



SIEMENS

Solutions for water:

The complete spectrum,
from single products
to entire plants,
completely integrated.

Siemens delivers.



Next Generation H₂O:
You and Siemens.
Together for the
world's most
important resource.

Your job: Managing the world's resource number one. Your demands: Complete safety. Optimized performance. Your answer: Siemens Water. A host of new possibilities and perspectives for today's challenges, and a partner that knows your job and thinks like you. You and Siemens: Next Generation H₂O.





The only constant is constant change. Nowhere is this more true than in the global water business where you, one of today's water professionals, continually face the challenge of a highly dynamic and demanding environment: Constantly increasing demands for water safety and quality as well as budgetary constraints, best practice and benchmarking are just some examples.

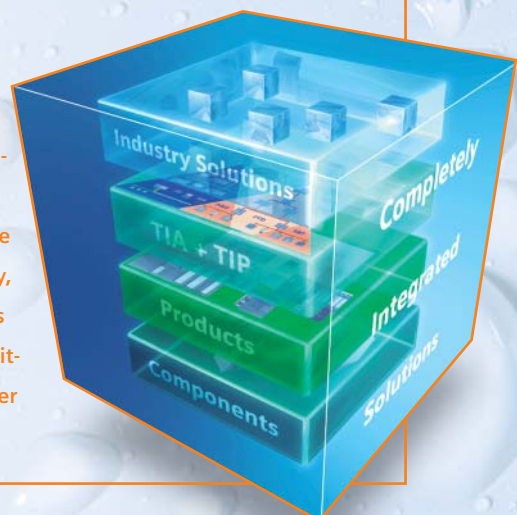
Siemens is rising to the challenge:

We're at your side – committed to helping you succeed in a difficult business. With a clear focus on innovation and technological change, we present the complete spectrum of solutions, integrating reliable and field-proven industry standard products and ground-breaking technological solutions and services, providing new answers and perspectives for the global water industry with a portfolio that covers drinking water, wastewater, industrial water and water pipelines:

- **Water treatment technology like biological treatment, disinfection systems and advanced membrane filtration**
- **Intelligent instrumentation, monitoring and IT technology**
- **Completely Integrated Solutions for pump stations, pipelines and networks**
- **Optimized automation, communication and drive systems**
- **Life-cycle services from design, financing, construction, commissioning, maintenance to modernization**

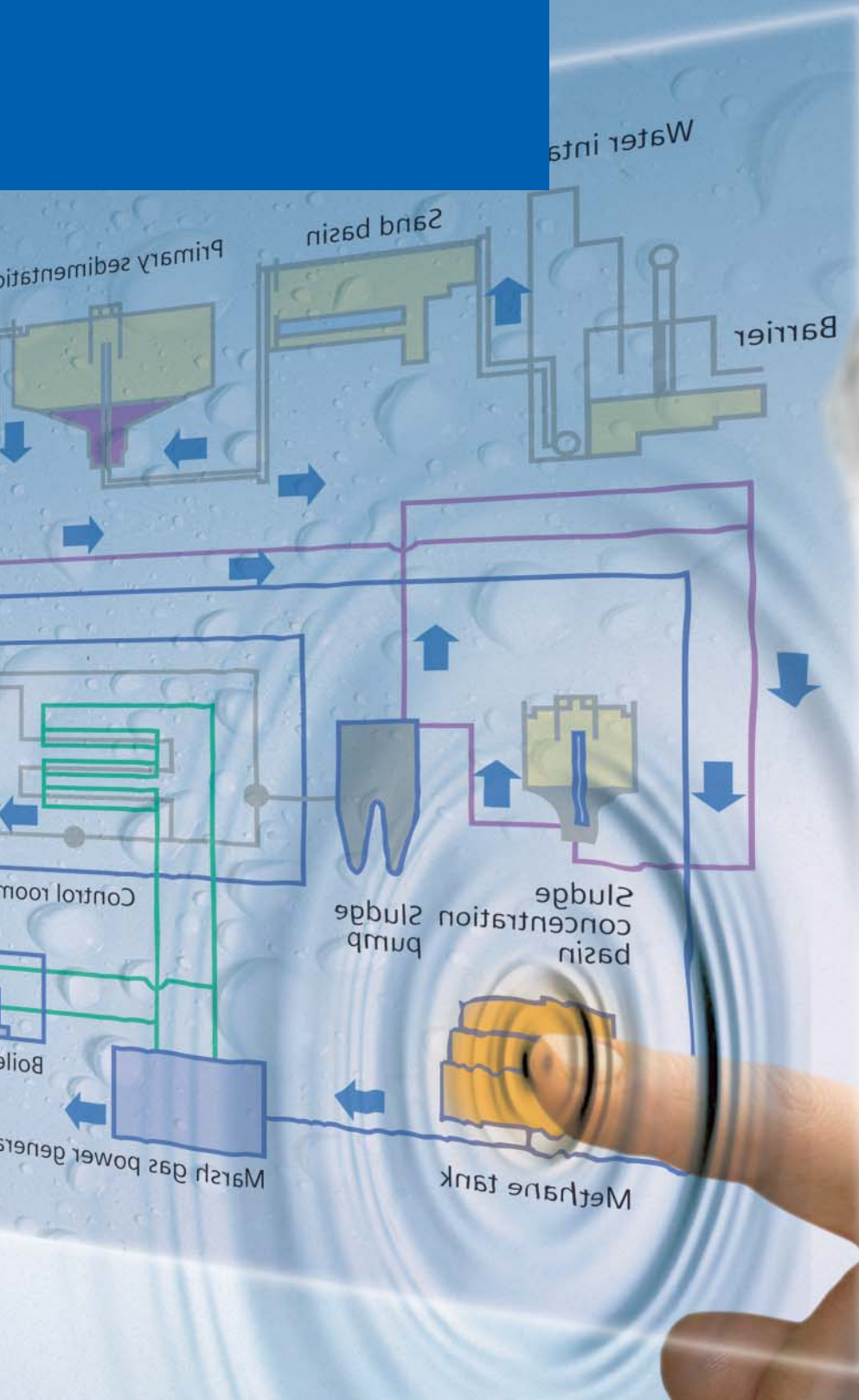
Experience the possibilities of Siemens Water Technologies - now incorporating USFilter. Learn more about mastering the challenge of managing water in complete confidence. We're with you. We know your needs. And we'll provide you with the winning tools. Together we are Next Generation H₂O.

Solutions from our SIWA product family start with an industry-proven, field-tested solution core, a technology module that proves itself daily in dozens of different industries. It's not only optimized for perfect performance, but also completely integrated in all three dimensions. This solution core is the basis for industry specific solutions when the in-depth process know-how and experience of Siemens in the water business is integrated and implemented into the solution. Finally, each solution is tailored and customized according to the requirements and specific demands of the client. That's complete integration – a limitless spectrum of industry-specific solutions working seamlessly together in a unified system.



TIA = Totally Integrated Automation, TIP = Totally Integrated Power

Energizing the water business: Integrating electrical power, drives and automation.



Water intake

Sand basin

Barrier

Sludge concentration basin

Sludge pump

Methane tank

Marsh gas power generator

Control room

Boiler

In today's demanding environments, electronics and electro-technology are decisive to economic success, resource quality and assured availability. Siemens leads the way: Integrating every aspect that drives and automates your plant into an optimized system, realizing synergies at every step of the water cycle.

Totally Integrated Automation

We lead the way: Siemens is the only supplier delivering a complete range of systems and products capable of automating the whole water cycle from untreated water to purification, drinking and wastewater, from the field level to the management desktop and across the whole life cycle of your plant. We deliver: reduced life-cycle cost, drastically improved product and process safety, lower maintenance overheads and an overall increased economic performance and investment security.

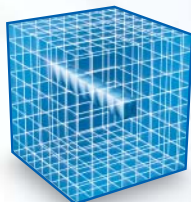
Totally Integrated Power

More power for your performance. With Totally Integrated Power, we integrate power distribution across your whole plant so that all resources – for automation, power distribution, energy management and building automation – work together, optimizing economic performance and process safety. Completely. Realizing synergies you never suspected exist.

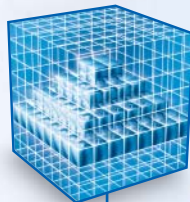
Completely Integrated Solutions

First, imagine a system of hardware and software completely integrated and working seamlessly together along the process chain, so you can always be sure that your system is operating optimally. That's **horizontal integration**. Then, rest assured that you have all the information you need about the entire plant at your fingertips at all times, helping you make optimized decisions. That's **vertical integration**. Finally, achieve maximum performance at every point of your plant's life cycle thanks to integrated enhancement and modernization concepts that keep it at the peak of its efficiency. That's **life-cycle integration**. Now integrate these three dimensions into a consistent whole, realizing maximum efficiency, water safety and economy through total, holistic integration. That's a Completely Integrated Solution: Why settle for anything less than perfection?

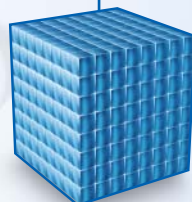
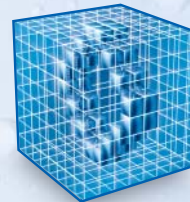
Horizontal integration



Vertical integration



Life-cycle integration



Perfect integration in all three performance dimensions

Power and Automation. Totally integrated.

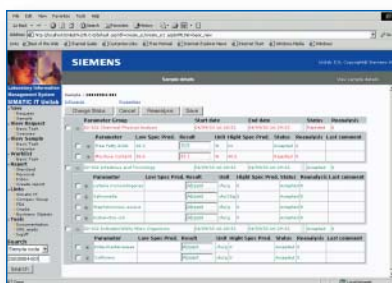
Today's water industry is driven by optimization and automation. We're at the forefront of this trend – with integrated solutions realizing efficiency and safety potentials all along the process chain.



By totally integrating every aspect of your plant's process control we realize synergies, improve effectiveness, economy and process safety.

Process Control System

Every Process Control System is only as good as the process know-how that's designed into it. Which is why it is a good thing that we have decades and decades of experience with every kind of water plant, process and system. On the other hand we are one of the world's foremost suppliers of Process Control Systems for every kind of industry. Combine these two competences and what you get are Process Control Systems for the water industry that are not only tailor-made for every process but also totally integrated and designed to fit seamlessly into your applications. Whether based on SIMATIC PCS 7 or SIMATIC WinCC, Siemens Process Control Systems are what our automation is all about: Managing water with complete confidence.



Process Visualization with SIMATIC WinCC

Complete operating and monitoring functionality, endless flexibility, unlimited scalability, limitless possibilities: excellent reasons why SIMATIC WinCC has established itself as the industry standard for innovative process visualization with over 100,000 installations in Europe. With every HMI interface on board and integrated historian functionality as a platform for easy IT and business integration, it is the system of choice for water professionals everywhere.

One concept.
Countless
solutions. New
possibilities.

SIWA^{CIS} PLAN

Realize optimum efficiency, product quality and economy of operation – automatically: with SIWA^{CIS} PLAN, the scalable, highly automated water management system from Siemens. SIWA^{CIS} PLAN supports water treat-

ment with relevant functions such as network control, creation and optimization of operating plans, simulation of hydraulics and automation, leak monitoring, sewage network control and even operator training. It constantly monitors all relevant information about your facilities and uses innovative tools for calculating how you can achieve maximum efficiency. The result: best-in-class water management planning with minimum equipment and energy, and in accordance with existing regulations.



Process Instrumentation

From a single field device to individual system solutions, Siemens is able to offer a wide range of modern process instrumentation technology. Many products are industry standards for the water industry; HydroRanger 200, an ultrasonic level controller for as many as six pumps, is just one example. By integrating the process devices into the Siemens concept of Totally Integrated Automation, the process instrumentation benefits from the advantages of the threefold integration of communication, system design and data management.



SITRANS F M MAG 8000W:
a new generation of
flow instruments. This
electromagnetic induc-
tive flow meter has a
battery life of six years
and excellent perfor-
mance parameters.

Telecontrol

SINAUT ST7 is an innovative and versatile system for fully automatic monitoring and control of process stations, exchanging data and information over a Wide Area Network (WAN). It cross-connects stations or delivers data to control centers. The entire range of diagnostic and programming functions is available over normal data lines, eliminating the need for long maintenance and troubleshooting trips to widely distributed stations in a water treatment network.



Realize the energy-saving potential of modern, innovative drive and power solutions. With energy-saving motors and intelligent frequency drives, double digit energy savings are at your fingertips, making for an attractive ROI in a very short time.

Drive Systems

Economic efficiency, optimized energy usage, lowest maintenance and downtime costs: Drive systems from Siemens offer a vast potential for improvements in economy and efficiency. Take motors, for example: Energy costs account for 97% of the life-cycle costs of a motor - with procurement and installation accounting for only 3%. Or frequency drives: The correct adjustment at just the right time saves up to 50% in energy, while reducing operating costs as well. We're at your side, helping you to drive efficiency to new levels:

- *Our powerful energy-saving motors guarantee significant reductions in operating costs, up to 40% less power loss and a longer service life. They offer excellent price/performance ratios, high degrees of operational reliability and they fit in every drive system concept.*
- *With the MICROMASTER family, we offer a large range of frequency inverters that can be used in a wide range of applications and are extremely flexible in use, thanks to their modular design. With power ratings ranging from 0.12 to 250 kW (0.16 to 400 HP), they can readily be adapted to new requirements without any great effort.*
- *SINAMICS G150 and SINAMICS GM150 cabinet units – covering power ratings from 75 kW to 8000 kW – have been specially tuned to the requirements of drives with quadratic load characteristics like pumps or compressors without regenerative feedback. The control accuracy of the sensorless vector control is suitable for most applications, and additional actual-speed value encoders are therefore superfluous. SINAMICS G150 and GM150 cabinet units are particularly quiet and compact, and, as members of the new drive family SINAMICS, they offer uniform, simple engineering and ease of operation.*

One objective:
Success.
Your success.

We can do more for you: With products and solutions that reflect the Siemens dedication to total integration and optimization. Helping you succeed in a difficult environment.

PURITEC Ultraviolet Disinfection Lamps

When secure and dependable disinfection is required, ultraviolet radiation is the advanced alternative to chemical methods. We offer a wide spectrum of PURITEC mercury low-pressure lamps for effective, chemical-free and environmentally friendly sterilization in many important areas. They are characterized by high UVC radiation output and a long product life. Their highly effective bacterial action is a result of the excellent teamwork between their maximum radiation at a wavelength of

254 nm and the spectral effectiveness function for killing bacteria. PURITEC lamps are available in a wide range of design and technical alternatives for every application. We offer a special projecting and design service for tailor-made solutions perfectly adapted to your needs.



Power Distribution

We meet the different power distribution requirements of the water industry with a host of innovative products and solutions, developing, manufacturing and supplying switchgear, transformers, protection systems and substation control technology for all high-voltage, medium-voltage and low-voltage applications. Our expertise in power technology means you can count on getting the right advice and a solution that exactly fits your individual requirements.

Power distribution by Siemens. This means high levels of safety for personnel and plant, simple operation and highest levels of cost effectiveness.



Perfect integration in three dimensions: The key to perfect water management.

The task at hand: Optimization of processes, technology, systems, and last but not least: the bottom line. The solution: SIWA^{CIS}, the proven, high-performance product family from Siemens. Whatever happens with water in the product cycle, a SIWA^{CIS} module, working in conjunction with family members, will deliver the full synergy and optimization effects of a Completely Integrated Solution. If it has to do with water, SIWA^{CIS} has the perfectly integrated solution. Every time.

Because every challenge has just one solution – the right one. Here are some examples:



■ **SIWA^{CIS} PUMP.** A Completely Integrated Solution for existing or projected pumping stations, providing optimized instrumentation, automation, drive and electrical systems as well as life-cycle services that maintain the plant at optimum performance levels at every point of its life cycle. Add-on modules like SIWA^{CIS} PLAN BEP (for calculating the best efficiency points of the pumps for a given throughput) take economy and dependability even further.



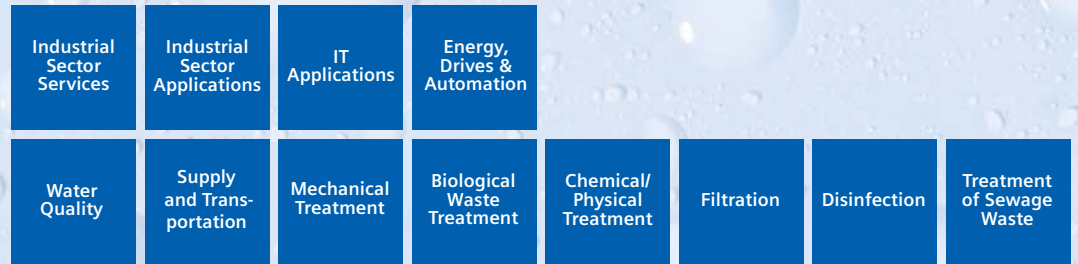
■ **SIWA^{CIS} PIPE.** The optimum system to control and assure transportation of drinking water from the source to distribution. Each module, from measuring and quality control to energy supply, from simulation to automation, from drives to services, is seamlessly integrated for optimized performance and economy. With the SIWA^{CIS} PLAN LEAK module, even the smallest leaks can be located reliably, enabling a quick response and significant savings.



■ **SIWA^{CIS} NET.** Maintain and run drinking water networks more efficiently: SIWA^{CIS} NET gives you the big picture, integrating and displaying every aspect of the plant, providing exactly defined interfaces from the field to the management desktop. Intelligent networking of automation, measuring and control technology with innovative management systems opens new possibilities for optimizing performance and economy. Couple SIWA^{CIS} NET with SIWA^{CIS} PLAN OPTIM to implement innovative operation optimization modeling and realize double-digit percentages in efficiency improvement.

SIWA^{CIS}

Completely Integrated Solutions
for the Water Industry



As a comprehensive, industry-specific solution for the water industry, the SIWA^{CIS} product family integrates all the products and services you need for sustained maximization of your plant's performance. For each task along the water cycle a solution is available that not only performs optimized on its own but also integrates into an overlying system of other SIWA^{CIS} modules to provide a Completely Integrated Solution in all three dimensions.

Turnkey plant solutions for the water industry: The optimum. From Siemens.

- Whether you need an industry solution incorporating water or your responsibility is the municipal water cycle – you can depend on Siemens for your optimum solution: turnkey plants, incorporating industry standard, proven modules and technologies into a seamless system. Ensuring constant and excellent water quality, the strict adherence to demanding environmental requirements, smooth and constant operation and, last but not least, a fast and attractive R.O.I.
- Why optimum? Because Siemens brings more to the table: decades of industry experience and a complete knowledge of the water cycle in all its aspects. We offer predesigned modules for every application that have proven their capabilities in a multitude of systems all over the globe. These tools are used to plan and design your plant in complete confidence: starting with in-depth feasibility studies concerning technical specifications, quality requirements, environmental constraints, and financing, and continuing with a process design that reflects our experience and know-how, employing our industry-proven modules. A pilot plant is used to check the feasibility of the projected design; structured detail engineering and procurement ensure that your plant is on-line in time, commissioned in the minimum start-up time and that your investment is secure. In short: We have at our fingertips everything that's needed to ensure the perfect, economically and technically optimized solution. Why settle for anything less?

Processing the flow:
The next generation
of water treatment
technology.



There's one thing you need to know about the performance of your municipal or industrial treatment plant: everything. To manage water safely and economically, you need to be sure that every process is completely optimized and integrated into a consistent, seamlessly cooperating system. Which is what Siemens delivers: complete confidence in your systems and processes. All the time.

We know your business

When it comes to perfecting your plant's operation in all its complexity, you don't want questions, you want answers. The ideal water treatment plant is completely transparent, an elegant system where all parameters are at your fingertips all the time. To achieve this level of perfection you need a partner who knows your business and thinks like you: Goal oriented. Safety conscious. Someone who keeps the big picture as securely in his sights as he does your balance sheets. Someone who can provide you with turnkey industrial water plants that seamlessly integrate into your processes, maintain strict environmental standards automatically and efficiently, and produce the water you need, whatever the quality required. Someone who puts the latest solutions for efficient water treatment right at your fingertips. Someone like Siemens – your global partner in water management. A partner who just got even stronger.

A new strength: Siemens acquires USFilter

The result is greater than the sum of its parts: Siemens now incorporates USFilter, the American market and technology leader in water treatment. Combining our portfolios to give you completely new perspectives and possibilities for your business. Combining our experience in the world's markets. Combining our commitment to you, the water professionals and your vital responsibility. With proven solutions and visionary new technologies. The global player in water technology has become even more global. And we're on your side.

The logo for USFilter, featuring the word "USFilter" in a bold, blue, italicized sans-serif font. The "U" and "S" are connected, and the "F" is slightly larger and more prominent.

A Siemens Business

The market and technology leader in the American water technology business is the newest member of the Siemens Water Family. This means a new level of technology and service and new answers when you talk to us. Which means new perspectives for your business. Or, in other words: Next Generation H₂O.

Processing the flow: With knowledge, technology and ideas.

A deep and comprehensive understanding of the water industry. Decades of experience. A spectrum of solutions and products that is practically unparalleled in its comprehensiveness, covering every aspect of the water cycle in drinking water, wastewater and industry. Whatever your requirements – Next Generation H₂O can do more for you.

We know the flow: the water people who know your industry

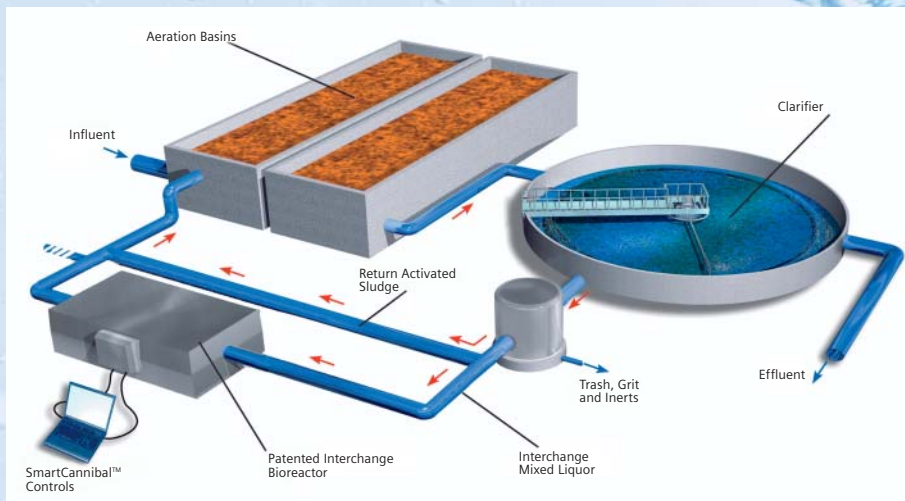
We're at your side right from the beginning when a new industrial water plant is planned. With decades of experience and a multitude of projects around the globe, we can deliver solutions for feed water supply, process water, reuse, treatment and wastewater. Solutions that meet your requirements precisely, making for optimized efficiency, economy and R.O.I. Our project expertise covers the entire process of planning a new industrial water plant, including screening, process design, basic and detailed engineering, as well as construction and startup. With engineers and project managers to create even more added value for you. Simulation of mission-critical processes safeguards your investment and ensures that the best solution is found. Ensuring constant and excellent water quality, the strict adherence to demanding environmental requirements, smooth and constant operation and, last but not least, a fast and attractive R.O.I. Why settle for anything less?



When planning and designing industrial water plants, combining process know-how, engineering and project management into a seamless team creates new ideas and hassle-free construction.

Filtration Technologies

Advanced concepts in filtration and new possibilities through new technologies – that's one of the strengths that USFilter, the newest member of the Siemens water family, has to offer to the world's water professionals. Technologies such as the Memcor submerged continuous microfiltration systems (CMF-S) provide maximum economic efficiency in removing a wide range of contaminants even up to viral hazards in some systems. Another highlight: MemJet, the unique membrane bioreactor system that combines a single-stage aerobic biological sludge treatment process and an immersed integrated membrane system. Compared to conventional clarification systems, the system footprint is drastically



Cannibal combines bioreactor and aerobic sludge processing, practically eliminating the need for biosolid disposal. Another first from Siemens.

Sludge treatment: Cannibal and Composting at your service

You face continuing challenges regarding the economical treatment and disposal of biosolids: changing regulations, environmental concerns, long-term disposal options. Let Cannibal and IPS Composting come to your rescue.

Two innovative new technologies from USFilter help you reduce your disposal costs and improve your performance. The IPS composting system is an enclosed-in-vessel, agitated, aerated, automated composting process with effective biofiltration odor control. The system transforms dewatered biosolids and other organic residuals into high-quality compost.

Cannibal is even more revolutionary: It virtually eliminates the biological solids produced by wastewater treatment plants through an interchange recycle flow between the aerobic sludge process and a specially designed sidestream bioreactor. Only trash, grit and inerts remain to be deposited. The resulting cost reductions are immediate and impressive for every wastewater facility. Two truly revolutionary sludge treatment solutions – and just two examples of what the newest member of the Siemens family can do for you.

reduced, sludge production is reduced, the operational stability increases and the system produces exceptionally high effluent quality. MemJet offers the future of filtration today. Its pre-engineered smaller brother, MemJet XPress, is a packaged membrane bioreactor plant, providing reliable and efficient wastewater treatment for small applications that require speedy installation and reduced maintenance. Whatever your needs, advanced filtration systems from the newest member of the Siemens water family provide tomorrow's solutions today.



Technology that helps you succeed. Next Generation H₂O.

When in the early 1900's Charles F. Wallace and Martin F. Tiernan discovered the process of disinfecting water through chlorination, *Life* magazine called it "one of the most important discoveries for the advancement of mankind."



UV disinfection technology by Wallace & Tiernan: reducing chloramines in swimming pools, improving air quality and saving water.

Disinfection Technology

Today, as part of Siemens, Wallace & Tiernan is the worldwide technology leader for water disinfection with systems like DIOX-A, where chlorine dioxide is used for water disinfection. It has a considerably higher oxidizing potential than chlorine and can achieve destruction of organic substances, viruses and

spores, which are not attacked by chlorine. OSEC-A produces pure hypochloric acid on site from a hydrochloric acid in a compact, turnkey system. V10k is the industry standard for full-vacuum gas dosing systems and UV Wave and UV Astron provide disinfection suited for every application in the water industry. If clean, safe water is your concern, we are the company to talk to.

The wide range of solutions we supply to the world's water industry ensures that the extremely high demands concerning safety and performance that are typical in the fields of disinfection and purification can be met with complete confidence. The systems are economical and tailor-made for the specific requirements of each client, with every technology for water disinfection provided from a single source: UV, chlorine, chlorine dioxide (ClO₂) or hypochlorite solutions. This ensures that you can choose from the complete solution spectrum, using the know-how and experience of a global technology leader that constantly sets new trends with innovative solutions not only for water purification but also for analyzing, measuring and control equipment. Here are just some examples of industry solutions from our extensive Wallace & Tiernan product range:



- *UV disinfection technology with UV Astron and UV Wave: a safe and economical alternative to chemicals.*
- *Does not influence the taste or smell of the disinfected fluid.*
- *Ideally suited for a wide range of applications; for example, food industry, pharmaceuticals or aquaculture.*

OSEC On-Site Electrolytic Chlorination Systems

OSEC-A

The ideal solution for smaller pool and water supply applications, OSEC-A delivers extremely high and reliable disinfection capacity due to high purity levels and the stability of the hypochloric acid produced. There are no by-products such as chlorate and bromate.

OSEC-NT

Producing sodium hypochlorite from brine in a patented Wallace & Tiernan membrane process with integrated membrane cleaning, OSEC-NT provides high yield and low consumption of operating water and salt. The patented process completely eliminates the emission of gaseous chlorine into the environment.

DIOX - Chlorine Dioxide Generators

These efficient and reliable Chlorine Dioxide Generators implement an especially economical procedure for the generation of ClO_2 , providing an attractive alternative to purification methods employing chlorine. DIOX generators are ideal for a wide range of applications and especially suited for fighting and preventing legionellae. Another advantage is the high stability of the prepared ClO_2 solution. DIOX-A 250 offers batch operation capabilities to connect several metering pumps. DIOX-C is available with standard or advanced control units with touch panels and display of the chemical flow.

DEPOLOX 5

The industry standard system for measurement, monitoring and control in industry and drinking water plants, measuring up to 7 parameters with one system. A graphic display for measured value, limit value and line diagrams, and the easy configuration due to freely selectable pre-set process applications make it the system of choice for easy operation and complete reliability.

V10k Gas Feed Systems

Another industry standard from Wallace & Tiernan: V10k vacuum gas dosing systems are available for all gases applied for water treatment such as Cl_2 , CO_2 , NH_3 and SO_3 at a wide range of dosing rates from 3 g/h up to 200 kg/h Cl_2 . Extremely safe operation is ensured by a patented full-vacuum system without pressurized components. The proven technology with V-notch flow control provides reliable, maintenance-free operation.



OSEC-NT: Provides safe and reliable purification at various performance levels.

At your side from
the start. On site
when you need us.
A new level in
services.



The next generation of integrated solutions comes along with a new level of services: Proactive. Committed. As goal-oriented as you are. From financing your new plant, to migration, maintenance and outsourcing solutions, we're at your side with people, know-how and ideas. Together we can take water management to a new level.

- Good service starts before your plant is even built. We're ready to work with you from the very start of planning - on site anywhere in the world. Highly qualified industry professionals advise you and help you to meet and exceed your objectives, while paying particular attention to scheduling and financing. With our extensive network of partners, we find the best financing for your every need, from equipment and leasing, to sophisticated project and export plans. We even offer outsourcing solutions to make your investment and R.O.I. totally secure over the whole plant life cycle, a business sector where USFilter, our newest family member, has decades of experience with major projects implemented all over the world.

- We keep you running. Always. In today's highly competitive industry, plant downtime is not an option – whether planned or unplanned. We keep the water flowing: with innovative, highly integrated, streamlined and optimized maintenance strategies from tele-monitoring to field and online services to integrated plant maintenance systems that have proven their reliability around the globe. Computerized Maintenance Management Solutions (CMMS) that seamlessly integrate into your business strategies and plant systems take maintenance efficiency even further.
- Stay ahead of the competition. Forever. With innovative integrated migration and modernization services from Siemens, it's simple. We analyze your plant, identify your upgrade and modernization needs, and help you implement new systems and improved processes with minimum downtime and maximum assured R.O.I. We have standardized and streamlined most of the common migration processes (for instance SIMATIC S5 to S7), further improving their efficiency and economy. And we're committed to utilizing as much as possible of your existing infrastructure and operator know-how, making for a smooth transfer and still more economic efficiency.

Mechanik Center, a Siemens company, is an integrated solution provider for complete solutions in the field of plant and machine building, manufacture of mechanical devices, and production of assemblies and components. Our portfolio of services includes project planning and design, materials procurement, manufacturing and assembly, as well as testing, commissioning and servicing of supplied plants. With decades of experience in the construction of process engineering plants and pipelines, our specialists can implement even the most demanding solutions for the water industry effectively and at low cost.

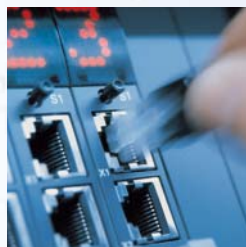


Solutions for plant construction based on Completely Integrated Solutions

- So, what can we do for you? A lot. We don't just provide systems, tools and products, we provide success. Your success in a difficult and constantly changing environment. Where a reliable and committed partner is a key driver for economic operations and assured product safety and quality. Where perfect integrated service is not a luxury, it's absolutely essential. And Siemens delivers.




Service - from startup to decommissioning, from inception to smooth everyday performance.



Innovative maintenance concepts, from tele-monitoring to Web-based maintenance.



Modernization and migration: Keeping you competitive - with an attractive R.O.I.



We're looking forward
to talking to you.

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