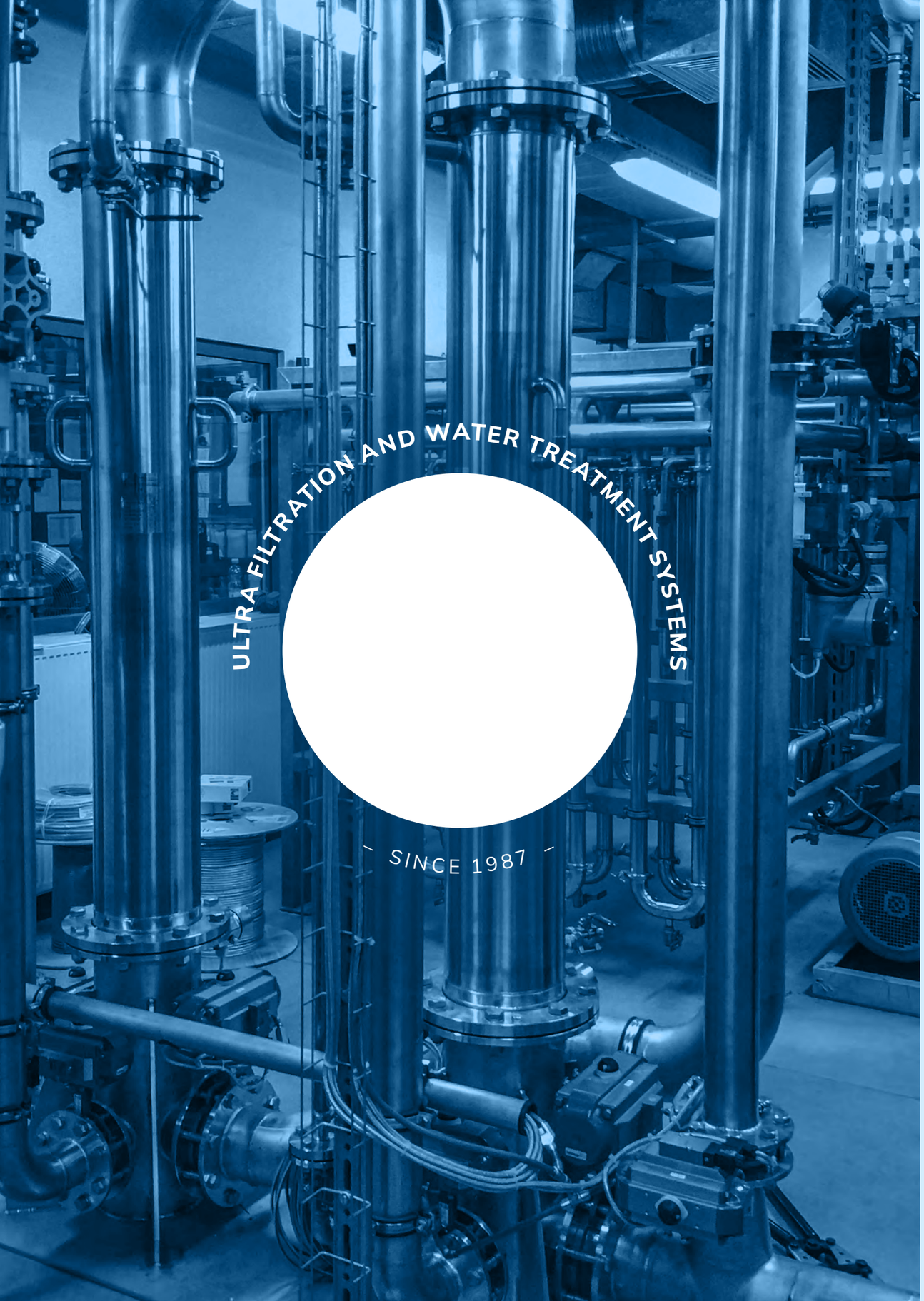

GLOBAL WATER
TREATMENT
H2O-Ultra-PRO®
sustainable wiping solution recovery treatment plants
in intaglio printing systems



WIPING SOLUTION RECOVERY TREATMENT PLANTS BY GWT

SAVES YOU MONEY

Our patented processes allow you to save the cost of using, storing and disposing of a large number of chemicals and ink sludge. Maximum automation also means less manpower is required compared to chemical cleaning processes.

HIGH QUALITY PREFABRICATION

To ensure the highest quality possible, we at GWT are prefabricating plants at our headquarter in Austria.

GLOBAL WATER TREATMENT

H_2O-Ultra-PRO®

NO EXTRA CHEMICALS

Ultra Filtration is a purely physical process which needs no extra chemicals in your process. Only rinsing has to be added again into the filtration cycle.

FROM A SINGLE SOURCE

GWT is a full service provider in water treatment plants. Our team offers vast expertise in the field of plant construction – from planning and engineering to competent manufacturing, as well as professional installation on site, commissioning and after-sales service.

SAVES YOU TIME

Due to prefabrication and testing processes at our headquarters we're able to minimize the time required on site.

OUR **PATENTED PROCESSES** GUARANTEE THE MOST EFFICIENT AND COST EFFECTIVE PROCEDURES IN THE FIELD OF UF

8
offices

6
subsidiaries

430
employees

€90 mio
annual turnover

THE GWT GROUP

GLOBAL WATER TREATMENT - SINCE 1987

The GWT Group is a company with over 35 years of expertise in engineering and construction of water treatment and recycling plants globally. Over the years, GWT has steadily grown into a full-service provider in the field of water treatment and is very well established in every technological segment – from drinking, waste to industrial process water or even swimming pool water. Our companies employ more than 430 employees at 8 locations in three different countries, making it the leading Austrian organization in this field.

GWT Gesellschaft für Wasser- und Wärmetechnik GmbH, located in Leobersdorf (headquarter) - near Vienna, and Salzburg (branch-office), is present on the global market in the sector of Wiping Solution Recovery and Treatment plants in (High-) Security Printing. Therefore we use purely physical ultra filtration methods which were perfected over the course of 25 years of experience in the field of industrial water treatment.

Our team offers comprehensive expertise in every field of plant construction – from planning and engineering to competent manufacturing, as well as professional installation on site, commissioning and after-sales service.
Satisfied customers around the world rely on the innovative drive and trustworthiness of GWT.

OVERVIEW PROJECTS
(ALL WATER TREATMENT PLANTS)

2.137 projects (~2% ultra filtration plants)
28 different countries
6 continents

10 projects wiping solution recovery since 2018
3 continents

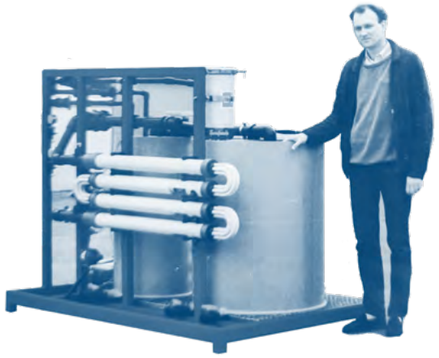
QUALITY ASSURANCE | PATENTS

Environmental management systems EN ISO 14001:2015
Quality management systems EN ISO 9001:2015
Occup. health & safety managem. systems EN ISO 45001:2015

Cyber Trust Austria Silber Label - Cybersecurity is critically important today. The Label proves that our supply chain – essential for secure printing – meets the highest cyber risk standards.

AT523844B1 - Classification B01D1/24
Trademark No. 223669 - Word Mark: H2O-ULTRA-PRO

OUR STORY



1987
Young Johann Gergela founded GWT with a vision to provide the best engineered and most reliable water treatment plants in Austria and beyond. Due to the fact that most of the companies depend on several suppliers, Mr. Gergela wanted to build a company that provides all services from a single source to ensure the best quality possible.

1991
The company expanded quickly and took on international projects on different continents like South America, Asia and Africa.

1993
The first production hall and warehouse was built to provide customers with components manufactured directly at GWT facilities.

1995
SEILER started to introduce ultra filtration technology to the field of intaglio wiping solution recovery. A new and sustainable system for the industry. Over the years, many international projects were realized.

2005
„Wassertechnik Salzburg“ was implemented into the GWT Group to increase know-how and market penetration in Austria.

2006
Patented processes were registered in the field of wiping solution recovery plants (e.g. patented Decanter process).

2017
After 30 years of experience for drinking, industrial processes, draining and swimming pool water systems, GWT increased competencies through purchase of assets from PCH Seiler GmbH to access another market segment - the security printing industry.

2018
GWT immediately took on first projects in the industry and in 2018 the first plants were put into operation in Poland and the Netherlands.

2020
Application for another patent "Process for processing a wiping solution loaded with foreign substances" filed and granted

PATENTED
AT523844B1
PROCESS



ULTRA FILTRATION

RECOVERY METHODS

In intaglio printing appr. 1.000 liters of wiping solution are spent per hour to clean the plates of one printing machine. To clean the used solution, printers can use two different methods.

Most of the time chemical treatment methods are used to seperate the wiping solution from the excess ink. Therefore multiple chemicals which contain flocculants are used.

The second possibility is to filter the solution with a purely physical ultra filtration process. This sustainable way of wiping solution recovery does not use additional chemicals and, more importantly, leads to higher recovery rates.

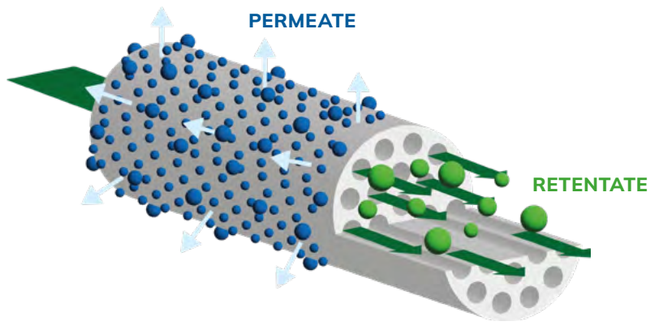


ULTRA FILTRATON

In order to minimize the impact on the environment, GWT employs a purely physical and reliable recovery process, consisting of **sedimentation and ultra filtration** of the wiping solution.

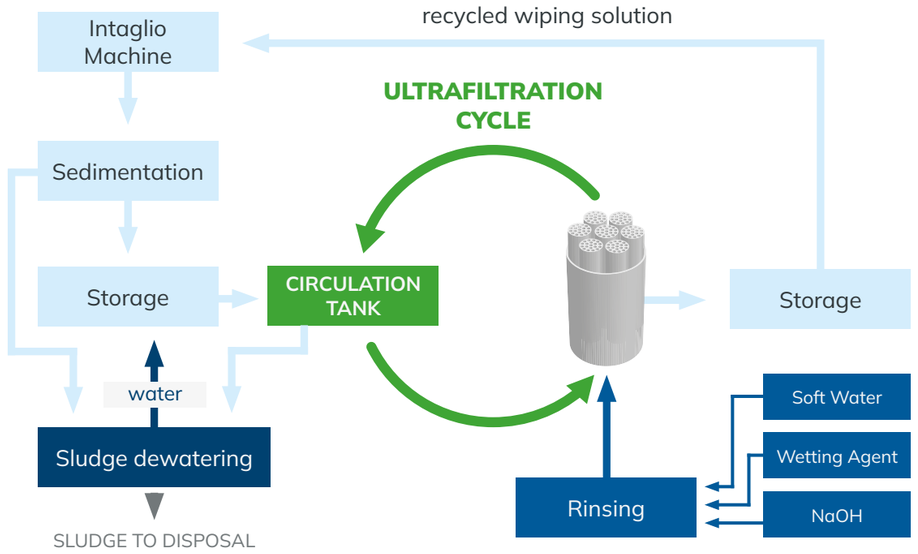
For the process of ultra filtration ceramic membranes are used to separate the ink particles from the spent wiping solution. By using the latest and most accurate measuring instruments, the GWT process also minimizes the amount of chemicals needed to refill the wiping solution.

Further **automated cleaning procedures** as well as the ability to clean using alkaline and acidic rinsing, allows the membranes to continuously filter at highest quality levels with a **proven lifespan of 10+ years** in operation.



In addition to this process, GWT's sludge dewatering and drying systems help to increase the efficiency of the recovery process. Recovery rates of up to 97% are possible, depending on the ink concentration.

PATENTED ULTRA FILTRATION CYCLE



AUTOMATION IS THE KEY TO SUCCESS

By combining an animated real-time visualization, operational data processing and materials designed to withstand a whole range of chemical impacts, GWT provides environmentally friendly plants with excellent performance and low operational costs.

The H_2O-Ultra-PRO process employs ultra filtration membranes made of ceramic material. Soft water, caustic soda and a highly efficient wetting agent make up the rinsing solution which keeps the membranes from clogging.

GWT systems typically include a back-pulsing system to improve performance and extend the lifetime of the membranes. This membrane cleaning procedure happens during normal operation, for which the ultra filtration does not need to be halted.
H_2O-Ultra-PRO plants are able to operate around the clock. Once in a shift, the concentrate from the UF cycle is transfered to a waste water tank for dewatering or drying.

After the concentrate has been removed, the membranes are automatically rinsed and the same quantity of concentrate that was removed is replaced by fresh wiping solution.
All these steps are fully automated and need a minimum of manpower.



NO
DEPENDENCE ON A SINGLE SUPPLIER

8,5
TIMES LESS CHEMICALS*

HIGH
RECOVERY RATE

BECAUSE ENVIRONMENT MATTERS

Pollution harms our long-term health, our life, our planet.

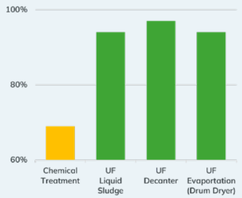
The purely physical process of ultra filtration is the best way to reduce the impacts on the environment to a minimum when it comes to wiping solution recovery.

But it's not only the best way to make a step into a more sustainable future but also to implement a more cost effective recovery process. Ultra filtration methods by GWT need **no castor oil, no perlite, no sulfuric acid**. The fresh wiping solution only consists of caustic soda and wetting agent. As a consequence, **up to 85% less sludge has to be disposed** after a filtration compared to standard chemical methods.

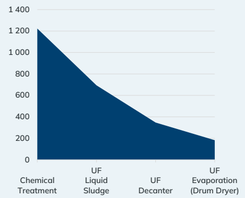


43%* less sludge (not dewatered)
71%* less sludge for sludge dewatered by decanter (low energy consumption)
85%* less sludge for sludge evaporated by drum dryer (increased energy cons.)

WIPING SOLUTION RECOVERY RATE



SLUDGE DISPOSAL (TONS/YEAR)



For further information regarding dewatering systems see page 9.



COST EFFECTIVE AND ECOLOGICAL

Our Systems are compliant with all European ecological standards. Furthermore, factors that drive costs up like water, the disposal of sludge, NaOH and other chemicals, can be decreased significantly compared to standard chemical cleaning procedures.

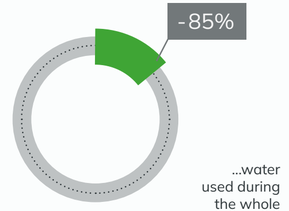
For an operating system with a capacity of 2.000 liters per hour, the GWT wiping solution recovery treatment plant with our recommended process **needs 85% less water** for the filtering procedure than other plants with chemical cleaning processes. Moreover, the system is able **to recover up to 97%** of the wiping solution compared to only 67% in traditional chemical cleaning procedures.

Due to the highly automated processes, labor intensity can be reduced by around 50% on average.
An automated backpulsing-system, automated switch between operating modes followed by rinsing of the membranes grants long lifetimes of the membranes and improves the performance of the system without any manual work directly at the plant.

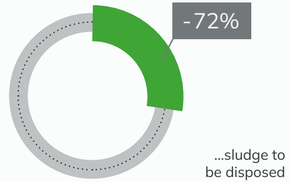
As no dust load is continuously added to the system and **international health and safety standards are met**, the H_2O-Ultra-PRO is a safe system for those working with our machinery.

MORE INDEPENDENCE

It is recommended to use GWT Reflow 30 as a wetting agent, as it is produced specifically to clean the type of membrane used in this system, which results in improved on-press wiping and better print quality. Other wetting agents with a similar composition may also be used.



...water used during the whole filtration*



...sludge to be disposed after the process*

...labor intensity due to automated process*

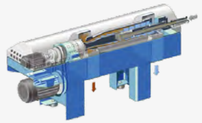
chemical cleaning (100%)
ultra filtration by GWT

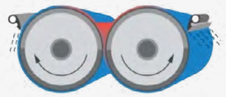
COMPARISON DECANTER & DRUM DRYER

The liquid sludge resulting from ultra filtration can be dewatered to reduce disposal costs on the one hand and to recover water and wiping solution on the other. GWT offers two different methods.

The **decanter**'s working principle is based on mechanical centrifugation, which means the central chamber spins and separates heavy particles from light particles. This effectively separates the ink particles from the portion of the wiping solution which can be recovered.

A **drum dryer** will dry the ink sludge and output solid waste instead of liquid. The ink sludge is pumped onto a rotating steam-heated surface where the liquid evaporates. Once the waste product is dry it is removed and collected in containers located below.





	DECANTER CENTRIFUGE*	DRUM DRYER*
Working principle	Ink sludge is spun inside a central chamber. Ink particles with higher mass are separated by centrifugal force and removed from the solution.	Ink sludge is led onto steam-heated cylinders which evaporate the liquid phase of the solution. Dried ink particles are scraped off the cylinder surface.
Liquid phase of the sludge	A significant amount can be returned to the recovery system as low solids solution	Evaporated
Waste consistency	Pasty, approx. 50% moisture	Powder, approx. 5% moisture
Theoretical WSRTP System recovery rate	97%	94%
FURTHER CHARACTERISTICS		
Final waste amount**	low +	very low + +
Space requirement**	very low + +	low +
Energy consumption**	very low + +	high −
System complexity	very low + +	increased −
Investment costs**	very low + +	increased −

*PATENTED processes!
** compared to the sludge without treatment to disposal

The complete plant and its components offer reliable operation and increased lifespan, while minimizing the required space. The required manpower for plant operation is kept at a minimum as the system is fully automated.

The construction material of all equipment which is in contact with the wiping solution is anticorrosive.

The proposed plants combine highest quality and newest technology allowing us to offer our customers a unique state-of-the-art process. Moreover, our company has multiple certifications and all works are conducted according to the standards established within the company group.



RANGE OF SERVICE - ALTERNATIVE ENERGY SYSTEMS

- consulting and planning of photo-voltaic systems
- installation and related commissioning
- development of individual energy saving measures
- energy consultancy

producing up to 100% of the energy needed

MODERN & SUSTAINABLE

Decentralized energy supply is increasingly becoming the focus, driven by issues such as climate change, price increases in the energy sector and sustainability. Electricity generation from photo-voltaic systems is an essential part of this energy transition.

Our EI & C department has been planning & installing photo-voltaic systems for many years and also offers the corresponding energy consulting and analysis. As a result you can rest assured that you will always receive the right, tailor-made solution for you.

The coupling of energy-intensive plants with renewable energy sources promotes sustainability and saves resources in the long term.

ENERGY STORAGE

The inexhaustible energy of the sun can be used to generate electricity on site by means of photo-voltaic systems, to feed it into the electricity grid or store it in electricity storage systems for later use. Why give away excess electricity when it is possible to store it?

With a power storage system for your photo-voltaic system, you can use your energy later, even when the sun is not shining.

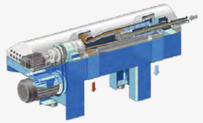
With low installation effort and high efficiency, we realize your projects according to your wishes.

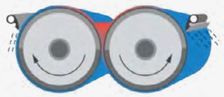
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Liquid phase of the sludge	A significant amount can be returned to the recovery system as low solids solution	Evaporated
Waste consistency	Pasty, approx. 50% moisture	Powder, approx. 5% moisture
Theoretical WSRTP System recovery rate	97%	94%
FURTHER CHARACTERISTICS		
Final waste amount**	approx. 50%	approx. 26%
Space requirement**	approx. 20m²	approx. 30m²
Energy consumption**	+24%	+381%
System complexity	normal	high
Investment costs**	+21%	+54%

*PATENTED processes!
** compared to the sludge without treatment to disposal
Please note that the figures above and below are approximate values, based on typical operational parameters and composition of intaglio wiping solution, and are subject to change.

high quality + newest technology — **anti-corrosive material of construction** — **increased lifespan** — **minimum required space & manpower**



Sustainability is the key to our future.

Our wiping solution recovery plants not only provide an economically effective, but also, an environmentally friendly way in intaglio printing.

Ing. Rainer Gergela, MBA
managing director, GWT Holding GmbH

high quality prefabrication at our headquarters

TURNKEY PROJECTS - Maximum Efficiency with Minimal Disruption

Our turnkey solutions offer complete project delivery without the need for subsuppliers, ensuring streamlined communication and full accountability.

Thanks to advanced prefabrication methods, we significantly accelerate on-site assembly. Projects can be showcased directly in our production hall before delivery, guaranteeing quality and transparency.

The optimized build speed minimizes downtime, so essential infrastructure is only briefly interrupted - keeping your operations running smoothly.

SCAN THE QR-CODE...

...and watch our Wiping Solution Recovery Plants being built at the headquarter in Leobersdorf. The video shows the prefabrication from mechanical assembly to the preparation of individual components. Gain insights into precise craftsmanship and efficient manufacturing processes.

PREFABRICATION + **PREASSEMBLY** + **NO SUBSUPPLIERS** = **SAVES TIME & MONEY**

TESTING UNIT & LABORATORY

To stay up to date with the latest ink compositions and developments in the printing process we always keep close contact with ink suppliers.

In our well-equipped laboratory in Salzburg, GWT is able to perform various analyses in order to find an optimal process setting, in cooperation with our process engineers, which can be verified in the test plant.

The scope of this service includes:

- pressure based performance tests
- longevity tests
- verification of the effect on the membranes
- detailed test report
- if desired, recovered wiping solution (RWS) samples can be provided



OVERVIEW

DRINKING WATER TREATMENT PLANTS

WASTE WATER TREATMENT PLANTS

WIPING SOLUTION RECOVERY PLANTS

INDUSTRIAL PROCESS WATER PLANTS

THERMAL ENGINEERING

EI & C

BUILDING TECHNOLOGY

CHEMISTRY

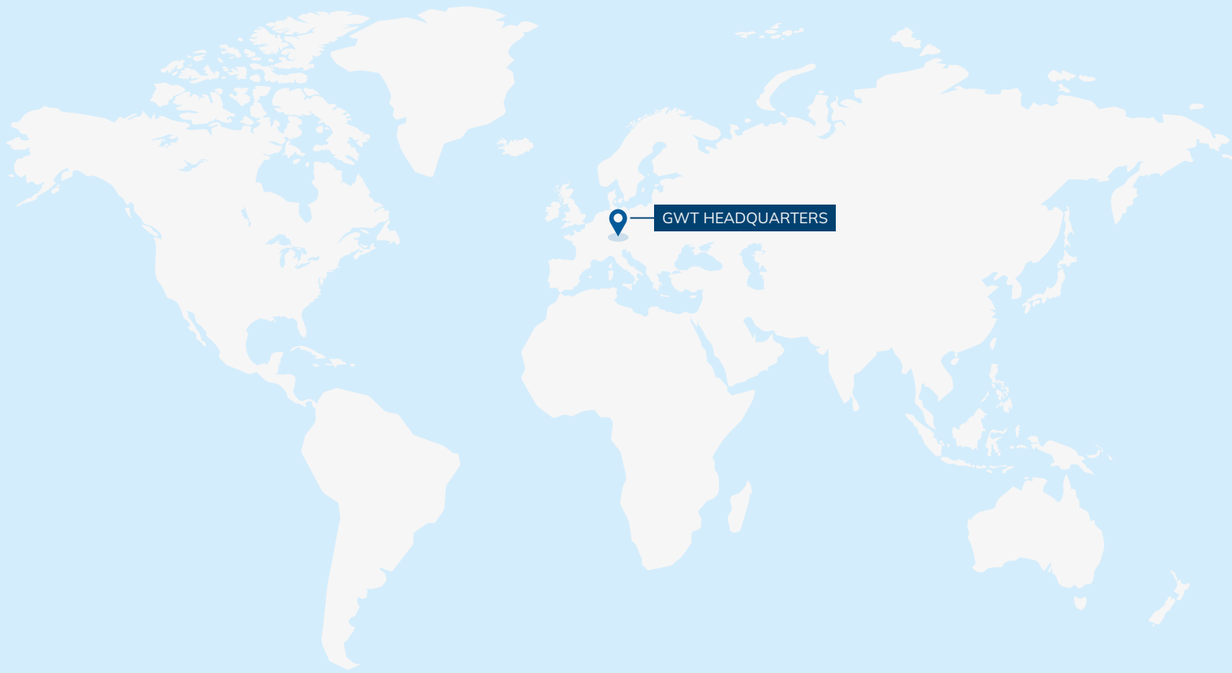
SERVICE

PROFESSIONAL WATER TREATMENT SOLUTIONS SINCE 1987

Benefit from our vast experience over the course of more than 35 years as a full-service provider in the field of water treatment worldwide.

Our team offers comprehensive expertise in every field of plant construction – from planning and engineering to competent manufacturing, as well as professional installation on site, commissioning and after-sales service (24/7 hotline, on-call service, throughout the year) in all technological segments.

Even process control systems, data transmission systems etc. are programmed in-house. In addition every needed electric cabinet is also constructed directly at our facilities from our team of experts.



For any requests please contact

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