



Total Site Solutions

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Dear business partners,

Productivity, reliability and performance are key aspects of today's business environment. Our solutions and services are precisely targeted to meet these demands.

The TIG Group comprises of five companies active in the fields of automation, environmental engineering, water treatment, ultra pure water and the production of moulded pipes.

Our aim is to provide Total Site Solutions. We have all the appropriate expertise to evaluate your overall requirements and to find the optimal solution for your business. With our long standing experience and know-how, we ensure that our solutions are fully operational, efficiently functional and remain flexible at all times.

From our head office in Hamburg (Germany) and sales offices in Europe and Asia as well as our global network of agents, we are always able to meet our customer's requirements.

Since we are able to support customers in every continent of the world, we can continually monitor our performance to ensure that we are meeting our customers' needs, and with this in mind, provide our clients with custom-made solutions.

Our highest priority is our customer's satisfaction; this motivates our day to day business activities.

Yours,

Udo Arbeiter
TIG Group



Total Site Solutions – everything is possible!

The TIG Group specialises in Total Site Solutions. We provide single source solutions for our customers in the fields of automation, water and ultra pure water treatment, air purification and engineering all of which require a high level of technical know-how and precision project implementation. Our team consists of experienced specialists from different fields of expertise and our outstanding professionalism is founded on complete in-house project management. Our engineers' high level of soft skills and capacity for teamwork guarantees that the solutions for our customers can be quickly found and implemented.

We tailor our products and services to the requirements of our clients and thus develop custom-made designs on any scale. We jointly analyze with you the initial situation and define the objectives in concrete terms. Then, we design a tailor-made system solution for your application case. We pay particular attention to safe process technology and low investment and operating costs. Our project team supports you by obtaining approval certificates from public authorities prior to installation and commissioning. We top off our profile by offering you the opportunity to have your equipment maintained on a partial or full service basis.

Our Total Site Solution policy focuses on full site evaluation:

- Complete study and quotation of spare parts, consumables, chemicals and future service needs
- Recommended stock holding for all spares, consumables and chemicals
- Integrated service contracts
- Appropriate chemical framework agreements and assessments



Overview of our core competences

Water Treatment

Ultra Pure Water
Drinking Water
Beverage Water
Industrial Waste Water
Process Water

Environmental Technologies

Waste Treatment
Meat Waste Recycling
Exhaust Air Treatment
Flue Gas Treatment
Energy Recovery

Energy Technologies

Boiler Technology
Combustion Technology
Dryer Technology

Industrial Automation

Process control systems
Measuring Systems
Software Development
Switch Cabinet Construction

Engineering

Boiler
Tubes
General Engineering

Service

Exhaust Air Treatment
Energy Technology
Switchgear and Software
Water and Ultra Pure Water





Bollmann-Filter – Integrated water treatment solutions

Bollmann-Filter-Gesellschaft mbH is specialised for turnkey projects, engineered systems, retrofit projects, spare parts, chemicals and consumables as well as customer service in water treatment solutions. The current range of capabilities includes the treatment of drinking water, water for beverages, industrial waste water as well as process water. Bollmann customers can profit in two ways: first of all, from customer-tailored system concepts and proven process engineering, by utilising the experience and know-how gained in 120 years of water treatment. Secondly, from our acknowledged excellent product quality guaranteeing long lasting, dependable and durable operation and a high rate of availability under consideration of operating costs.

Drinking water and industrial water for all industries are provided by state of the art engineered systems and customised turnkey projects. Our scope of processes includes the integrated solution for your production:

- Protective filters, polishers
- Filtration and coagulation for removal of iron, manganese and for neutralisation
- Softening, ion exchange
- Disinfection and sanitation
- Biological treatment for removal of iron, manganese, nitrite and organics
- Waste water treatment
- Dosing equipment
- Reverse osmosis



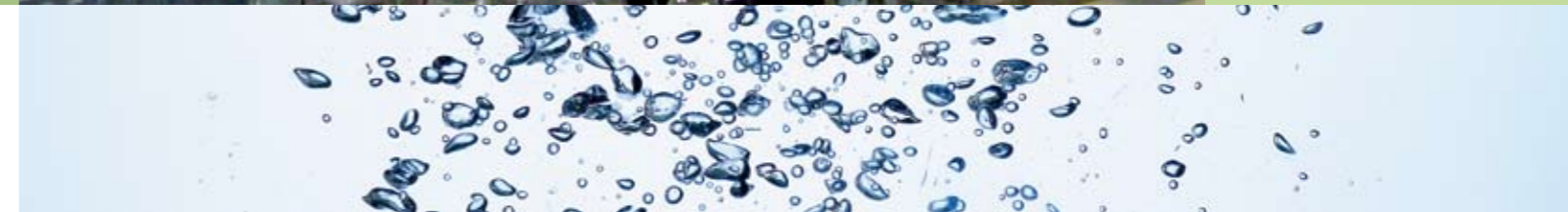
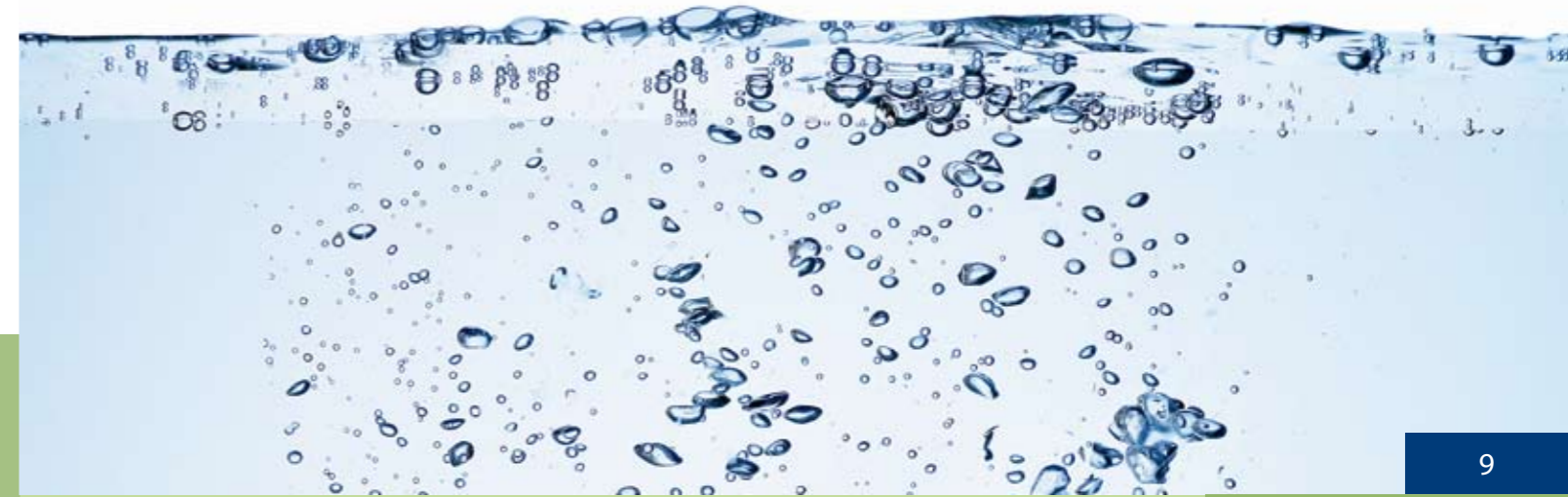
PURITA – Ultra Pure Water Solutions

PURITA Reinstwasser-Anlagenbau GmbH is specialized in ultra pure water-, reverse osmosis-, wastewater neutralisation-, softening- and UV-plants. We have a lot of experience in the design of ultra pure water solutions for the semiconductor, pharmaceutical, hospital, biological and laboratory facilities as well as clinical centre markets with a reference list of more than 100 sites world wide. Purified water (PW), highly purified water (HPW), water for injection (WFI), ultra pure steam, renal dialysis and CIP are our core competences.

Our business package comprises the following methods:

- Ultra Filtration
- Softening
- Reverse Osmosis
- Electro Deionisation
- Membrane & Catalyst Degasing
- UPW Polisher
- UV Oxydation
- UV Disinfection
- Ozonisation Systems
- DI Recycling & Polishing
- Validation

The PURITA service includes the supervision of construction, technical advice and planning of upgrades or extensions of pipelines and the refilling of regenerated mixed bed resin polishers. It also includes the maintenance of our own and other manufacturer's plants, the regeneration of resins, instrument calibration, water analysis, as well as the design, construction and building of UPW-plants.





SCAN-WASS – Engineering

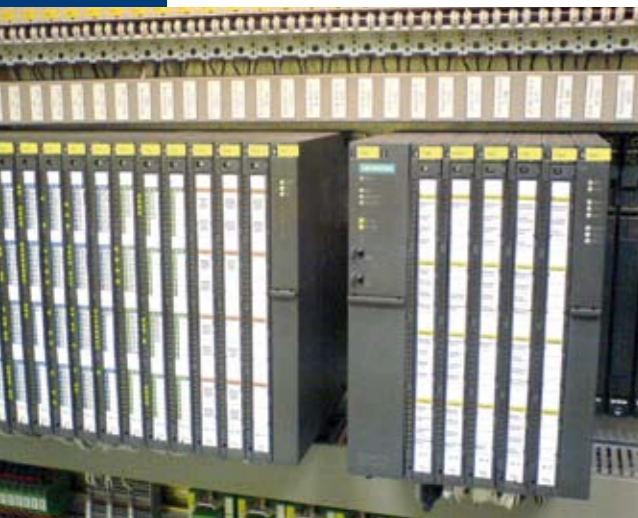
SCAN-WASS Wassertechnik GmbH specializes in manufacturing components for the TIG Groups constructions. Particular know-how is collected about pipes and formed components for water plants. These components comprise of steel and aluminium tubing shaped parts coated with Rilsan® and high-grade steel tubing shaped parts. The overall length of our products reach 4000m with a maximum diameter of 1200mm. Insulation thicknesses start at DN 400 and all parts are fully amenable to subsequent demands for upgrade and retrofit. The current product range is the result of mutual agreements with our customers; we thus adapt your requirements to individual, custom-made solutions.

Aluminium tubing shaped parts coated with Rilsan® are designed for the severe conditions in the water treatment sector and have unique advantages:

- Corrosion resistance
- Ozone and chlorine-steadiness
- Sulphate resistance
- Reduced incrustations by the very smooth surface
- Light weight, easy to handle and install

Far in excess of 500 water company plants, stacked and ground level containers, pumping stations as well as other water-technologies have in the past been equipped with Rilsan® coated aluminium tubing components. Excellent material properties have been verified by all operators of the SCAN-WASS formed component product range.





TIG Automation – Efficient automation solutions

TIG Automation GmbH specialises in the automation of industrial processes. Our range of services includes consulting, planning, implementation and support of individual automation solutions:

Automation solutions and control switchboard construction

A central component is the software development. Here we place the emphasis on high quality, user-friendly software to efficiently configure the automation of your industrial process. On all size scales; our range of services varies from mini-SPS to complex process control systems. TIG also designs, manufactures and installs control equipment for different requirements and specifications. Using a high level of automation, our manufacturing facilities provide ideal conditions for mass production and the highest quality standards.

Measuring Systems

With the operation of TIG MES-Systems, the communication between the process controlling and the company management is optimized and consistently structured.

This integral platform works as an extension to your ERP-system and supports various internal functions, which are often realized manually or in individual solutions. MDE, BDE and OEE functions, centralised chronology, production control, order and document management, maintenance, life-cycle management and laboratory information systems are the modules which make your production transparent and efficient.

TIG Automation is System/ Cooperation partner of

- Danfoss, one of the leading manufacturers of propulsion technology
- Siemens Solution Partner – Specialist



The software interface displays a complex control diagram for a car wash system. Key components and data points include:

- Operational Characteristics:** Chamber in stand by (only aeration), Temperature set (28.4 °C), Humidity set (33.9 %).
- Temperature and Humidity Readouts:**
 - TC 2.2: 29.1 °C (temperatures behind evaporator)
 - TC 2.3: 29.0 °C (temperatures behind evaporator)
 - TC 2.1: 26.9 °C (temperature before evaporator)
 - TC 3.1: 25.5 °C (temperature wind blower)
 - TC 2: 28.4 °C (actual chamber temperature)
- Humidity and Flow Readouts:**
 - DBF2.1, DBF2.2, DBF2.3: 0 % (humidity wind blower)
 - MC 3.1: 38.5 % (humidity wind blower), 7.8 g/kg (humidity chamber)
 - MC 2.1: 33.9 % (humidity chamber), 8.1 g/kg (humidity chamber)
 - MC 2 rel: 33.9 % (actual relative humidity)
 - MC 2 abs: 8.1 g/kg (actual absolute humidity)
- Control Elements:** Wind Blower, evaporator, defrost heating, tube heating, MV3.1, MV3.2, MV3.3, PS3.1, PS3.2, TS2.x, F3.2 A, v RD (speed roller device).
- Status Indicators:** door opened, gate opened.
- Bottom Status Bar:** user: tigmbh, 25/07/01 10:11:15 AM 165, main door chamber (gate) opened 193A2, ACU 5, 7/25/2001 10:14 AM.
- Navigation Buttons:** ACU 1 & 4 (Aeration System), ACU 2 & 3 (Climatic Chamber), ACU 5 (Cooling Tower), Reset, Parameter, Text-Mode, CM 1.1 (Pre Cooling), CM 1.2 (Post Cooling), CM 2.1 & 2.2 (Chamber Cooling), CM 2.3 & 2.4 (Chamber Cooling), Alarms, Warnings, Historical Trend, Temperature, Humidity, IR - Radiator, Overview.



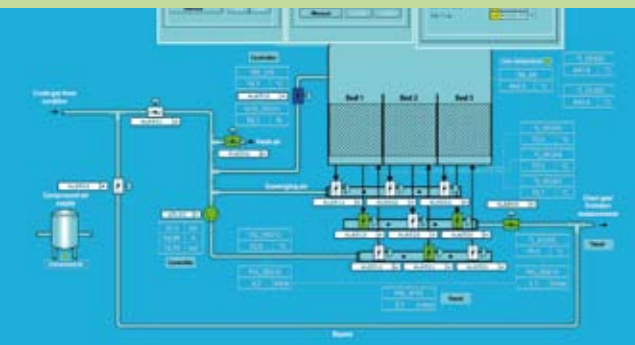
Wessel-Umwelttechnik – Environmental solutions

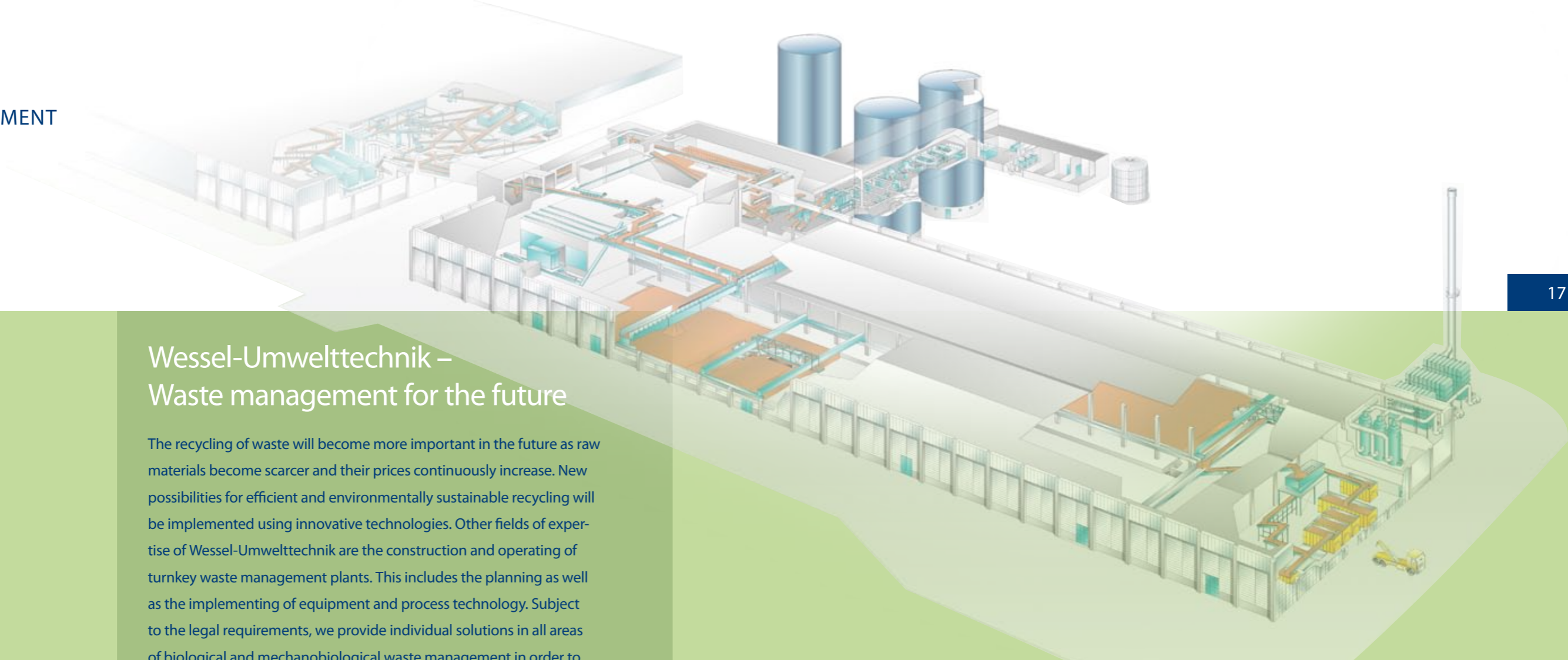
Wessel-Umwelttechnik GmbH is a professional partner in all fields of exhaust air purification. We provide turnkey systems to solve a wide variety of environmental protection challenges. Our collective and comprehensive know-how enables us to deliver optimal solutions to our customers. We apply our expert knowledge in the development of proven systems with a high level of operational reliability, guaranteed to meet or exceed required limiting values. With increasing global demands and constraints on economic and ecological preservation, Wessel-Umwelttechnik is proud to offer solutions that advance the cause of sustainable development and the effective management of resources for all industries, including chemical, food and processing industries.

Due to worldwide legislation, it is necessary to monitor and control emissions of pollutants, odours, dust and aerosol. Wessel-Umwelttechnik provides the whole range of exhaust air treatment solutions; many of them are able to incorporate heat recovery systems to considerably minimize energy costs.

We offer systems for the following objectives:

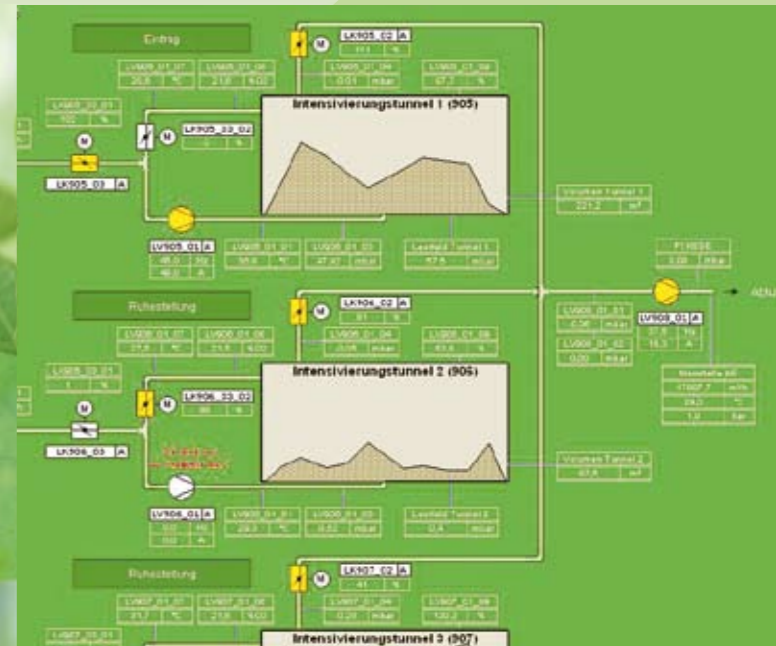
- Emissions of pollutants
- Emissions of dust
- Emissions of odours
- Combined Waste Air and Water Treatment
- Heat recovery systems





Wessel-Umwelttechnik – Waste management for the future

The recycling of waste will become more important in the future as raw materials become scarcer and their prices continuously increase. New possibilities for efficient and environmentally sustainable recycling will be implemented using innovative technologies. Other fields of expertise of Wessel-Umwelttechnik are the construction and operating of turnkey waste management plants. This includes the planning as well as the implementing of equipment and process technology. Subject to the legal requirements, we provide individual solutions in all areas of biological and mechanobiological waste management in order to recycle or to ecologically landfill this waste.



The TIG Group Customer Service

The TIG Group has always believed in maintaining a quality of after-sales service equal to that of its plants – a philosophy shared by a professional team of engineers and technicians. The use of tried and tested technology guarantees trouble-free running and maximum operational availability of your plant. We instruct your staff on the new system using practice-orientated trainings and provide post commissioning process support.

Based on our long standing practical experience, our scope of services includes precautionary measures to securely prevent system failures and thus eliminate interruptions to your production. We exclusively use our own expert personnel for inspection and maintenance who, if required, are also available to carry out repairs. Our service technicians have a supply of spare parts on hand (European quality products) to be used for maintenance and inspection work.

Service Layers

TIG offers various types of services layers with which we can provide the optimal solution for our customers:

- Complete support and maintenance of processing technology from one source
- Joint support of processing technology and machinery
- Integrated service contracts
- Complete operation of the system by TIG operating personnel

Spare Parts and Consumables

Spare parts are more than an emergency replacement of faulty components. Your production relies on your water treatment plant; hence you should plan in advance to enable your staff to run your system at all times. Furthermore, consumables are themselves a specific product range for water treatment and production chemicals which enable the TIG Group to comply with your production requirements: The TIG Group provides a full range of spare parts and consumables including pumps and valves, filter cartridges equipment and media or the full range of chemical – starting from basic products to high quality water treatment chemicals – at a high class level. With European quality products supplied to the same material specifications and state of the art technology, we guarantee to optimise your product life cycle by modernising and exchanging your plant, regardless of the original supplier, at attractive prices. Moreover, based on reliable operational and maintenance expertise, you can be assured of our support in all technical, procurement and process matters.

Chemicals

Water is in many industries around the world an essential and limited resource. For more than 120 years, we have been one of the pioneers in water treatment, committed to helping our customers achieve operational reliability and the optimisation of their water systems. Our team are acknowledged experts in the fields of chemical formulation, water plant management, the supply of chemicals and other consumables, problem solving and training. In addition to our water treatment plants for drinking water, beverages water, ecological disposal of waste water or special treatment of process and ultra pure water, we offer you a wide range of chemicals for all aspects of water treatment. With our own blending facility in Dubai we can react particularly flexible on our customers' needs.



Danfoss Service

TIG is an authorised system partner of Danfoss, one of the leading manufacturers of propulsion technology. Our professional expertise and our comprehensive range of services qualifies us for this role. In this authorised capacity, TIG provides consultancy and stands for the reliable installation and commissioning of Danfoss products. In addition to this, we carry out all servicing as well as the maintenance and repair work of entire systems.

New at TIG: Frequency convertors for optimising production plants have become de rigueur in most manufacturing facilities. However, with a failure, the entire production shuts down - here, immense costs rapidly accrue. The TIG Group provide a unique service in the area of high-power frequency convertors. During equipment failure, we are in the position to supply the appropriate spare part almost immediately. Installing the equipment as well as providing the necessary instructions is, of course, included in the service-pack. Feel free to try us out!



Retrofit – the timeeffective solution

Time is the most valuable resource in your production. Where budgets are tight, time is of the essence. The TIG Group will assist you in evaluating your entire system and enhancing your plant regardless of the original supplier.

- Free on-site audit to evaluate your systems upgrade
- Cutting-edge assessment and solutions
- Cost-effective suggestions

Generally, an upgrade or retrofit of your plant will cost 40% of a new plant's price: An investment in your future. Strategies for your productivity, reliability and performance are key aspects of today's business and tomorrow's natural environments. Our solutions and services are precisely targeted to meet the demands of our common future.





Quality Vendor Programme

The TIG Group commits itself to a „proof not promises“ policy. We know precisely how to assist you with all water and process related technologies. Our Certified Vendor Programme scales how we can enhance your key business results. To create your programme, we discuss your strategic objectives and suggest measures and projects that will help you meet them.

The TIG Group provides you, the customer, with products and services which meet high standards of quality and reliability.

Quality is a key goal for all our staff:

- 24 hour technical service and support
- Superior quality of all products that meet stringent performance specifications
- Certificates of analysis and conformance and shelf life declarations available for all products
- Extensive application support
- In addition to our own quality systems, the TIG Group also works closely with you to meet the requirements of your quality and regulatory compliance system



Global Distribution

The TIG Group, as an internationally experienced enterprise, has all the resources to provide you with fast, reliable and secure delivery options.

Our stowing and dispatching capabilities ensure on-time deliveries and economic transport:

- All certificates and documentation provided
- Custom packing to meet your needs
- Competitive transport prices
- Flexible dispatch options to preserve your capital and protect your cash flow



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