

A photograph of a dairy processing plant. In the foreground, a worker wearing a white uniform and a white cap is leaning over a large, cylindrical stainless steel tank, inspecting its interior. The tank is surrounded by a metal railing with a red handrail. In the background, several other similar tanks are visible, along with various pipes and structural elements of the facility. The lighting is bright and industrial.

SIEMENS

Our comprehensive offering for
the dairy industry
with Totally Integrated Automation

[siemens.com/food-beverage](https://www.siemens.com/food-beverage)



Perfectly aligned with your business: solutions for milk processing

Fresh milk, ultra-high temperature processing milk (UHT), cream, butter, buttermilk, yogurt desserts or ice cream and, of course, every variety of cheese whether sliced, half-hard, or soft ... the market for dairy products not only varies, but continuously changing. Enormous growth is being seen, for example, in the use of semi-finished products such as powdered milk and whey-powder as ingredients for other products. As a close partner to the dairy industry, we at Siemens have been helping to keep up with this rapid change of pace for over 30 years.

Dairy and cheese companies are facing concentration of markets, advances in niche market development, faster changes in consumer habits and the steadily rising prices of raw materials and energy. Dairy companies and cheese factories must address four key challenges today to remain competitive for the long-term:

- Reduce costs over the entire life cycle of the plant,
- Improve flexibility, particularly in regard to faster changeover of products,
- Ensure a consistently high level of quality,
- Comply with strict regulations made by authorities with the greatest possible efficiency.

Siemens can support you in these tasks as well as in all other aspects of milk processing. With an in-depth knowledge and understanding of your processes and an extensive range of products, systems, solutions, and services that cover the entire life cycle of your plant.

Seamlessly integrated, consistently successful

From our point of view, the key factor of success in the milk industry is the level of integration and transparency. The more seamlessly the production relevant processes interact in your company, the easier it will be to meet the economic requirements.

This is where we can support you. With correspondingly integrated solutions. From milk reception to the finished goods warehouse and from the field level to the enterprise resource planning (ERP) level. The result: Optimum workflow that delivers perfect quality at lower costs and, at the same time, gives greater flexibility. Something for which not only your customers, but also your company will develop a taste!!

Just to your taste: answers to current challenges

Lower life-cycle costs, greater flexibility, consistently high quality and compliance with statutory obligations – with Totally Integrated Automation and Totally Integrated Power, our portfolio provides the appropriate answers to the latest challenges.

Reducing the total cost of ownership

The rising price of milk and the spiraling cost of energy are exerting greater than ever financial pressures on dairy and cheese-making companies. In every company there are numerous potential levers for optimization, particularly in the areas of application resources, plant availability and workflow.

One of the keys to reducing costs is the consistent application of Totally Integrated Automation. Simple engineering and the smallest possible number of interfaces ensure reliable processes, while at the same time significantly reducing expenditure of both time and money. This is an advantage that has a particularly positive effect in cost-intensive areas such as operation, maintenance and repair – over the entire life cycle of the plant.

Implementing greater flexibility

Hardly any other industry exhibits such a wide variety of consumer trends. The refrigerated shelves in supermarkets are bursting with an enormous variety of products, flavors and innovatively packaged products. In order to succeed in this industry, many dairy companies and cheese factories are opting for even greater diversification of their product range. A strategy that can only reap success if it also adds up from a production viewpoint.

This is where we can help you. For example with our industry-specific Dairy Functional Toolset (DFT) for the SIMATIC PCS 7 process control system, which supports fast and easy product changeovers, or with standardized concepts such as the Optimized Packaging Line for versatile filling and packaging.

Ensuring consistently high quality

The processing of milk demands the highest levels of quality and hygiene. The fluctuating quality of the raw material and its perishable nature make the manufacture of dairy products with consistent levels of quality a very complex task.

The SIMATIC PCS 7 process control system with DTF can provide support by consistently linking and coordinating every single step of the milk processing process while continuously monitoring all quality parameters in coordination with the Unilab Laboratory Information Management System. The result: Quality assurance throughout the entire process – and a safe product.

Benefit from precise tracing of products

The authorities accept no compromise when it comes to food products. Wherever you are in the world, the regulations are becoming tighter all the time.

The fact that regulations such as the EU 178/2002 provide the incentive for greater transparency within the company is easily overlooked. Transparency can be exploited in many cases, in order to better understand your own production and business processes and to discover new potential for optimization. Integrated tracing functions support you in this task.



Totally Integrated Automation

The trend in automation has moved away from the consideration of individual devices or machines and toward a fully integrated automation solution. We are implementing this concept consistently with Totally Integrated Automation. The unique and extensive range of hardware and software ensures integrated automation along the whole production line – from the goods receiving area, through the processing and production areas to the finished goods warehouse.

The integration is not restricted to the production process. With a uniform engineering environment, integrated and open communication as well as intelligent management systems and IT solutions, Totally Integrated Automation includes all relevant areas, from building automation and energy management via MES to maintenance and repair.

Totally Integrated Power

Energy costs are an increasingly significant factor. It is good to know that with Totally Integrated Power we can also offer you integrated solutions for power distribution that can unearth significant potential for savings.

Totally Integrated Power from the medium voltage supply to the consumer is based on integrated and coordinated products and systems with optimized interfaces, supplemented by communication and software modules for linking the energy distribution systems to the industrial automation or the building automation.

The SIMATIC PCS 7 process control system with the Dairy Functional Toolset (DFT)

To meet the high technological requirements of primary processes in dairy operations, the SIMATIC PCS 7 process control system with DFT provides dairy-specific functions for effectively solving all milk manufacturing processes. From raw materials intake to the finished product.



Scalable system

As an essential component of Totally Integrated Automation, our SIMATIC PCS 7 process control system relies on integration in configuration, communication and data storage. With the latest SIMATIC technology and relevant industrial standards, such as Industrial Ethernet or PROFIBUS, this system boasts outstanding performance, high reliability and ease of use as well as fail-safe operation. Instrumentation and control systems which can be implemented and operated more cost-effectively. These cost savings can occur at all stages of the life cycle: from planning via engineering, commissioning and operation to maintenance, repair, expansion or modernization.

The modular architecture of SIMATIC PCS 7 consists of selected hardware and software components of the SIMATIC standard range. This means it can be flexibly adapted to individual requirements and plant sizes and then readily expanded at a later date when production capacity is increased or technological changes are made.

Comprehensive dairy functions

SIMATIC PCS 7 with DFT offers appropriate software modules for all industrial milk processing processes. During operation they ensure perfectly coordinated and consistently transparent production sequences including reliable, company-wide communication from the field to the ERP level.

The Dairy Functional Toolset contains the following components:

- Advanced Process Function (APF)
- Technology package (APF TP)
- Application examples



Safe transfer of materials

The Process Line Manager works on an order-oriented basis with parameter-controlled recipes, making certain that materials are correctly transferred and reach their destinations safely and in the appropriate quality. Individual production orders such as pumping, heating or cooling can be controlled either with manual input or automatically. To ensure reliable results, a plausibility check is carried out before the job starts, including, for example, material compatibility tests with the Tank Manager for the source and target tanks and the Pipe manager. Once the Process Line Manager has been given the go-ahead, it controls the material transfer process across the tanks and valves involved and transfers all order-related data to the Archive Manager. In this way, the Process Line Manager not only ensures the reliability of the process sequence, it also simultaneously supports efficient product tracking & tracing.

Reliable tank management

The Tank Manager of the DFT monitors the specifics of the tanks and mixers including physical parameters, contents, all releases and the current status – if a production process is in full swing, can a new order be carried out as planned, or do the tanks and mixers require cleaning first?



Efficient route control

The Process Line Manager can also be used together with the SIMATIC Route Control. This facilitates simple configuration, control, monitoring and diagnostics of all material transports. No matter whether you are dealing with straightforward transport paths or complex networks. The key benefits are more transparency in the material flows as well as production processes which are not just reliable, but are also easier to modify.

Flexible cleaning programs

Although CIP plants are often very differently designed, the 'flexible CIP' feature of the DFT provides a standardized software solution for the simple creation of individual cleaning programs which are then automatically implemented and can be easily modified as required. Even technologists without any programming experience can parameterize program flows quickly, without any problems. Typical cleaning methods for dairy companies and cheese factories are stored in the DFT as examples. Especially due to the option of constant optimization of the cleaning procedure and the corresponding parameters, 'flexible CIP' ensures maximum cleaning and disinfection results with the minimum use of cleaning agents and reductions in the time required. This added value pays for itself over the entire life cycle.



Traceable material movements

The Archive Manager of SIMATIC PCS 7 with DFT records every single material movement within the plant. When a transfer process starts, all relevant information about source, start time, material, volume setpoint and target destination are stored in the user archive. When it is over, times, quantity conveyed and status are also logged.

By means of visualization, the corresponding material movements can be monitored or traced at all times. Also higher-level IT systems can access this data through the interfaces of SIMATIC PCS 7.

Perfectly integrated laboratory

For optimum quality management, our Unilab Laboratory Management System can also be linked up to SIMATIC PCS 7 with DFT. This facilitates optimum control and documentation of the product quality.

SIMATIC IT Unilab integrates the entire workflow of the laboratory. Quality data and information can be evaluated at any time in the daily laboratory operation and forwarded to the overall system. In this way, the results of the quality assurance measures are available at all times and can be reused accordingly. There's one more advantage: documentation is made simpler.

The same quality worldwide

Companies that want to launch their innovative products onto the market, sooner must ensure consistent product specifications – at all times, anywhere in the world. As a complete product specification database for the entire company, the Interspec module creates the ideal conditions for intelligent Product Life Cycle Management and enables product specifications to be exchanged and standardized on a global basis.

Conserving resources for sustainable production: solutions for improved energy efficiency

Increasing energy costs and a greater sensitivity toward environmental concerns are putting the topic of energy saving onto the agenda more frequently. Yet where are the starting points? What measures have the greatest potential? Siemens provides concrete answers with corresponding solutions for sustainable energy efficiency in industrial and special-purpose buildings.

Safe and economical transport of energy using communication-capable power distribution components

As part of Totally Integrated Power, Siemens offers type-tested switchgear as well as modular and compact circuit-breakers in the low-voltage range. By means of PROFIBUS DP or Ethernet, this switchgear equipment transmits output states and triggering operations in a user-friendly way to the power distribution and automation.

Reducing operating costs with Power Management

With our SIMATIC-based Power Management System, Siemens offers a future-proof solution for improved energy efficiency in the industry. With coordinated components, it offers every opportunity to optimize the use of energy and helps to reduce energy costs in the long term. Energy savings of up to 20 % are possible.

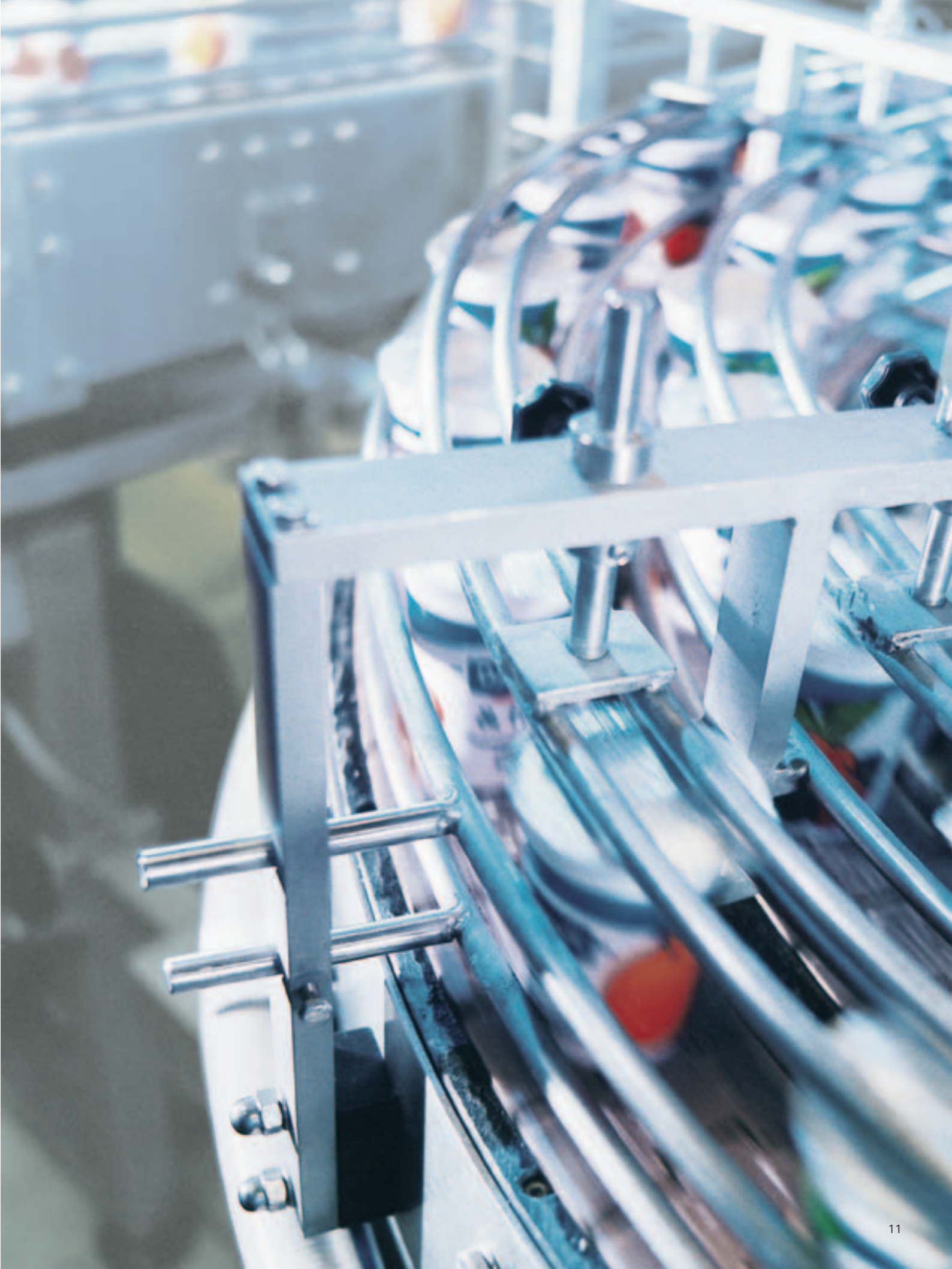
The communication-capable low-voltage switchgear such as circuit-breakers and motor starters make their energy data available to the higher-level Power Management System. The SIMATIC PCS 7 power rate power management premium add-on, which is completely integrated into TIA and SIMATIC PCS 7, enables the energy values to be displayed and evaluated with ease. This not only offers you transparent presentation of the energy consumption, but also the assignment of costs to the correct cost center as well as an automatic load management. The clear display of energy consumption according to media type and production units of the originating manufacturing units helps reduce power consumption by means of simple process optimizations or optimize it for a specific location. Optimization of consumption, combined with the automatic load management, which ensures that consumption limits are also observed, enable savings of between 5 and 10 percent of the overall energy costs to be achieved.

Energy data management with premium WinCC add-on b.data

For analysis and company-wide energy management, we offer a comprehensive solution b.data. This permits an optimized and economical energy management through extensive evaluations, flexible calculation options, consideration of complex tariff structures and plant-wide analysis as a few examples.

WinCC add-on b.data offers a flexible interface management for the recording and editing of energy data, as well as a variety of analysis and forecast options: by means of a complete energy and material balance sheet of the energy production and consumption units, the system achieves company-wide transparency and permits cost assignment – including transfer of the data to invoicing systems such as SAP R/3. In addition, b.data can calculate key values for informed statements on optimization of processes, for example, for production-dependent key performance indicators (KPIs), such as the degree of utilization of plants or the energy demand of individual processes. By means of production-related load and demand forecasts, b.data provides planning security and support in the procurement of energy. In addition, the automatic energy reporting helps to meet the legal requirements for the monitoring and reporting of environmental regulations more efficiently.

By the way, b.data is optimally based on SIMATIC PCS 7 as well as the Power Management, is fully scalable, from small applications to complete corporate landscapes with distributed locations.





SalzburgerLand
Das Milchparadies

SalzburgerLand
Das Milchparadies

SalzburgerLand
Das Milchparadies

frische
Alpen
Milch

frische
Alpen
Milch

frische
Alpen
Milch

frische
Alpen
Milch

1 Liter

Standardize filling lines reduce costs: Optimized Packaging Line (OPL)

In the cost-intensive area of filling and packaging, a wealth of potential often remains untapped.

With Optimized Packaging Line, our integrated automation solution for packaging lines and machines, we are embarking on a new path.

Productivity from the start

“Optimized Packaging Line” integrates the entire filling system based on one common automation and communication standard and therefore creates the basis for making full use of all optimization potential over the entire life cycle. To do this, Optimized Packaging Line makes use of two key levers:

- Standardization: in order to significantly increase line efficiency, standardization and its associated reduction of interfaces are utilized, as well as reducing the amount of hardware and software used to a carefully selected portfolio of components.
- Integration: there is an integration of all plant sections on the basis of a sustainable concept, in order to raise productivity with lasting effect using efficient material flows, transparent communication and integrated operations.

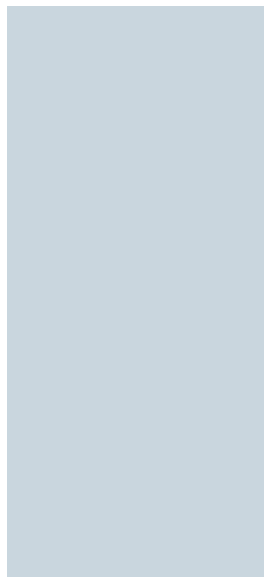
“Optimized Packaging Line” offers benefits all along the line. To mention just a few: after acceptance of the plant, starting problems are significantly reduced, operation and maintenance become considerably easier,

faults are detected sooner, enabling them to be cleared more quickly. Thanks to modularity and scalability you also increase the security of investment. In addition, “Optimized Packaging Line” provides support in deriving and implementing key performance indicators, e.g. with regard to machine runtimes or raising the machine efficiency according to DIN 8782.

The advantage: lines can be optimally arranged and loaded and productivity increased sustainably.

With “Optimized Packaging Line” you profit all along the line:

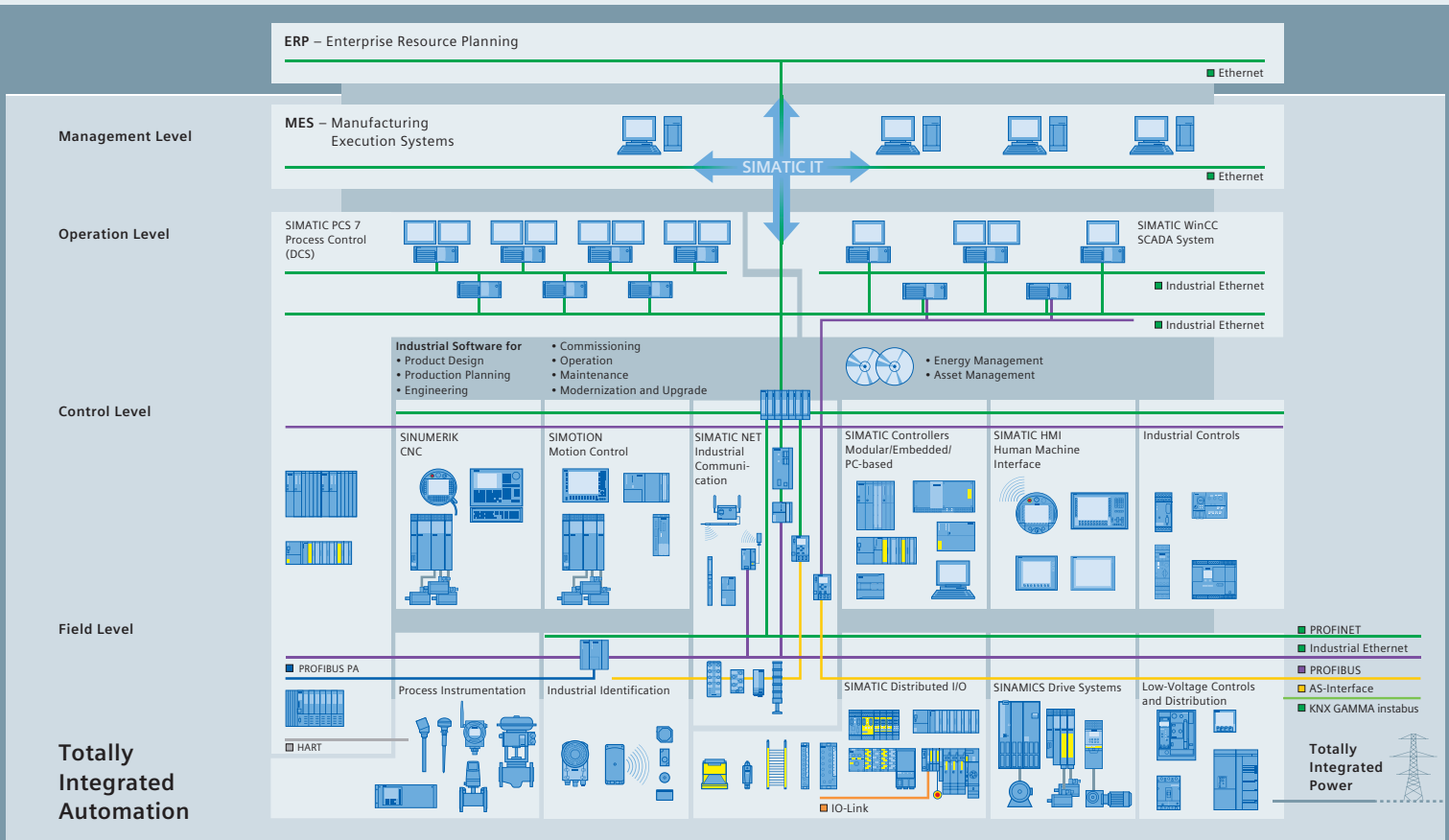
- Lower investment costs due to reduced risks with line integration
- Greater line efficiency due to productivity and availability during operation
- Lower total cost of ownership due to reduced training, personnel, maintenance and spare parts costs
- Protection of investment thanks to consistently modular and scalable constructions



Integration from A to Z: Products from the controller level to the field level

With Totally Integrated Automation (TIA), Siemens is the only provider of an end-to-end, integrated portfolio of products and systems for the automation of the entire production workflow. From the goods receiving area to the finished goods warehouse. Totally Integrated Automation reduces the complexity of the automation solution and enables what really counts: The practical combination of optimally coordinated individual components – without interface problems.

Totally Integrated Automation integrates not only the production process but all parts of the company – from the field level to the management level. The result: a perfectly coordinated overall concept that enables higher productivity.





Process control

The SIMATIC PCS 7 process control system offers various possibilities for the connection of peripheral units and for the collection and output of process signals via sensors and actuators.



Controllers and HMI

We offer you a consistent range of SIMATIC controllers for cost-effective and flexible automation – from programmable logic controllers (PLCs) in modular, embedded and PC-based architectures to distributed intelligence to complete units consisting of controller and operator panel. By the way: With SIMATIC HMI, we also offer you a full range of operator panels and visualization software for machine-level operation and visualization, all the way to a scalable SCADA system – from a single source.



Motion control

Our globally successful portfolio of products and systems helps you solve every Motion Control task confidently and economically. An especially convenient solution is the innovative and flexible SIMOTION Motion Control system, which combines Motion Control, PLC and technology functionality in a single system, providing far-reaching advantages.



Industrial communications

Solving communication tasks efficiently – this is what SIMATIC NET stands for. Opt for the open, end-to-end communication of your automation solution and leverage the advantages that are achieved through the expansion of Industrial Ethernet into the field level, the integration from field level to management level, the integration of information technologies as well as the wireless connectivity with Industrial Wireless LAN.



Sensor Systems

Production sensors:

With SIMATIC Sensors, we offer you a full portfolio of proven and innovative sensors for a wide variety of requirements in different production areas: from proximity switches and safety sensors to RF identification and image processing systems. With innovative, intelligent products and as an integral part of Totally Integrated Automation, SIMATIC Sensors support additional productivity, availability, efficiency and cost-effectiveness.

Process instrumentation and analytics:

For operation with SIMATIC PCS 7, our portfolio provides a full range of devices for process instrumentation and analytics, including:

- Instruments to measure flow rates, pressure, temperatures and levels
- Position controllers
- Analytical devices
- SIWAREX weighing systems
- Belt scales





Motor management

The SIMOCODE pro motor management and control device provides comprehensive motor protection and motor circuit monitoring, integrated software controls for all typical switched motor applications, detailed motor and system diagnostics as well as an integrated PROFIBUS DP interface. SIMOCODE pro complies both with the requirement of safety separation and the NAMUR regulations.



Motor starters

Our SIRIUS motor starters are the adequate choice for motor switching and protection or starting. Whether centrally in the control cabinet or directly in the field – our motor starters optionally integrate intelligent monitoring functions including preventive maintenance and Safety Integrated functionality. And where tailored applications are required, our customized SIVACON-MCU (Motor Control Unit) motor starters fully show their strengths.



Frequency converters

We offer a full range of converters for a wide variety of uses in the beverage industry. SINAMICS is the world's most complete and most integrated family of drives. It covers all performance levels and provides maximum flexibility, functionality and engineering efficiency. From single basic drives to coordinate drives to multi-axis and motion control drives for demanding tasks: SINAMICS has the right drive for every area of application.



Low-voltage motors

Efficient motors need efficient drives. And because every drive application is different, Siemens offers a seamless range of motors according to NEMA and IEC standard for worldwide use:

- Energy-saving motors
- Ex-proof motors
- Motors according to IEC or NEMA standard
- Distributed drive technology
- Industry-specific motors
- Customized motors



Geared motors

Geared motors represent the powerful solution for drive applications at low speeds and high torques. They run reliably in the harshest conditions. The integrated units of energy-saving motor and gear provides for especially cost-effective applications. Our portfolio comprises:

- Helical geared motors
- Bevel geared motors
- Offset geared motors
- Helical worm geared motors
- Worm geared motors



Safety Integrated products

Safety Integrated is a unique, complete and consistent safety program that integrates seamlessly into the standard automation portfolio. It covers all applications in the field of safety engineering, from acquisition, evaluation and responding, to sensors and controllers to drives.

Always at your side: service, support and training

With a comprehensive range of services we can support you quickly, reliably and practically throughout the entire life of your plant.

Online support

Obtain comprehensive information about our range of products at any time via the Internet:
www.siemens.com/automation/service&support

Technical support

We offer competent advice on technical issues and a wide range of demand-oriented services concerning every aspect of our products and systems. Further information can be found at:
www.siemens.com/automation/partner

Technical consulting

Support in planning and designing your project: from detailed analysis of the current situation and definition of objectives through advice on products and systems to designing the automation solution. Obtain further information via e-mail:
food-beverage@siemens.com

Field Service

We offer a range of services on every aspect of commissioning and maintenance to safeguard the availability of your automation plants and systems. Further information can be found at:
www.siemens.com/automation/partner

Software engineering

Support during development and project engineering with services tailored to your requirements – from the configuration stage through to implementation of an automation project. Further information can be found at:
www.siemens.com/automation/partner

Repairs and spare parts

Comprehensive repair and spare parts services offer you the highest level of reliability. Further information can be found at:
www.siemens.com/automation/partner

Modernization

Our local experts will give you competent specialist advice on how you can safeguard your investments in the long term. Further information can be found at:
www.siemens.com/automation/partner

Training

At numerous locations worldwide, our Training Centers offer you individual training measures on every aspect of automation engineering and industrial solutions. With a total of about 300 attendance courses, we provide training for a host of products and systems from the Siemens Industry Sector. Web-based training courses, CD-ROMs and technical books complete our classic range of courses.
www.siemens.com/sitrain

In Linz and Mumbai we offer you additional dairy-specific training courses. To request further information on this and on our general training services, please send an e-mail:
food-beverage@siemens.com

Well supported on site: Siemens Solution Partners

In addition to our own competence in the field of system integration, we are collaborating closely with our Siemens Solution Partners. These selected partner companies are highly qualified in the fields of automation engineering and energy distribution – and offer you under the heading “Siemens Solution Partner Automation” or “Siemens Solution Partner Power Distribution” professional advice and active support on all aspects of your projects. You can find out more about our Solution Partners on the Internet at:
www.siemens.com/automation/solutionpartner



Siemens AG
Industry Sector
Food & Beverage
P.O. Box 48 48
90026 NÜRNBERG
GERMANY

Subject to change without prior notice 04/11
Order No.: E20001-A50-T110-X-7600
Dispo 27903
2100/31874 MK.GC.93.YFUB.52.8.02 WS 04112.0
Printed in Germany
© Siemens AG 2011

The information provided in this brochure contains merely general descriptions or characteristics of performance which in actual case of use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

All product designations may be trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes could violate the rights of the owners.

www.siemens.com/food-beverage