

ROCHEM[®]



SEAWATER

ROCHEM INVENTED D'TRO®. IN HAMBURG, 1984.



We still manufacture in Hamburg and have just doubled our manufacturing space. There, over 60 people steadfastly pursue our goal of hand-built German quality and efficient treatment of water. As the production facility for Rochem Group, we take pride in continuing to further improve the solutions that we first invented to treat water over 40 years ago.

Even though some have attempted to copy parts of our technology, Rochem continues to lead based on our unique RO modules which do not require UF or chemical prefiltration to handle even the most difficult seawater. We then combine this with the most efficient, easiest to service, cheapest to operate systems based on our 40 years of experience, thousands of systems installed, and countless hours of prototyping and real-world testing.

Rochem would welcome your visit to our factory and the chance to show in detail what makes our systems special.

**ROCHEM SYSTEMS ARE
INDIVIDUAL. JUST LIKE
YOUR WATER.**



ROCHEM BUILDS OUR SYSTEMS AROUND YOUR NEEDS.

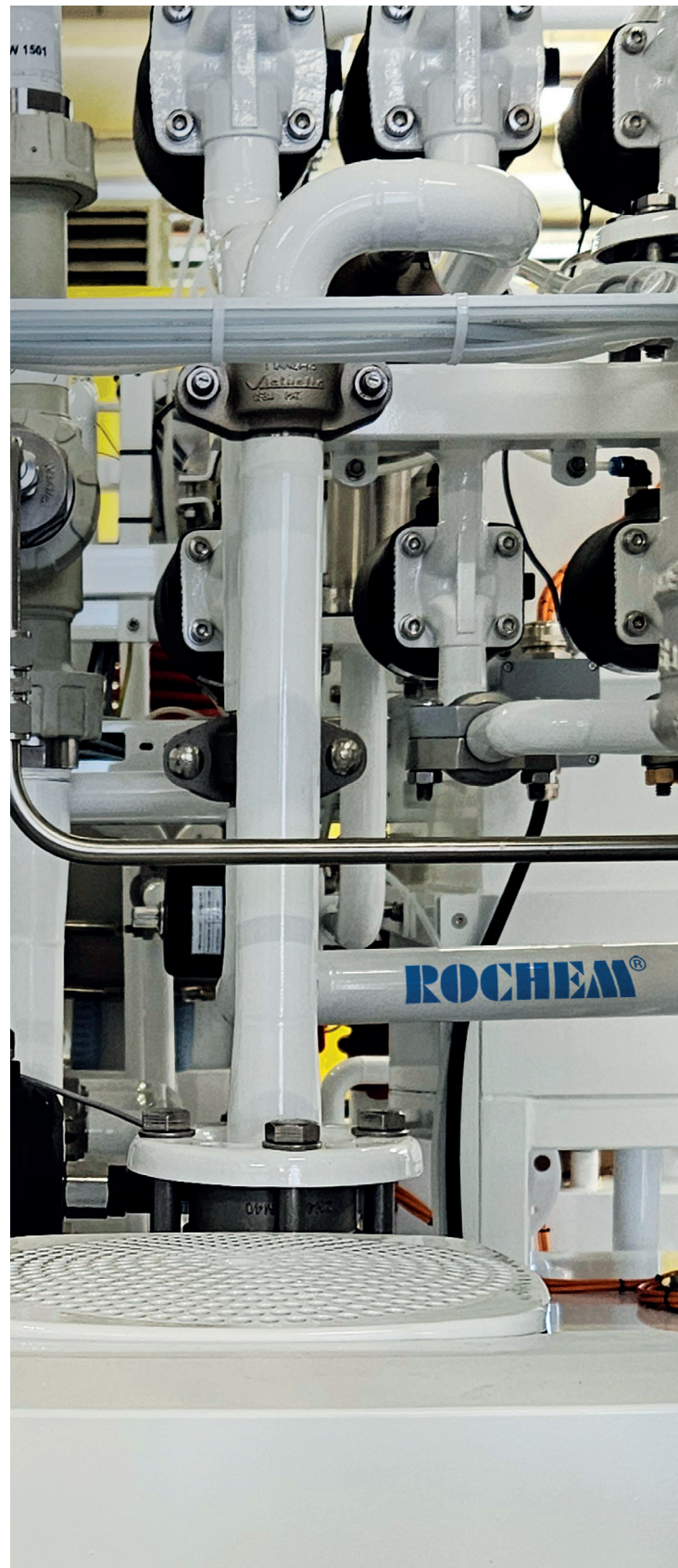
We know that ships are not built around our systems.

That is why our team of engineers will proactively work with your space availability to adapt our system to meet your needs, rather than the other way around.

Do you want the control panel in your operations room? Not a problem. Do you need the feed piping in a special place? Done.

Do you need specific post treatment? We can do this. Do you need special piping? We can do this. Do you want a standard system? We have those as well. Well, not really “standard”. They are built to different standards: higher ones.

Let us show you how flexible we can be.

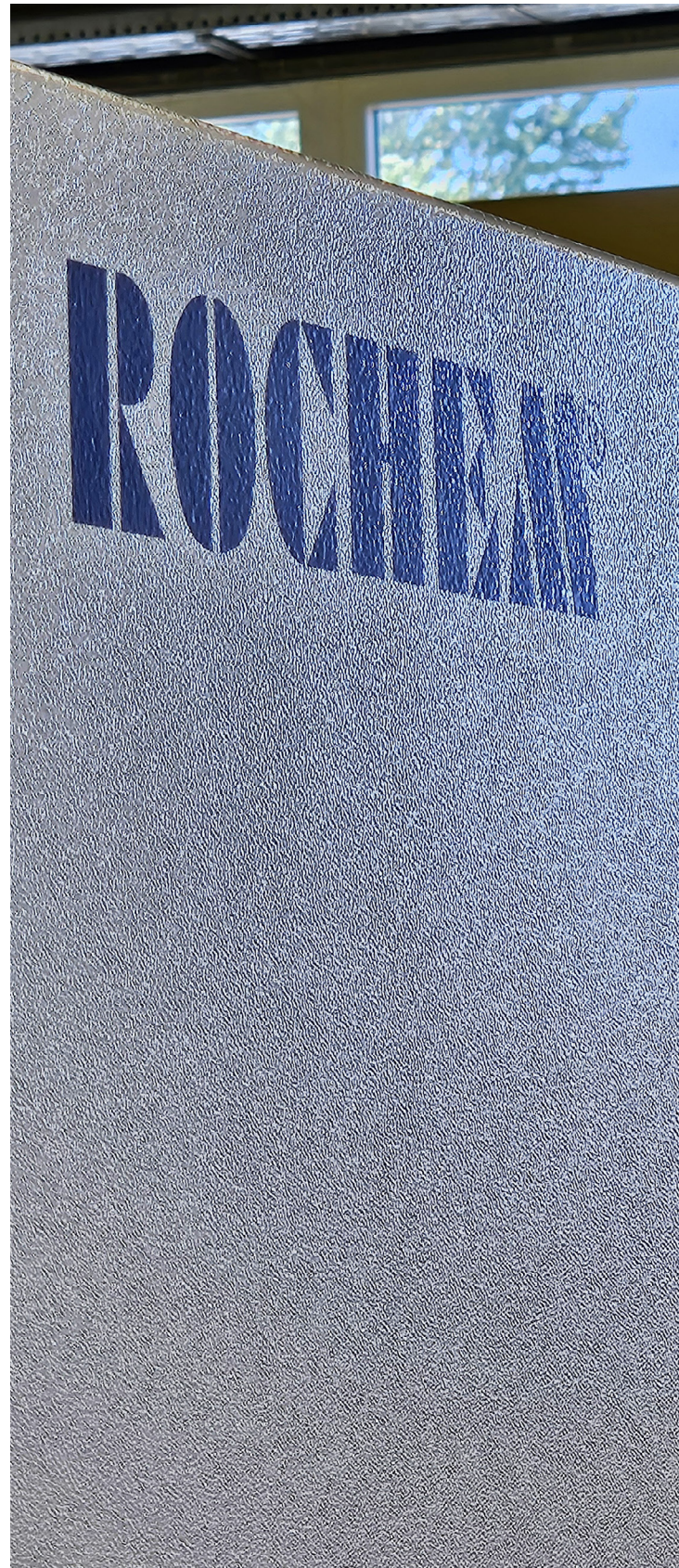


ROCHEM SYSTEMS SAVE ENERGY.

From the start, ROCHEM systems are highly energy-efficient: we maximize open channels in our module designs to ensure that feed water has complete access to the entire surface of our membranes at all times. This greatly reduces the chance of fouling and facilitates the access to all parts of the membrane for cleaning chemicals to ensure that our membranes are always clean.

We then use high-end, efficient pump motors and pumps to further minimize energy wastage. Whether plunger or turbine pumps, we only use top-quality, proven solutions which minimize energy wastage, repairs, and downtime.

Lastly, we combine our pumps with various energy recovery devices like traditional pressure converters or turbine systems in order to recover energy from the brine channel.



ROCHEM BUILDS OUR SYSTEMS TO LAST AS LONG AS YOUR SHIPS.



Here is a picture of a system we made decades ago. Nothing makes us happier than to receive a call for an obscure spare part for a system that our workers built 25 years ago and is still in operation.

Not only does it mean that yet another ROCHEM system is alive and still producing excellent water several decades after it was built, but it gives our highly-knowledgeable After Sales Team a little thrill to know exactly which part you need and where to find it. Perhaps they will get a chance to track down a new component to cross link to our old one.

The technicians that built that system may even still be working in our factory in Hamburg. After all, Rochem has one of the most experienced teams worldwide. Another point of pride for those who invest in quality: over a 25 year period, each m3 of water treated by that system has cost a small fraction of the water produced by lesser quality systems.



ROCHEM MIGHT WELL BE ABOARD YOUR NAVY'S VESSELS.

Many Navies have specified Rochem seawater systems for decades to equip their patrol ships, frigates and submarines. There is good reason for this: our systems are extremely robust and easy to maintain, they do not use chemicals outside of their infrequent cleaning needs, and they operate effectively in all waters that could be encountered by Navy ships: high silt loads close to shore or in port, various temperature ranges and different salinity levels.

An aerial photograph showing a river delta where a muddy brown river meets a clear blue body of water. A road with a bridge crosses the water, and a small island with a circular road is visible. The surrounding land is green and forested.

***Do your ships travel
from the Yellow River to
the East China Sea?***

***From Basel to the
North Sea?***

***Down the Mississippi into
the Gulf of _____ ?***

ROCHEM MODULES: BUILT WITH THE MEMBRANES YOU NEED.

We make our own TS membrane elements and DT membrane cushions. We then use your water parameters to determine which type of membrane is ideally suited to your ship's waypoints, even combining different membranes within each module to achieve the perfect balance of efficiency and filtration for variable water types.

ROCHEM MODULES DO AWAY WITH THE NEED FOR ANY PRE-TREATMENT FOR SEAWATER.

Where most modules need pretreatment past an SDI of 5-6, Rochem modules work without prefiltration up to an SDI of 20. Furthermore, our specific feed channel design provides excellent membrane cleanability which allows our cleaners to access all parts of the membrane to remove fouling and prolong membrane life. As a consequence, our membranes' life expectancy in seawater systems is typically 5 years (35 000 hours).



ROCHEM BUILDS THE RIGHT MODULE FOR YOUR WATER.



ROCHEM DT MODULES

- No chemical pretreatment necessary
- No membrane pretreatment necessary
- Lowest membrane fouling in the industry
- High salt rejection
- Perfectly clear open-feed flow channel
- Simple cleaning of entire membrane area
- Extremely long life expectancy
- Minimal differential pressure
- Virtually no mineral scaling possible
- SDI 20 without prefiltration

Ideal for extreme silt presence or potential for heavy fouling.

ROCHEM TS MODULES

- No chemical pretreatment necessary
- No membrane pretreatment necessary
- High membrane density with open channel design
- Extremely low membrane fouling
- High salt rejection
- Simple cleaning of entire membrane area
- No flow redirection
- Low number of sealing points
- Minimal differential pressure
- Minimal risk of membrane blockage by mineral scale due to our flow pattern
- SDI 20 without prefiltration

Ideal for typical desalination usage.

***ROCHEM'S MINIMAL
CHEMICAL USE
REDUCES
OPEX AND
POLLUTION.***



ROCHEM SYSTEMS: ALWAYS READY FOR ACTION.



Rochem units are equipped with a built-in cleaning system which is microprocessor controlled. The cleaning procedure is fully automated and is activated after approximately 850 operating hours.

At each normal system shut-down, all seawater-wetted components are rinsed with fresh water with the fully-automated “Stop & Rinse” mode. This will prevent any organic matter developing during shut-down periods of up to 2 weeks, without the need for chemical disinfection.

ROCHEM CHEMICALS KEEP YOUR MODULES CLEAN.

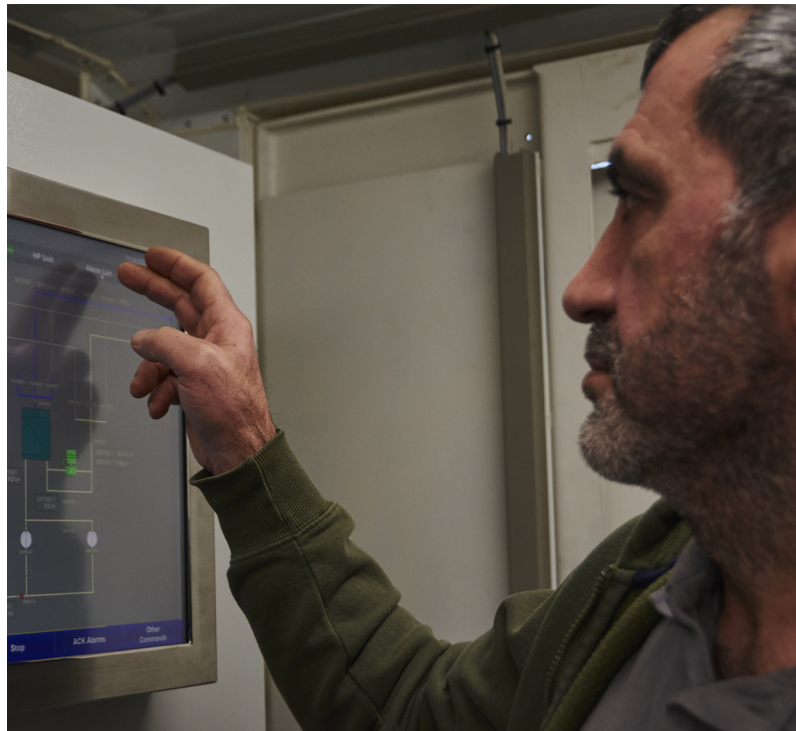


Rochem DT, TS and FS modules do not require any antiscalants or chemical pretreatment of the feed water to achieve excellent recovery under a wide range of salinity levels, water temperatures and SDI up to 15. Chemicals are only required for membrane cleaning. Rochem makes a complete range of cleaners which are specifically designed to prolong the service life of our membranes.

If, for operational reasons, you require the use of antiscalants, we make a full range of antiscalants to ensure or increase expected recovery.

Both of our chemical ranges have been proven to be effective under long-term testing to make sure that your system does not serve as a guinea pig for our R&D department.

ROCHEM SYSTEMS: MINIMAL KNOWLEDGE REQUIRED.



All Rochem seawater units are equipped with a state-of-the-art PLC with a user-friendly interface, from which operating parameters can be read and/or set.

If operating faults occur, they are clearly identified on the display. Service can be carried out on the spot by your ship's personnel with little prior knowledge, using the service manual we have created specifically for your system.

All units are equipped with a fail-safe system which protects them from potentially damaging external conditions and/or operator errors.



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