HYDROTEC GmbH

Water - the future

Optimised Systems and Solutions for Water Quality Management

HYDROTEC GmbH

"Water is the Future", this is our simple motto, but one with depth of meaning that underpins our every endeavour. We strive to make water fit for human consumption and industrial and commercial purposes. All our systems are designed actively to protect our environment today and by preserving our natural resources, protecting all our tomorrows.

We are your partner for innovative technologies and resolution-orientated concepts.

Partner for:

- Filtration / Ultra filtration
- Removal of iron and manganese
- Preparation of cooling and air-conditioner water
- Well and spring water preparation
- Softening / nitrate removal
- Reverse osmosis / deionisation
- Physical water conditioning
- Dosing technology
- Disinfection technology
- Closed system water treatments
- Water treatment for steam systems
- Protective systems against water damage
- pH-correction / carbonate neutra-lisation
- Water and deposit analysis
- Advice / planning
- Worldwide assured services

Our philosophy

HYDROTEC was founded in 1985 - rooted in the soil and in the middle of it - in Upper Franconia, just in the heart of Europe, an area with the third highest industrial density in Europe, since then we have demonstrated constant growth and success.

HYDROTEC's range of expertise includes the development and marketing of technologies and products suited for the treatment of drinking and industrial water; technologies and products that thanks to several unique features and excellent qualities meet the requirements of discerning users.

We take great pride in being one of the leading suppliers within our sector of the industry. Few global suppliers can offer the range of wholesome, commercial and industrial water treatment technologies. Fewer still have bespoke approach, high efficiency equipment and problem resolution capabilities.

HYDROTEC is certified according to DIN EN ISO 9001 TÜV Nord.

Mitglied im UmweltCluster Bayern

Member of German Water Partnership

More than 10 million cubic meters of water pass our system in a day worldwide.
Trust in our know how and technology.

Competence

Project and customer specific solutions - that is our strength. We develop and realise bespoke solutions for most diverse industrial sectors and branches. Thanks to many years of experience and constant development we are in a position to offer a comprehensive performance based approach starting with system analysis up and including finished plant, encompassing all service and maintenance work.

Advice

Water treatment systems represent a long-lasting investment. Many factors have to be observed prior planning in order to ensure an original conception that is optimized to meet the customer's requirement. You will benefit from the experience and the know how of our experts to achieve the best possible result.

Problem resolution

To find the most economic and most efficient solution amongst the variety of water treatment technologies, requires not only a knowledge but to a large extent capability for research and continuous innovation as well. That's why we keep our high development and innovation focus to meet constantly increasing demands.

Planning

All available information is observed carefully in the planning phase and the conception is then adapted to the individual frame conditions. The planning phase is critical to achieving a successful project outcome. HYDROTEC have great strength in gathering all relevant parameters and data and transforming this information into project specific designs and service packages.

Service

Our worldwide assured services assist at every stage, from project conception, detailed design, technology applications, in-house equipment manufacture, commissioning and our after sales services.
We aim to satisfy all our customers' needs.

"The water is a friendly element for those who are familiar with it and know how to treat it"

(Johann Wolfgang von Goethe)

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HYDROTEC GmbH

Systems

Our water treatment and filter systems are optimised for high reliability, extended service life and ease of maintenance. We strive to meet and exceed the highest levels of hygiene, performance and environmentalcompliance. The below systems show a part of our comprehensive product portfolio.

HYDRO**MOS**®
Booster station

HYDRO**MOS**®
Reverse osmosis, ultra filtration

From domestic and building technology to industrial and process water technology, we have your tailor-made, energy-efficient solution.

Optimised Systems and Solutions for Water Quality Management

HYDROTEC GmbH

Systems

WRAS APPROVED PRODUCT

TURBO**MAG**®
DVGW W-512 performance assured, environmentally friendly hard water scale control systems.

High Tec manufacturing in the HYDROTEC clean room

HYDRO**ION**®

Water softener

Assured premium quality products and services.

Optimised Systems and Solutions for Water Quality Management

Systems

HYDRO**WELL**®
UV-disinfection

HYDRO**DOS**®
Dosing technology
drinking water,
heating water,
cooling and airconditioning water

Water analysis in the
HYDROTEC laboratory

HYDRO**DOS**®
Chlorine dioxide generation

Detailed analytics are carried out in our own laboratory and thus, ensuring premium and perfect treatment quality.

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Systems

HYDRO**ION**®
Water softener

HYDRO**ION**®
Mobile closed circuit water treatment

HYDRO**FIL**®
Particle filtration systems

HYDRO**SOLV**®
Well and ground water treatment
Filter systems to remove acid, iron, manganese as well as turbid matters and environmental contaminates.

Our effective and easy to handle systems guarantee water of maximum purity, independent on the installation site and degree of contamination.

Optimised Systems and Solutions for Water Quality Management

HYDROTEC GmbH

Training / Workshops

TURBO**MAG**®

- Scale Protection System

Where the goals are scored: Launch of our TURBO**MAG**® System Family in the Allianz Arena Munich

A selected circle of customers has been invited to attend the product launch in the Allianz Arena football stadium in Munich. Andreas Lammer, head of Technical Department and Managing Director of Hydrotec GmbH initially explained our product portfolio and professional service in respect of drinking and process water treatment systems to numerous interested participants from technical consulting engineer companies.

Guests attending the launch in the foyer of Audi Event Box

Starting from the Audi Event Box, where the launch took place, the group later was taken to a guided tour when interesting information and facts about the stadium and the football teams Bayern München and TSV 1860 München were passed.

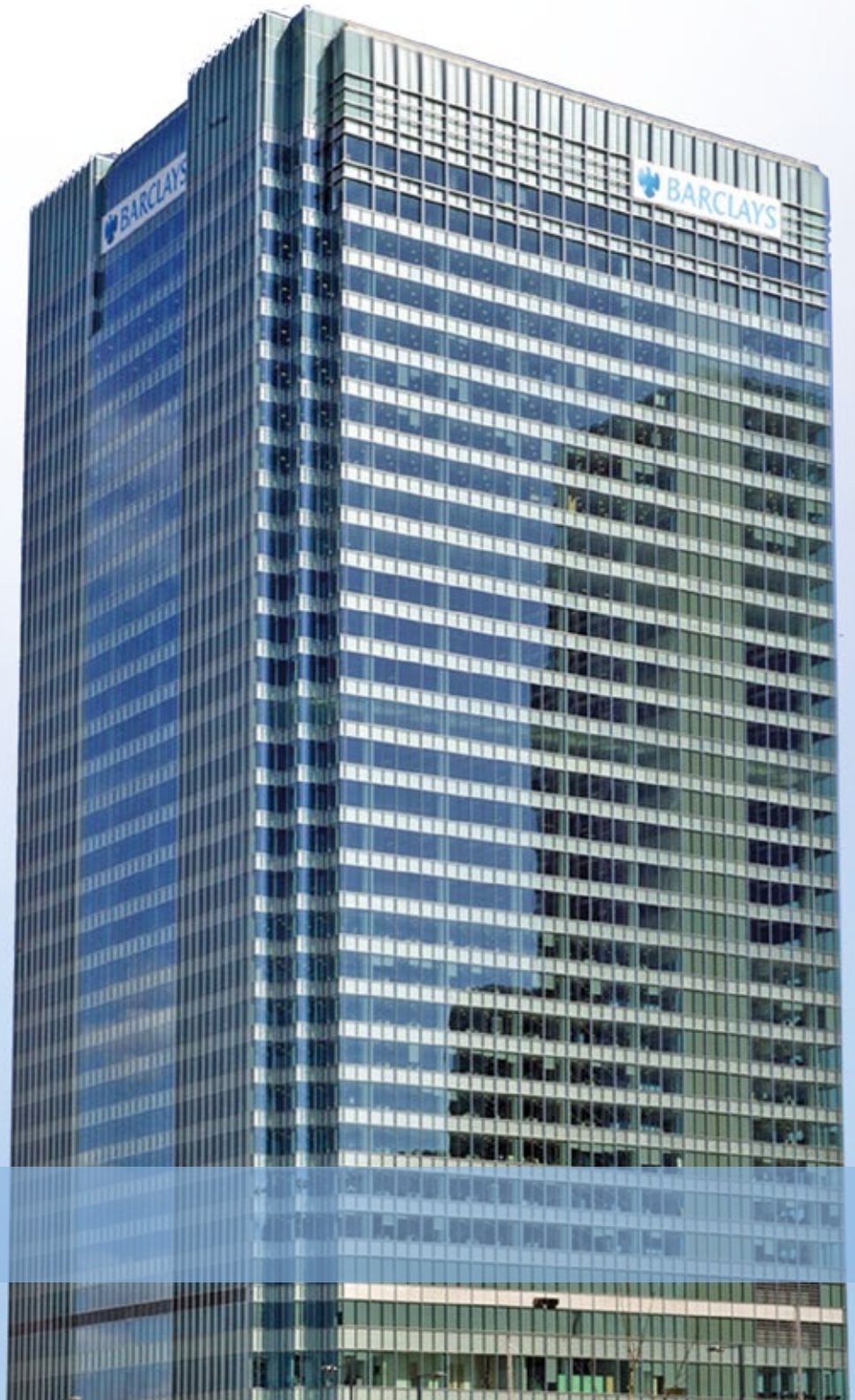
Waymarker to the Audi Event Box and place of TurboMag® launch

The consulting engineers took their chance for technical communication and information exchange of current demands and application in daily practice.

HYDROTEC GmbH

Installation – Building Technology / Cooling Tower

HYDRO**ION**® Triplex
- Treatment Solution for Barclay Tower



Installation of our HYDRO**ION**® Triplex Softener on the 32nd Level in Barclay Bank Tower in London

One Churchill Place is a 156 m tall skyscraper with 32 floors, serving as the headquarters of Barclays Bank. It is in the Docklands area of London Borough of Tower Hamlets in Canary Wharf. The building is the 13th-tallest office block in the United Kingdom and the sixth tallest building in the Docklands.
On the upmost level, direct on top of the building and in the centre of the former docklands of the British capital, HYDROTEC installed their so far biggest softener with PLC control.
Barclays is a British multinational bank and financial services company headquartered in London. It has operations in over 50 countries and territories and has around 48 million customers.

Immediately after the decision for HYDROTEC technology has been made by the customer, manufacture of the bespoke softener at Hydrotec GmbH and installation on site had to be realized swiftly since an old and no longer functional softener had to be replaced.
The softener feeds a 36 m^3 volume storage tank. Despite that volume, a very high flow of 19 l/s is required to ensure the feed of softened water to the cooling towers even in most extreme climatic conditions.

Consignment of 10 pallets with a total weight of 3 tons

The order has been placed in July 2013. Shipment of treatment system on 10 pallets with a total weight of ca 3 tons by an extra carriage to Canary Wharf comprising a building complex on the Isle of Dogs in the urban district Tower Hamlets was two months later. Finally, the softener with a treatment capacity of 160 m^3 water per each individual pressure vessel for the cooling tower had been commissioned and handed over to the customer as planned middle of October.

Canary Wharf is home to European headquarters of numerous banks such as Credit Suisse, Morgan Stanley, Bank of America and Barclays as is as well to important media organizations including The Daily Telegraph, Thomson Reuter and Daily Mirror.

HYDROTEC GmbH

Installation – Food Processing

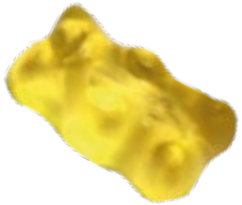
Optimal Process Water Quality for Gummy Bear Production

After the initial inquiry for softener and RO system was brought to the attention of HYDROTEC in spring 2012, the order for the process water treatment has been placed by the producer of the popular sweets by the end of October 2014.

Since during the planning phase frequent delays and amendments to the specification were coming up, the plan to ship the treatment technology before Xmas was the more ambitious. Thus, installation and commissioning could still have been concluded in 2014.

Thanks to the softener providing a peak flow rate of 48 m^3/h treated water, sufficient scale-free water is available for the production lines. Additionally, the softener also suits as pre-treatment for a Reverse Osmosis designed for an hourly permeate capacity of 4.000 liters.

The redundant execution of the membrane desalination unit ensures high a production safety. Free chorine is avoided by two activated carbon filters to penetrate the RO units since the disinfection agent may damage the membranes. Last but not least, most modern measuring technology makes sure of a perfect production process.



HYDROTEC supply their water treatment technology for HARIBO factory in Great Britain

HYDROTEC's process water treatment technology renders an important contribution to quality management from a viewpoint of 48.000 tons HARIBO sweets in a year.

Optimised Systems and Solutions for Water Quality Management

HYDROTEC GmbH

Installation – Hospital

Water Treatment for “Fichtelgebirge“ Hospital in Marktredwitz

Water is vital in our daily life, whether as drinking and process water or as an energy carrier for heating and cooling systems. The business in a hospital demands special attention to the water quality in view of hygienic aspects and chemical composition.

Very stringent guidelines as per DIN EN 285 for dermineralised water must be observed and kept for the sterilization of surgical instruments. Manufacturers for cleaning and disinfection devices recommend providing a corresponding water quality with conductivity of less than 5 µS/cm.

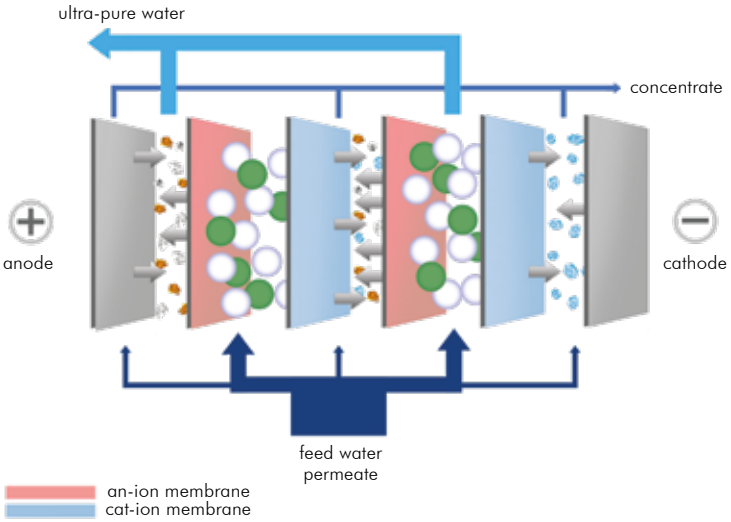
In order to avoid debris and corrosion at sensitive surgical instruments, the rinsing water for cleaning disinfection devices must meet a high inorganic purity.
The water conductivity in Klinikum Fichtelgebirge after softening and RO treatment is less than 2 µS/cm.

The installed unit is a combination of reverse osmosis and electrodeionisation (EDI) what is the best and most effective treatment method for ultra-pure water. The public mains water is passing a water filter and is subsequently softened in a Duplex softener with chlorinator.

Desalination of the water is then by passing semi-permeable reverse osmosis membranes. The final step to ultra-pure water is the electrodeionisation process.

Afterwards, the so-called dilute is put into interim storage in a sterile ventilated plastic tank and made available from there for the purpose of sterilization of instruments and also for serving the cleaning and disinfection devices by means of an inverter driven pump of the booster unit.

Water demineralisation by means of our combi treatment HydroMOS® 500 EDI-S



The concentrate from the EDI-unit is integrated into a Re-Use-of-Water-concept. The purified water from the RO unit is further used in food-service dish washers in the kitchen. There is no unnecessary wastewater produced and an additional RO unit for the kitchen area was not required.

As a matter of course, our HydroMOS® 500 EDI-S is equipped with state-of-the-art control technology and is made available to the local BMS. All relevant operating parameters (flow, conductivity etc.) are controlled and recorded.

Visualisation is on a 9" colour touch display and data storage on micro SD card. The local BMS is offered quick access to the plant technology.

	mains water Marktredwitz	permeate RO unit	ultra-pure water after RO unit	guideline as per DIN EN 285
pH value	7,6	5,7	6,9	5 - 7
conductivity	392 µS/cm	4,8 µS/cm	1,3 µS/cm	< 5 µS/cm
chloride	5 ppm	0,1 ppm	not detectable	< 2 ppm
hardness	1,9 mmol/l	< 0,01 mmol/l	not detectable	< 0,02 mmol/l

The current case history proves that a customized water treatment is an optimum way and decision to obtain a desired end product quality under observing the necessary resource efficiency.

HYDROTEC GmbH

Installation – Borehole Water Treatment / Automotive

Multi-level borehole water treatment for 40 m^3/h output, comprising:

Step 1:

CO2 Degassing
Surplus CO2 is removed from the water in the degassing tower. At the same time, the water is enriched with atmospheric oxygen that is suited for oxidation of iron and manganese.

Step 2:

The second process level comprising 3 filter vessels is suited for iron removal. Oxidized iron is kept back by quartz sand filter media.

Step 3:

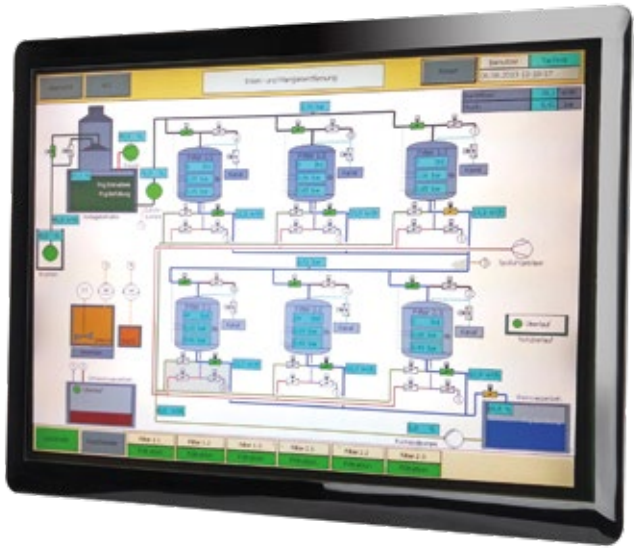
Removal of manganese and reduction of ammonium. This third process level suits to remove manganese and to reduce the ammonium by means of catalytic filter media.

Control concept for total water treatment:

The total water treatment process is automatic, that means no manual handling is required whilst operation. All parameters such as pressure and flow are measured and controlled individually for each filter vessel allowing an uninterrupted operation control. All actual values are shown on display. All relevant valves are provided with positional detectors so that failures are recognized immediately. A volume flow adjustment is performed whilst backwash of the individual filter vessels.

A fully automatic control Siemens S7-300 with colour touch panel 15" is included in the control cabinet. The sub-assemblies have a Siemens ET 200S controller and are connected with the S7-300 via prof-bus. Remote access to the treatment unit is naturally ensured so that an immediate reaction in malfunction is possible.

Water Treatment System for the Removal of Iron and Manganese from Acid Borehole Water



Touch-Panel 15“

A well-known German manufacturer in the Automotive branch in the Frankfurt-am-Main area owns a production facility where treated borehole water is supplied to cooling tower / process / industrial water.

Features of borehole water:

Calcium	62,3 ppm	
Chloride	45 ppm	
Sulphate	71,2 ppm	
alcalinity	235 ppm as CaCO3	
pH-value	6,6	*7,5
Conductivity	533 µS/cm	
Sodium	19 ppm	
Potassium	3,9 ppm	
Nitrate	16,7 ppm	
Ammonium	0,22 ppm	*< 0,02 ppm
Iron	2,5ppm	*< 0,01 ppm
Manganese	0,2 ppm	*< 0,01 ppm

*after treatment

HYDROTEC GmbH

Installation – Ultra-Pure Water / Laboratory + Research

Water treatment in new research building of Fraunhofer project group “Process Innovation”

New Fraunhofer building for project group Process Innovation

A new building with a multitude of research laboratories, seminar and conference meeting rooms as well as the "Green Factory Bavaria" – a flagship company promoted by the Bavarian Government with the purpose to develop and implement at the same time innovations on the field of energy efficiency – has been set up adjacent to the university Campus. The inauguration in Bayreuth took place on the 28th of July 2015.

The highly technological ultra-pure water treatment HydroMOS® 150 EDI-S, from HYDROTEC contributes substantially in that.

The unit is a combination between RO unit and electrodeionisation suited to produce ultra-pure water with a conductivity of <0.2 µS/cm. The mains water initially is passing a conventional domestic filter and is subsequently softened by ion exchange process. The softened water is then treated by semi-permeable RO membranes.

Ultra-pure water quality is achieved by means of electrodeionisation. After having passed the demineralization process, the so-called dilute is stored in a sterile ventilated plastic tank and supplied into the circuit by an inverter driven booster pump. The consumers take the treated water direct from the circuit. The ultra-pure water in the circuit is sterilized permanently by our HydroWELL® UV disinfection system and constantly cooled by heat exchanger. The dilute return into the storage tank finally is treated by our ultra-filtration unit HydroMOS®.

The Fraunhofer centre for high-temperature lightweight construction (HTL) is working in the development of materials and components as well as measuring and simulation processes for the use at high temperature. Important applications are in the energy, drive and heat engineering. The focus in the development is in quality improvement as well as material and energy efficiency in industrial thermal processes. Since more than 10% of the primary energy in Germany is used for industrial thermal processes, that field has an essential improvement potential.

Source: Press/media Fraunhofer Institut

HYDROTEC GmbH

Case studies

A satisfied customer is of topmost priority for us.
Trust in our Know How and systems.

DB Mobility Networks Logistics

Humboldt-Universität zu Berlin

DHD Dorstener Drahtwerke Group of Companies

Kulmbacher Brauerei Aktien-Gesellschaft

Rosenthal

GES

Fahrsicherheits-Zentrum Nordbayern ADAC

SWG Mühlhausen
Städtische Wohnungsgesellschaft mbH Mühlhausen/Thür.

rkw

Waggonbau Altenburg GmbH

OBERLINHAUS

SWT Stahlwerk Thüringen

Travelodge

MSE Micro Systems Engineering
an MST company

Frankfurter Rotkreuz-
Krankenhäuser
e. V. Frankfurt

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