advantage is the capability of producing different coil properties with a single chemical composition of the steel, which significantly reduces stocks of semi-finished products. Last but not least, energy costs are reduced to a fraction compared to conventional methods, from the ladle to the finished coil.

## Hot-rolling mills: Higher product quality, more output

Our solutions bring the wealth of engineering experience from widely diverse applications into play in your plant. The benefits include dependable control of the **roll temperature** and the **material flow**, a prerequisite for excellent strip geometry and minimized waste.

Top mechanical quality is achieved by our extended **cooling-line automation system**, which opens the way for new possibilities in quality control and optimization right from the first strip. Online quality measurement in the ongoing process is another example of "process intelligence", largely doing away with costly laboratory tests, and also cutting the time you need to get the finished strip to your customers.

## Plate mills: More efficiency for higher quality

Our solution has everything to bring your plate mill up to speed. That includes the most powerful roll drives in the world for **higher throughput**. The online process models and neural networks embedded in the overall concept will enable you to produce **more accurately rectangular plates** than every before.

You can take another big step ahead with our process models for fully thermomechanical rolling, combined with modified process automation. The major benefits include outstandingly good chemical and physical properties of your stock, plus a significant improvement in **plant yield**.

## Section mills and wire rod rolling mills: So your operators are always on the safe side

New standards of efficiency and product quality in combination with narrow **production tolerances** are keynotes in the production of section mill steel and wire rod stock. Our solution reflects the know-how that we've amassed over decades to support the operators of section mills.

Technology alone, however, does not suffice to make a plant or a process safe and dependably economical. The human factor is and remains all-important. So we provide your operators with the support they need throughout **plant operation** and maintenance, with cutting-edge control and monitoring technology to minimize unscheduled outages and reduce maintenance costs.

## Aluminum rolling mills: Special material – special know-how

Technological expertise from steel rolling can be transferred only in part to aluminum and other nonferrous metals. Our solution stands out from others on the market because we have been **cooperating** with the world's biggest aluminum manufacturers for many years, so we know all about the peculiarities of this metal.

Process automation has an open industry standard to protect your investments. The integrated technological solutions permit optimum **process design** – from precision line setup, which is so important for product quality in aluminum mills, through to flexibility in production sequencing.

A single system from drive to process model ensures competitive performance.


Horizontal integration
with SIROLL[CIS]:

# Solutions for cold-rolling mills and processing lines.

***Case study:*** *We supplied electrotechnology, automation, technological closed-loop control and process models for major components of the new, integrated special-steel cold-rolling and processing line at Avesta-Polarit Tornio, Finland. The result is smooth on-time production plus maximized HR efficiency: the entire plant is operated from two control consoles.*

## Tandem cold-rolling mills: Experience for sound investments

Tandem rolling mills – especially if they are combined with pickling lines – have to handle stock of widely varying quality, thicknesses and batch sizes. Our solution helps you meet the high requirements for the **flexibility** and quality of the process.

The groundwork is laid by technological closed-loop control concepts such as extended **mass-flow control** and by our process models that ensure optimum switching between the various conveyors.

That puts you in control of a plant capable of achieving a qualitative and economical **pole position**. Our know-how has made us the "tandem" market leader and it will benefit you even if you convert to continuous operation. And it will help minimize the investment risk.

## Single-stand and reversing cold-rolling mills: Simplicity plus flexibility equal better quality

Diversity of method, system type, and target material properties are characteristic of single-stand cold-rolling operations. Handling for small and very small **batch sizes** is a crunch factor, particularly as the requirements for product quality continue to rise.

We have technological closed-loop control systems adapted for any type of mill to ensure accelerated **production times** and dependable quality, along with minimized wastage.

## Strip conditioning plants: For a perfect finish

Ongoing materials development drives the engineering complexity of strip conditioning plants. Our answer is a scaleable process-control, automation and drive solution for **enhanced productivity** and improved quality.

The characteristics and performance of the **drive systems** are crucial to both. Shift after shift, Siemens three-phase drive systems run smoothly and with virtually no maintenance whatsoever. Perfectly matched to the driven machinery, they help minimize operational stresses and strains on the stock, particularly in critical zones such as the furnaces.

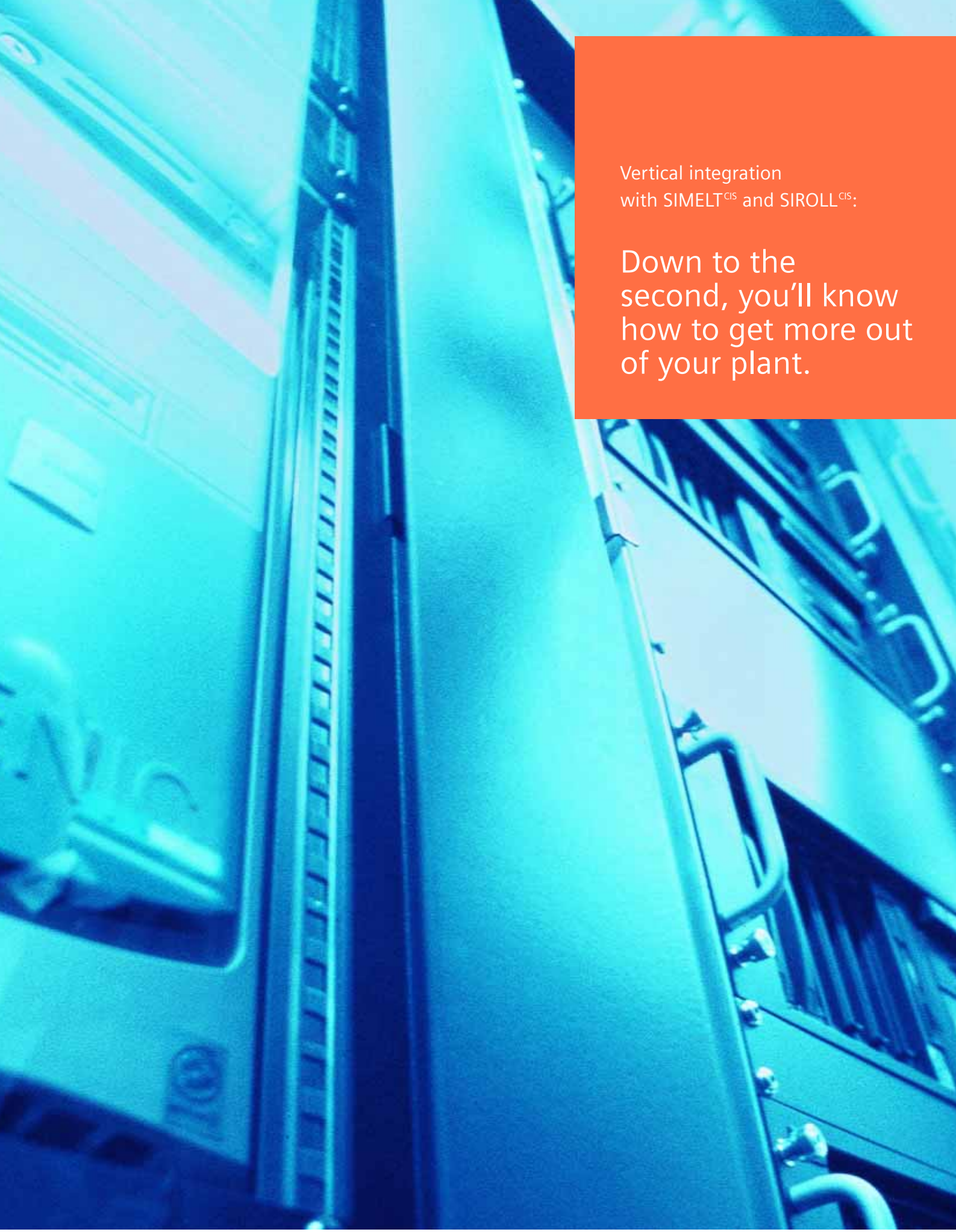
Our process experience also finds expression in our technological closed-loop control systems, for example ensuring uniform skin passes, the right texture and **dependable compliance** with coating-thickness specifications, without costly "safety margins".

## Flatness control: Non-contacting precision measurement

SIROLL$^{CIS}$ SIFLAT is our solution for **non-contacting measurement** of cold-rolled strip. It eliminates the problems inherent to conventional measurement.

The advantages are obvious: no direct contact with the strip, so **no risk of damaging the stock**; no measuring rollers, so no calibration and maintenance, so lower overheads.

An intelligent algorithm takes the measured values and the system parameters and automatically calculates the ideal presets for plant operation – so you produce **excellent strip** without waviness and without buckling.



Vertical integration
with SIMELT$^{CIS}$ and SIROLL$^{CIS}$:

# Down to the second, you'll know how to get more out of your plant.

# Industrial IT

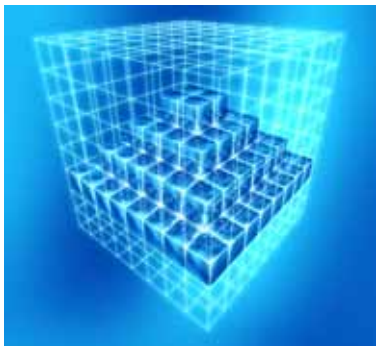
**Technical and technological mastery of production processes is one side of profitability. The other side is attending to customer orders in a timely manner and with the required quality by using all technical, personnel, space and financial resources, even if unforeseen events disrupt the ideal process.**

This game cannot be won at the production level or at the higher-level corporate management level alone, but only by consolidating and condensing the complex information flows from all automation levels so that you can gain a current picture of available resources, the quality of a batch just finished or the availability of resources. This transparency creates the basis for quick, certain and correct decisions in all processes.

We implement the relevant IT solutions as part of our Completely Integrated Solutions SIMELT$^{CIS}$ and SIROLL$^{CIS}$. They are possible only because of our combined knowledge in the MES/IT business and the metals industry gained from decades of experience. The two go hand-in-hand, because only a company that knows the processes competently can also truly optimize control of these processes using information technology.

Our numerous patents on industrial IT solutions especially for iron, steel and aluminum production are proof of our expertise. The actual proof, though, is the realized savings of process costs in real life.

***Vertically**, SIMELT$^{CIS}$ und SIROLL$^{CIS}$ provide you with products and solutions that link production with management and achieve enormous improvements in productivity and quality as they interact with the process systems. These solutions encompass management information systems, quality assurance and logistics. The value-added from these functions results essentially from the efficient implementation of customer orders, and from the utilization of data from the horizontal level as an information source for solid production, operational and management decisions.*

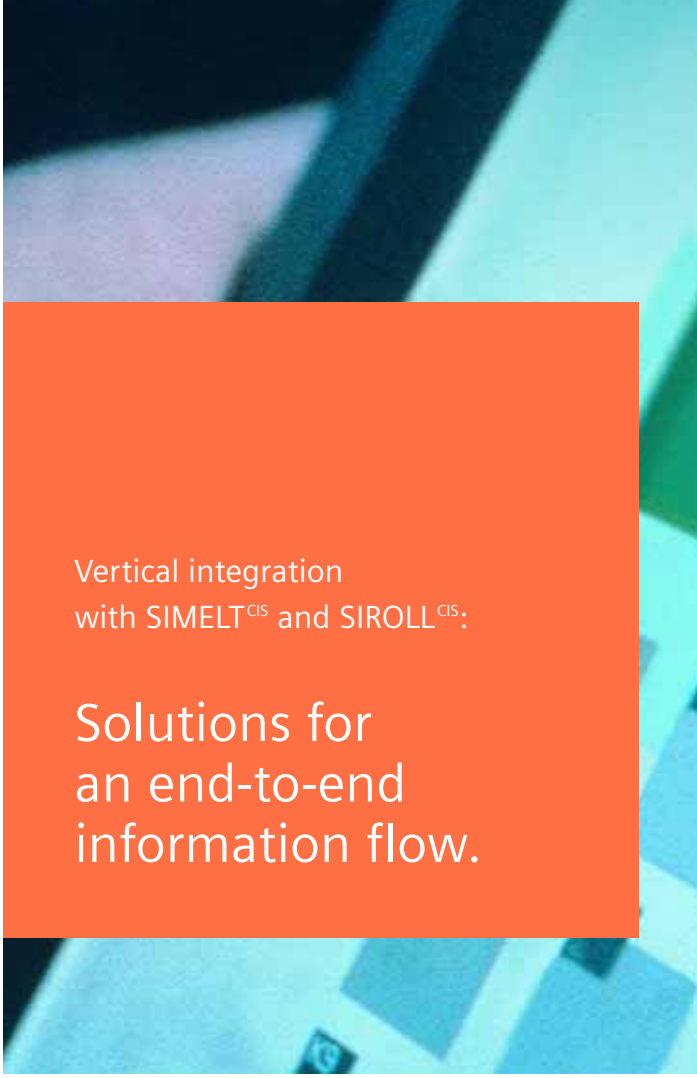


## Production planning: Efficiency from transparency

**Order planning** always has to build in margins for safety to allow for the imponderables in the production process. Do we have adequate reserves of raw materials? Are converters, furnaces and stands available as planned?

**Transparency** is essential for dependable planning with minimal safety margins. That's precisely what our Industrial IT solutions do, specifically for the iron, steel and aluminum industries, hot and cold rolling, and processing lines. They enable dependable capacity planning and logistically optimized **production sequencing** and stock levels adapted to market necessities.

The heuristic, strategic or genetic models combine our process know-how with the worldwide **research and development competence** of Siemens AG.



Vertical integration
with SIMELT$^{CIS}$ and SIROLL$^{CIS}$:

# Solutions for an end-to-end information flow.

## Quality assurance: Offering the market what it respects

There is no alternative to providing the product quality your customers want. We have the solution that will **systematically** ensure this quality.

Data measured online in the process furnish the basis. Online isn't always an option, say in an arc furnace on account of reactances, so then we substitute **mathematical models** and even neural networks for direct measurement.

Correctly interpreted, this input data provides reliable **quality forecasts** and continuously improving awareness of the critical points in the process. More importantly, however, incipient difficulties can be eradicated before they turn into serious problems for the rest of the production process.


## Stock management and logistics: Reduce capital investment and move materials more efficiently

In many plants, there's a great deal of **potential** for increasing productivity in the buffers at the transitions from one production line to the next. We help you minimize stocks and put intelligent inventory logistics in place for more efficient use of available areas, transportation, and human resources.

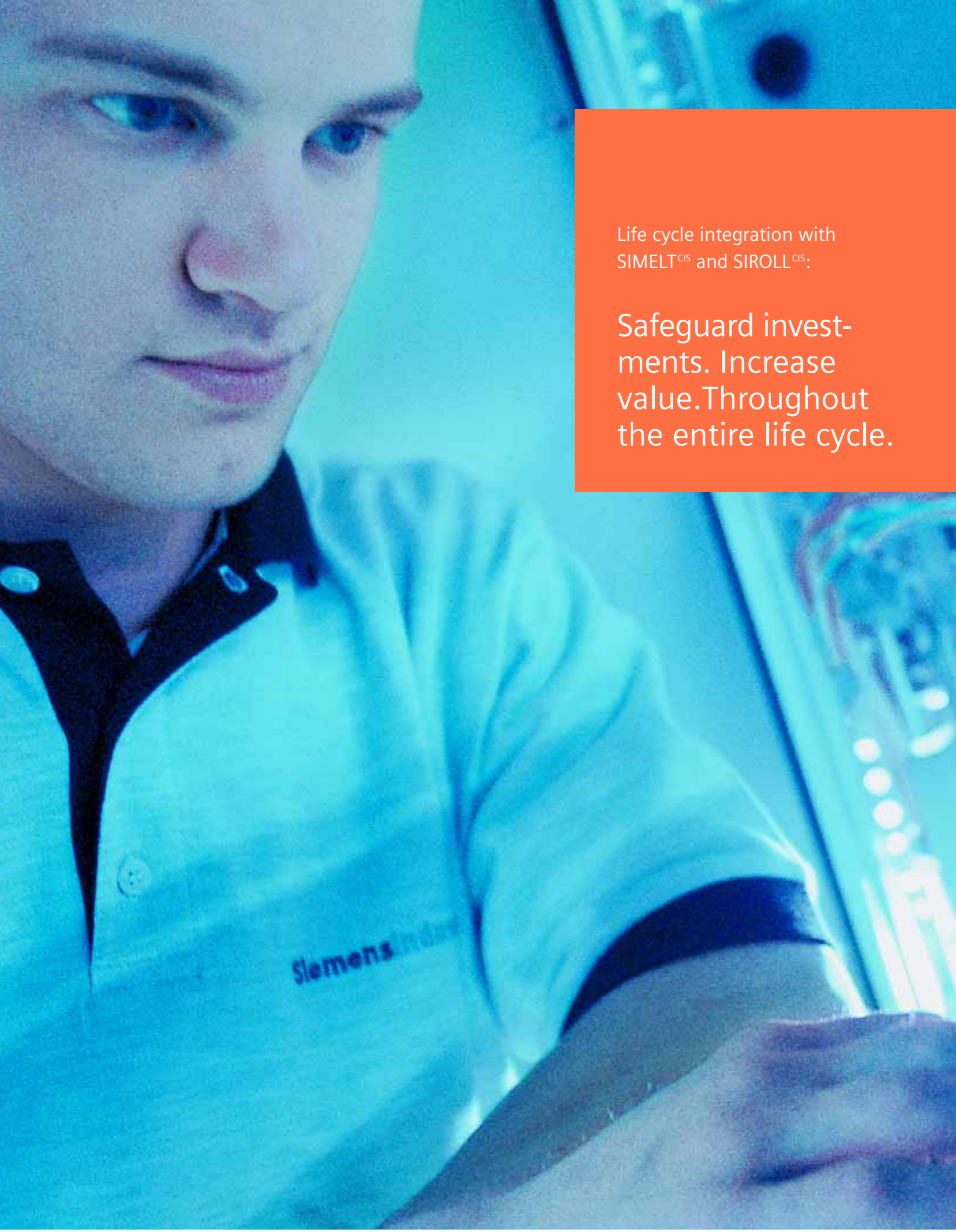
It's all based on the end-to-end **tracking** of material and resources. As part of SIMELT$^{CIS}$ and SIROLL$^{CIS}$, our logistics system supports process optimization in a wide range of environments, from simple warehouses with manual material identification to fully automated storage facilities.

## Plant optimization: Toward transparency

Tracking and traceability in the entire value-added process do not only reveal unused productivity reserves. They are also essential in the light of **product liability**.

Our solutions ensure tracking and tracing from receipt of the ore to dispatch of the finished product.

There are two crucial capabilities. One is **documentation** of the process and all its aspects, from statuses like "in rolling" and "in cutting" to actions such as "turning". The other is compaction and **analysis** in reports so that management can reliably assess the process, say on the basis of key performance indicators.




Life cycle integration with SIMELT$^{CIS}$ and SIROLL$^{CIS}$:

# Safeguard investments. Increase value.Throughout the entire life cycle.

# Plant construction, maintenance and modernization

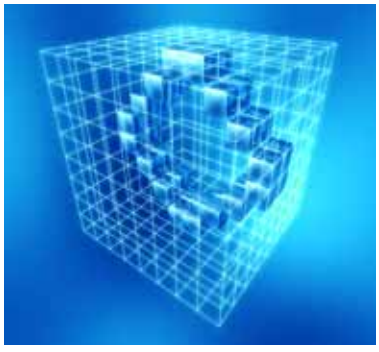
**Overall consideration throughout the entire life cycle is crucial for the return on your investment. So the crunch questions are: How quickly can the first ton of pig iron or the first finished coil be sold? How long and how often do outages interrupt production? How high are the maintenance costs per ton of iron, steel or aluminum? Will the plant still be competitive ten years down the line?**

We answer these questions with our professional services within the framework of SIMELT$^{CIS}$ und SIROLL$^{CIS}$, with a complete spectrum of consulting and financing to plant planning and construction, training, servicing, ongoing maintenance and modernization.

Why only Siemens should give the answer and not any other service provider is clear. Our services aim to do much more than just optimize components. By integrating our process expertise, we improve the entire production process, the secondary processes, but also the maintenance itself. This means service becomes a strategic tool for achieving your corporate goals.

The results of this integrated approach speak for themselves. Like when we modernized a blast furnace to bring it back up to best of class in the world. That took just 86 days. And the hot-rolling plant we helped build that was well above target output a mere seven months after SoP. And these are only two examples among many.

*The **chronological component** of our integrated SIMELT$^{CIS}$ and SIROLL$^{CIS}$ solutions is related to services we can provide throughout the life cycle of your machines and systems. Specifically, these are services related to systems installation, maintenance and modernization. Systems and their functions on both the vertical and horizontal levels clearly play a part in this context too. That's because system automation must be uniform, and it must be networked all the way up to the management level, in order for strategies such as low-cost maintenance to be implemented on a plant-wide scale.*



Life cycle integration with SIMELT$^{CIS}$ and SIROLL$^{CIS}$:

# Solutions from consulting to modernization.

## Consulting: More confident of the right investment

Through technology consulting, feasibility studies and environmental reports, we give you the **confidence** you need in your **investment decisions**.

The basis of our consulting services is a profound knowledge of processes and of the interrelationships in the entire value-added chain, including the processes of your customers. For example, we're a **key supplier** in the automobile industry and we know the materials requirements for steel and aluminum in this industry from our own experience.

## Financing: The raw materials for your investments

When you invest in new technologies, processes and equipment, what matters to you is obtaining financing that fits your **strategy** while minimizing economic risk at the same time.

We guarantee both with customized **financing solutions**. We're happy to advise you so that you understand the numerous options and can find and implement the best solution for you based on your markets, opportunities and goals.

## Plant construction: For shorter payoff times

Each time a plant is expanded or a location moved, each time a building is constructed or renovated, the process involves complex **coordination** of multiple suppliers. If production cannot be started on time in the end, lost sales and higher debt servicing costs are inevitable.

When you choose us as your partner, you're putting your money on completion by the **contractually agreed** date within the budgeted costs. We support you **completely** from planning and design to commissioning and operator training, including world-class personnel and construction site logistics and materials acquisition, where you benefit from the purchasing volume of a large company.

## Simulation: Know for sure what's right

Constructing or modernizing a plant requires a high degree of confidence in decision-making. We look **into the future** for you using highly advanced simulation tools and your plant experience.

The goal is always to place decisions on a solid basis, to minimize risk and to set the course for long-term success. We can even run the simulations while your plant is operating.

## Training: Greater operator confidence pays off

Modern demands on operational safety and plant availability place great demands on people and technology. Within the scope of SIMELT$^{CIS}$ und SIROLL$^{CIS}$, we impart the knowledge and methods so that operators, service technicians and maintenance personnel can optimally use and master the technology.

The benefits of this training range from faster **mastery** of the tasks and processes to less unproductive time for your **personnel**.

## Modernization: back to world class

If your plant falls behind the level of new plants due to technical and **technological advancements**, it's time for you to modernize. But even evolving requirements for production make it necessary to modernize, such as increased environmental requirements or new product quality standards.

We ensure that your investments achieve the required **success**, from replacing an individual drive group to modernizing complete plant systems, such as the process control system.

Professional **project management** enables quick implementation – for example a hot-rolling plant in the USA was back on line only five days after the entire automation system was replaced. The plant hit 100% agreed performance only eleven days after restart. Our modernization services pay off within a few months through increased output, higher product quality or reduced need for maintenance.

## New performance levels for existing process components

The **innovation cycles** in electrical engineering and electronics are shorter than in mechanical engineering. By modernizing electrical plant systems, including filter controllers, analog drive controllers and the process control system, you ensure that your process components perform better, are **available** more of the time and last longer.

In addition to individually customized strategies, we offer **standardized** and proven solutions that pay off in a particularly short period for frequently requested modernization issues.

Regarding the complete engineering of your plant, from planning, to implementation, to disposal of components and plant parts that are no longer needed, our solutions deliver what they promise in terms of schedule, technology and efficiency.

***Case study:*** *ThyssenKrupp Nirosta, Germany, contracted Siemens to replace its basic automation and drive technology. We also integrated a mold level control system with fuzzy logic for all operating states. Production was interrupted for only nine days, but the results of modernization included better product quality for more than 1,450 grades of steel.*

Life cycle integration with SIMELT$^{CIS}$ and SIROLL$^{CIS}$:

# Solutions for plant maintenance.

At about 40% of the ongoing operating costs, maintenance is a not insubstantial cost factor for you, but it's the only alternative to unplanned plant down time. The key to success is therefore optimizing your maintenance processes for your company and your production.

**With the SIMELT$^{CIS}$ and SIROLL$^{CIS}$ product families, we offer a comprehensive concept covering consulting and implementation, technical support, and the assumption of maintenance processes, tailored to the needs of your plant.**

***Case study:*** *We signed a performance-based contract to undertake maintenance of one of the biggest flat-strip steelworks in the USA at AK Steel, Rockport, Indiana. High performance was achieved quickly, and maintenance costs per output ton were minimized. Reason enough to crown our efforts by awarding us the North America Maintenance Award.*

## From an expense to a success factor: Business-Based Maintenance

If you would like to know how much **potential for savings** there is in your secondary processes related to maintenance and production, but maintenance is not a core process for you, then go with our business-based maintenance. With this package, we look primarily at your company goals when developing and implementing a **maintenance strategy** that is optimized for the specific processes and requirements of your industry.

Business-based maintenance covers sound analysis, consulting and integration services that are targeted to your secondary processes related to maintenance and production. Together with your specialists, we increase the **transparency of your processes** and identify and evaluate potential areas for improvement. The services range from maintenance process analysis and corresponding optimization programs to assumption of these processes.

## Provable and measurable: Maintenance Performance

A contract in which we assume responsibility for a freely definable scope of plant maintenance contains not only clear agreements on the measures to be performed, but also on the **measurement criteria**. These include, for example, the following:

– Plant reliability
– Plant availability
– Operating costs

In this way you can quickly assess whether our maintenance performance has achieved its goals and yours (!) or where there's still room for improvement.

## So that production continues: Maintenance Services

If you consider maintenance to be part of your **core process** and have a competent maintenance team, then choose our maintenance services to **support** or complement your own personnel optimally.

The maintenance services package covers technical services for **ensuring efficiency** and availability of your plants and equipment, from telephone support to on-site service, from repair independent of the manufacturer to provision of materials and spare parts.

**Remote monitoring** of key components in particular ensures that looming disturbances are detected early and resulting damage is prevented at the first sign.

You can combine these services into individual service packages to suit your plant engineering and production processes and stipulate the service parameters in advance.

# Contact Addresses


**Head Office**
Siemens Aktiengesellschaft
Industrial Solutions and Services
Metals Technologies
P.O. Box 32 40
91050 Erlangen, Germany
E-mail: metals@siemens.com

**Austria**
Siemens AG
Industrial Solutions and Services
Vienna, Austria
Contact: Helmut Kremmaier
Phone: +43 51707 65314
Fax: +43 51707 59603
Email: helmut.kremmaier@siemens.at
http://www.siemens.at

**Belgium**
Siemens S.A.
Industrial Solutions and Services
Bruxelles, Belgium
Contact: Johannes Kirsten
Phone: +32 2 536 3767
Fax: +32 2 536 2880
Email: johannes.kirsten@siemens.com
http://www.siemens.be

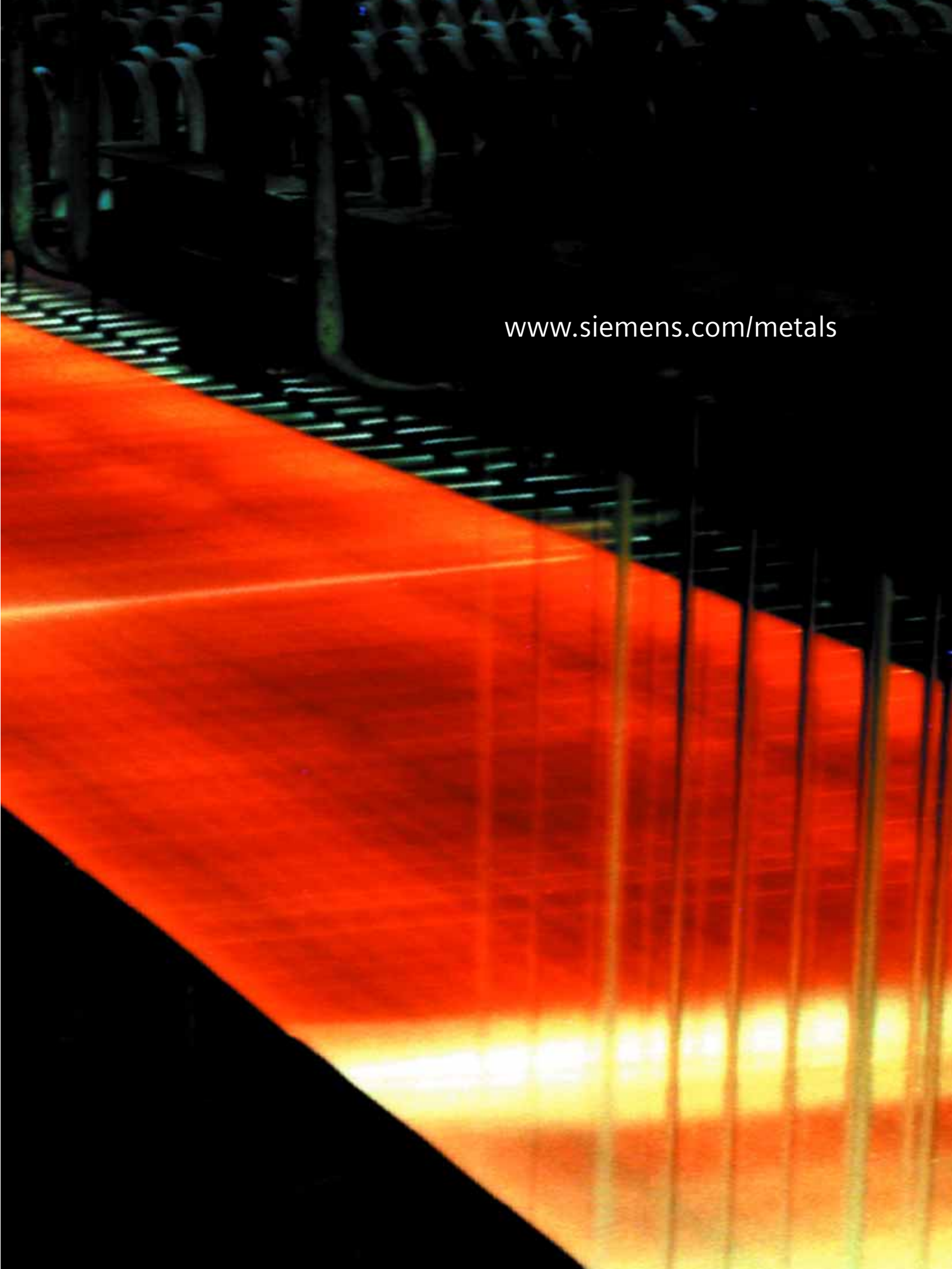
**Russia**
O.O.O. Siemens
Industrial Solutions and Services
Moscow, Russia
Contact: Evgeny Ilyin
Phone: +7 095 737 1804
Fax: +7 095 737 2100
Email: evgeny.ilyin@siemens.com
http://www.siemens.ru

**China**
Siemens Ltd.
Industrial Solutions and Services
Beijing, PR China
Contact: Ulrich Lettau
Phone: +86 10 6436 1888 ext. 6090
Fax: +86 10 6433 7113
Email: ulrich.lettau@siemens.com
http://www.siemens.de/china/en/index.html

**India**
Siemens Ltd.
Industrial Solutions & Services Div.
Mumbai, India
Contact: N. Sivasubramanian
Phone: +91 22 756 8268
Fax: +91 22 756 8288
Email: u.shiva@siemens.com
http://www.siemens.co.in

**USA / Canada**
Siemens Energy & Automation, Inc.
Industrial and Logistic Systems
Metals Division
Alpharetta, GA, 30005 USA
Phone: +1 800 241 4453
Fax: +1 770 740 3294
Email: metalsolution@sea.siemens.com
http://www.sea.siemens.com/metals

**Brazil**
Siemens S.A.
Soluções Tecnologicas Integradas
São Paulo, Brazil
Contact: Davilson da Silva
Phone: +55 11 3833 5509
Fax: +55 11 3833 5599
Email: metalsmining@siemens.com.br
http://www.siemens.com.br


www.siemens.com/metals

**Now it's easy to order metals&mining international news**

Our newsletter is published three times yearly and is filled with information of interest to metals industry professionals. For a free subscription to our informative newsletter, just mail or fax this coupon to the address or phone number listed below. Do it today!

## *Fax: +49 911 9 78 33 21*


Your Name

Title

Company/Dept.

Address

City State Zip Code

Phone

Fax

Email

☐ **Please add my name to the newsletter mailing list**

For further information, please contact:

Siemens Aktiengesellschaft
Industrial Solutions and Services
Metals Technologies
P.O. Box 3240
91050 Erlangen, Germany
Email: metals@siemens.com
www.siemens.com/metals



Order No. E10001-P10-A3-V1-7600
Printed in Germany
Dispo Nr. 21660 K-Nr. 28300
1541 0X16 WS 04042.
Subject to change without prior notice