



Boiler Feed Water
Process Water
Dosing Units

Engineering Consulting Delivery Service

Water is our Element



SIWAttec Wassertechnik GmbH & Co. KG

Zum Pfahlgraben 3 D-35510 Butzbach
Phone: +49(6033)92896-0 Telefax: +49(6033)92896-19
www.SIWAttec.de Info@SIWAttec.de

Engineering Consulting Delivery Service

Delivery Program

Ion Exchanger Units



Units responsible for softening, semi salt-removal and total salt-removal of well water and surface water thus for preparing these waters for the usage as process- and boiler feed water.

Condensate polishing-plants for the cleansing of raw condensate.
Modernization of plants for water processing.

We are capable of delivering different versions of plants which are adapted to your individual demand.

Processing of Fresh Water



Units responsible for the cleansing of surface and well water.

Removal of all suspending substances until the necessary degree of purity is attained.

Removal of iron and manganese out of the fresh water.

Removal of acid and chlorine.

Engineering Consulting Delivery Service

Delivery Program

Membrane-Technology



EDI-Units for total salt removal without any chemicals.

SIWApure: complete Water Demineralization and Degassing in one unit without chemicals and steam consumption.

Reverse Osmosis: Serves for the production of demineralized water, sea water desalination plants.

Ultra- and microfiltration.

Deaeration Plants



Membrane deaeration plants for a separation of oxygen and other gases with a hollow fibre membrane.

Thermal deaeration plants responsible for removing the oxygen from the boiler feed water.

CO₂-stripper responsible for the removal of free CO₂.

Catalytic oxygen removal through ion-exchangers.

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Delivery Program

Dosing Units



Preparing and dosing of chemicals like hydrazine, KMnO_4 , H_2O_2 , phosphate, ammonia and so on as water conditioners.

Reconstruction and Modernization of Water Process Plants



Conversion, automation and modernization of existing water treatment plants, with the aim of improving the quality of water, reduce of chemical consumption and regeneration time as well as reduction of service and operating expenses.

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Delivery Program

SIWApure



A new level in clean water production.

Filtration, softening, demineralization, deaeration/oxygen removal: in one compact unit.

No chemicals, no steam.

Automatically, small, safe, high performance, ready for operation.

SIWA-EDI



Pure water production without chemicals by electrodeionization.

No chemicals, high purity water to $15 \text{ M}\Omega$ ($< 0,08 \text{ }\mu\text{s/cm}$).

Engineering Consulting Delivery Service

Delivery Program

SIWA-O₂



A new dimension in water degassing.

Removal of oxygen, CO₂ removal, low residual oxygen levels reached: in a compact system.

No steam consumption, no heat, no heat loss.

Automatically, space-saving, safe, predictable quality, ready for connection. Extension possible!

Consulting Water Management



Resource efficiency and optimization of the internal water cycle.

Water management uncovers savings potential and develops solutions for an optimized internal water cycle with impacts on the energy and heat balance of an industrial company.

A horizontal splash of water, rendered in a light blue, almost white, translucent style, stretches across the width of the page. It has a dynamic, flowing appearance with various droplets and ripples, creating a sense of movement and freshness.

Engineering Consulting Delivery Service

Company Profile

SIWAttec Wassertechnik GmbH & Co. KG is engaged in planning, delivering and servicing plants for water processing. We are specialized in boiler feed water and process water treatment equipment.

We also counsel enterprises and public employers regarding all aspects of water processing.

We maintain long-term partnerships with enterprises which develop control units for plants supplied by us on our behalf and which deals with the installation of electronic items. We further entertain excellent relationships to construction companies as well as to pipeline companies providing us with a broad know-how and staff strengths.

Individual components, such as e.g. containers, manufactured according to our specifications. Pumps, valves and gauges we buy from well-known companies and connect them to an entire system.

Planning and consulting promoted also by us, as well as installation supervision and commissioning. Water treatment plants are long-lived investment goods. For an optimal and application-specific design, a variety of factors are already to observe during the planning phase.

Tailored individually to the requirements of your industry, we have the right solution for your needs.

Rely here on our 30 years of experience. We provide our entire know-how to achieve the best result for you.

We always use the most advanced software programs for the creation of drawing in 3 D, calculation, planning and communications, as well as to all relevant standards, such as e.g. DIN, TÜV, AD, UVV, VGB, KKS, ASME, a.s.o., as well as according to customers' requirements.

Documentation produced in paper form or as a digital, interactive document with direct access to all details.

Our team looks forward to your requests – look forward to our individual solution for your needs.



Engineering Consulting Delivery Service

Company Profile

Managing Board



Grad. Engineer
Grad. Economic Engineer

Frank Schlichtherle

CEO and Company Owner

Clients

- Power Generation
- Plant Engineering
- Power Plants
- Petrochemical Industry
- Waste Incineration
- Biomass Power Plants
- Chemical Industry
- Process Industry

Expertise

More than 30 years of experience in engineering and construction of water treatment plants.

Engineering Consulting Delivery Service

Industries and Solutions

Water for Power Generation, Power Plants and Nuclear Power Plants



We are specialized in process and boiler feed water treatment, especially for power generation.

More than 30 years of experience in the design and operation of ion exchange systems in the power plant area will give you the assurance that you have chosen the right business partner.

The high demands of the industry in reliability, proven process technologies and a high degree of automation, are as familiar to our specialists as the customer-specific documentation requirements.

We have been dealing with alternative processes such as reverse osmosis, electrodeionization (EDI) and membrane deaeration for a number of years and are thus able to determine the process which best suits your specific needs.

Dosing for boiler feed water and cooling water treatment, such as for ammonia, trisodium phosphate, sodium hydroxide or oxygen can be obtained from us in the highest quality, all from one single manufacturer. Space-saving skid or container constructions are both available.

We provide degassing systems as thermal deaerator, or as membrane degassing in the proven SIWAttec design.

Blast beats or high oxygen contents are thus a phenomenon of the past.

Engineering Consulting Delivery Service

Industries and Solutions

Your customer requirements, as well as relevant standards and regulations, form the basis of any interpretation.

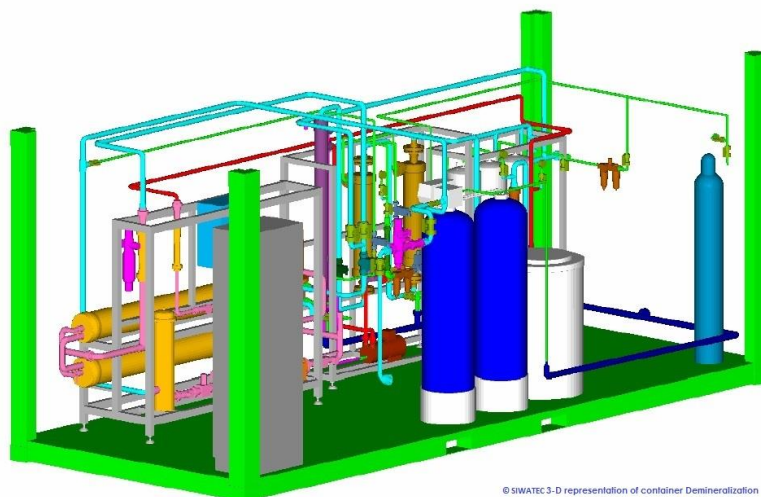
The project implementation is based on an integrated quality management system. Compliance with health and safety regulations and safety standards is guaranteed by our certified safety management system.

Regardless of fuel and power we develop in collaboration with our customers, general contractors and building designers a customized and tailor-made solution for the entire water-steam-cycle of a power plant.

We are approved as per section 15 of the radiation protection ordinance (acc. § 15 German Radiation Control Law) and can therefore provide also customers in the nuclear technology sector and nuclear power plants with our product range and our services.

The plant expansions and modifications to existing treatment facilities, with the aim of improving capacity, improve water quality and especially saving chemicals and equipment, represent a key competence of our company.

Your requirements in connection with our experience lead to individually and optimized system concepts.



© SIWATEC 3-D representation of container Demineralization

Engineering Consulting Delivery Service Industries and Solutions

Process Water for Petrochemical Industry



Benefit from our know-how in process water treatment for the petrochemical industry.

Our decades of experience in design and operation of ion exchangers for petrochemical projects, is a guarantee of precise planning and customized solutions for your business.

Mixed bed filters, demineralization and condensate polishing systems are our specialty.

The high demands of the industry in reliability, proven process technologies and the high level of automation are as familiar to our specialists as the customer-specific documentation requirements.

Dosing for conditioning of cooling water, surface water and sea water, such as for hardness stabilizers, disinfectants, chlorine and chlorine dioxide, you will receive from us the highest quality and from a single source. Skid design or container design are both available.

Your specific requirements, as well as the relevant standards and directives, form the basis of any interpretation. Design and construction of the facilities according to ANSI/ASME standards are no problem for us.

Compliance with health and safety regulations and safety standards is guaranteed by our certified safety management system.

Regardless of system type and performance, we develop in partnership with our customer's, tailor-made solutions for the complete water-steam-cycle in the petrochemical industry.

Engineering Consulting Delivery Service

Industries and Solutions

Process Water Generation, Management and Reprocessing for the Process Industry and Paper Production



SIWAttec has many years of experience and a wide range of technologies for solving various tasks in the field of water treatment.

Water reuse is in almost all areas of industrial production key strategy for economic and environmentally conscious matured Thinking.

Not reaching the limit values, but production-specific quality requirements for the treated process water and industrial water are fulfilled through collaboration with customers and users.

We do not only solely concentrate on the water cycle of the production process, since the water cycle is always interconnected with material and energy cycles.

The energy content of waste water is often a saving potential, which many people have not yet been aware of.

Industry-Independent Applications

We certainly also devise the perfect solution for industry-independent applications. We have all water reprocessing methods at our disposal.

Process selection as well as the design of the individual processes and concepts is conducted in-house by our experienced staff. The combination of methods renders optimized concepts for your individual applications.

Engineering Consulting Delivery Service

Quality

We have made it our mission to provide our clients a wide range of products for the water treatment, that enables him to realize the most economic and environmental optimal solution.

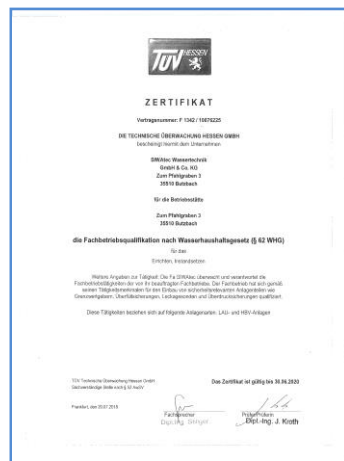
QUALITY is very important to us. You will be convinced not only by the first-class quality of our products but by competent consulting and support from the very beginning all the way to the final acceptance of your unit. Our continued support and consulting during the operation of your systems, which were either designed or manufactured by us, will assure you that you have made the right choice in choosing SIWAttec as your business partner.

Over 30 years of experience in production and planning have provided us with knowledge from which you may benefit as well.

Consulting, planning, delivery and service for water treatment plants!

Certified performance of SIWAttec Wassertechnik GmbH & Co. KG.

Expertise, which inspires trust!



Certified quality management system according DIN EN ISO 9001
and certified health and safety management system!



Certified and accredited specialist firm according
§ 19L Germany water law

Certified and accredited specialist firm according § 15
German radiation control law for works at nuclear plants.



Engineering Consulting Delivery Service

Reference List

1. Boiler Feed Water Treatment



Capacity: 2 x 45 m³/h
Complete disassembly and
assembly of the plant within
a short time. Piping completely
in stainless steel.

*Nuclear Power Plant
Switzerland*

2. Boiler Feed Water Treatment



Capacity: 3 x 425 m³/h
Mixed bed filters, chemical storage
regeneration, parallel operation
of 2 lines, thus continuous power
850 m³/h, stainless steel piping.

*World biggest sulphuric
acid plant/
fertilizer production
SAP Ma'aden
Saudi Arabia*

3. Desalination-Plant



Capacity: 2 x 75 m³/h
Complete supply pre-assembled
in a short time. GRP pipes.
Delivery, supervision and
commissioning on site.

*Petrochemical complex
Ruwais
VAE*

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Reference List

4.



Capacity: 2 x 20 m³/h BFW
50 m³/h Condensate treatment
UF, reverse osmosis, EDI
Ion Exchanger for Condensate
PCS7 Multi Project
Chemical storage, Pump house

Power Plant
e.on
Germany

5. Thermic Degassing



Capacity: 2 x 175 m³/h
Supply of 2 units degasifier d=2200 mm
with feed water tank d=3200 mm
L=13000mm and a condensate tank
d=3200 mm L=11400 mm

Chemical industry
BASF-Tarragona
Spain

6. Boiler Feed Water SIWApure 2x9000



Capacity: 2 x 9 m³/h
Activated carbon filters, water softening,
reverse osmosis, membrane degassing, EDI,
mixed bed, chemical-free boiler feed water
treatment. Container construction.

Biomass Power Plant
Delfzijl
Netherlands

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Reference List

7. Boiler Feed Water / Condensate polishing



Capacity: 2 x 14 m³/h / 2 x 100 m³/h
reverse osmosis, EDI, mixed bed,
heat displacement, cation exchange

Waste to energy
Power Plant
IGNIS Schwarze Pumpe
Spremberg
Germany

8. Condensate Treatment Plant



Capacity: 70/140 m³/h
Complete re-assembly in our workshop
piping carbon steel with rubber lining
on site commissioning

Petrochemical complex
El Tablazo
Venezuela

9. Boiler Feed Water Treatment / Pure Water Treatment



Capacity: 3 x 75 m³/h; 2 x 60 m³/h
Turnkey plant with construction of

Power generation for
a refinery

Engineering Consulting Delivery Service

building and integration

Salzbergen / Germany

10. Condensate Treatment



Capacity: 165 m³/h
Complete installation of the system
on site, steel wires with rubber lining,
commissioning, future expansion

Petrochemical industry
Scholven
Germany

11. Membranedegassing for oxygen removal



Capacity: 86 m³/h
Skid mounted with vacuum pumps,
Nitrogen dosing and CIP Unit
Piping stainless steel.

Hydrogen Project
Refinery
Finland

12. Ionexchanger for sugardesalination

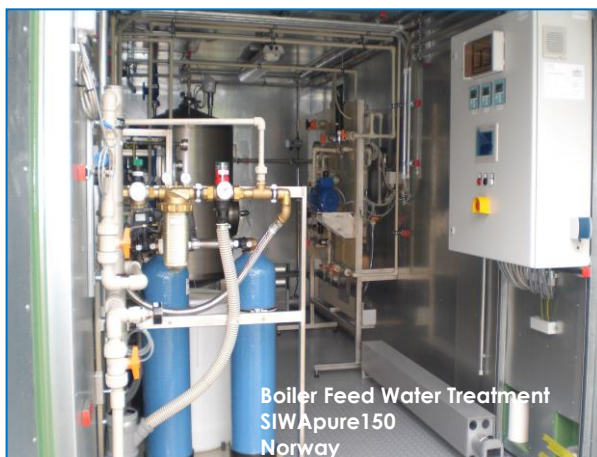


capacity: 4 x 20 m³/h
complete Engineering and delivery of
4 units incl. regeneration unit
incl. sweet on, sweet off und cross regeneration

sugar cristallisation
Russia

Engineering Consulting Delivery Service

Example of SIWAttec Units



Engineering Consulting Delivery Service

Example of SIWAttec Units



Engineering Consulting Delivery Service

Water is our Element

We are specialized since many years in process water treatment and boiler feed water, dosing and degassing units.

We deliver units for power generation, petrochemical and process industry. Our pure water production units are in many places all over the world running and state of the art.

Our clients regard our professional competence, our flexibility and our quality in consultancy and in delivery of our units.

We can offer the best technical and most economical solution. Not only does water as an economical factor contribute to the costs of production, but it also functions as an important indicator concerning the quality and safety of a product as well as environmental sociability of the sport of production.

You can also benefit from more than 30 years of experience and new innovations.

Our Customers



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