PACO®
FILTRATION SOLUTIONS

HIGH-PERFORMANCE SOLUTIONS FOR

WATER AND WASTEWATER FILTRATION

Water is one of the most valuable resources and at the same time one of the greatest challenges of our era. Increasing contamination from microplastics, industrial residues, and stricter environmental regulations demand high-performance, durable, and sustainable filtration solutions. PACO's metal wire meshes and metallic filter elements address exactly these challenges: They enable precise separation efficiencies, outstanding resistance to chemical and thermal stress, and reusable filtration solutions – for efficient and sustainable water treatment.

Our Solutions for Water and Wastewater Filtration

The PACO Group offers a comprehensive product portfolio tailored precisely to the requirements of water and wastewater treatment. Depending on the application, these solutions are used as sintered multi-layer meshes, pleated filter elements, or cylindrical filter candles, ensuring reliable solid-liquid separation even under demanding operating conditions.

Water and Wastewater Filtration in Industrial and Municipal Applications

Reliable Pre- and Protective Filtration

In industrial and municipal water treatment, metallic filter elements are primarily used for pre-filtration and protective filtration to remove solids from raw and process water streams and to protect downstream equipment. Typical solutions include cylindrical filter candles and pleated filter elements made of stainless steel wire mesh, offering a large filtration area within a compact design.

Commonly used materials include stainless steels such as AISI 316L (1.4404) and AISI 316Ti (1.4571), which provide excellent corrosion resistance against water, wastewater, and many process media. For more abrasive applications, reinforced mesh designs or multi-layer sintered filter media are used to significantly increase mechanical stability and service life. Thanks to their cleanability, these filter elements are reusable and particularly suitable for continuous processes.

Sludge, Residue, and Wastewater Treatment

Efficient Solid Separation

In sludge and residue treatment, filter elements are exposed to high mechanical stress from abrasive solids. Metallic wire meshes are used in the form of robust filter plates, cylindrical inserts, or reinforced screen constructions that offer high wear resistance.

Depending on the application, stainless steel meshes such as AISI 316L (1.4404) and AISI 316Ti (1.4571) or reinforced multi-layer structures are used, maintaining dimensional stability even under high solid loads. The ability to perform backwashing or mechanical cleaning makes these filter elements ideal for continuous processes in sludge dewatering and solid-liquid separation – reducing downtime and increasing overall system reliability.

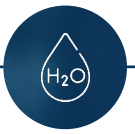
Corrosion Resistance and Process Stability as Key Challenges

The selection of the appropriate material is a decisive factor for the performance and service life of metallic filter elements in water and environmental technology. Depending on the application, filter media are exposed to varying chemical, thermal, and mechanical stresses. Chloride-containing media, such as those found in wastewater treatment or seawater applications, place particularly high demands on corrosion resistance.

At the same time, abrasive solids, pressure fluctuations, and continuous operating cycles affect the filter structures. Therefore, materials must not only be chemically resistant but also provide high mechanical strength and fatigue resistance. In sensitive applications such as fine particle filtration or hydrogen processes, material purity is also critical to avoid interactions with the process media.

Material selection is always application-specific and based on factors such as medium, temperature, pressure conditions, and required service life.

Hydrogen and Electrolysis



High-Purity Process Filtration for the Hydrogen Economy

In hydrogen production, especially in electrolysis processes, the quality of water and process media is critical for reliable operation and the longevity of key components. Metallic filter elements remove particles and contaminants from process water and electrolytes, protecting sensitive components such as membranes and electrodes.

Pleated filter elements and sintered wire meshes made of highly resistant stainless steels such as AISI 316L (1.4404) and AISI 316Ti (1.4571) are used to ensure stable filtration under continuous load. In closed hydrogen and Power-to-X cycles, they help stabilize media quality, reduce unplanned maintenance, and ensure reproducible operating conditions.

Microplastics Retention and Fine Filtration

Effective Separation of the Smallest Particles

The retention of microplastics and fine solids is increasingly achieved using precisely defined metal meshes with micron-level mesh sizes. These are often designed as sintered wire meshes or multi-layer filter elements to ensure stable separation performance under dynamic flow conditions.

Typical product forms include pleated filter elements or flat screen inserts integrated into multi-stage filtration systems. Thanks to their mechanical stability and defined pore structure, these solutions serve as a robust complement to finer filtration stages such as membrane or depth filtration. The use of corrosion-resistant stainless steels such as AISI 316L (1.4404) ensures long service life even with varying water qualities.

Common Materials for Metal Wire Meshes and Filter Elements

Material	Material No. / Designation	Properties	Applications
Stainless Steel	AISI 304 (1.4301)	Good corrosion resistance, cost-effective	General water filtration
Stainless Steel	AISI 316L (1.4404)	Excellent corrosion resistance, high chemical resistance	Water and wastewater treatment, fine filtration
Stainless Steel	AISI 316Ti (1.4571)	Stabilized against intergranular corrosion, high temperature resistance	Process water, industrial applications
(Super) Duplex Stainless Steel	1.4410, 1.4462	High mechanical strength, very high corrosion resistance (especially to chlorides)	Seawater, ballast water
Super Austenitic Stainless Steel	Avesta® 254 SMO (1.4547)	Very high corrosion resistance, excellent resistance to chlorides, good mechanical stability	Seawater, desalination, high-chloride process waters
Nickel-Based Alloys	e.g. Hastelloy® C276 (2.4819) & C22 (2.4602), Inconel® 625 (2.4856)	Excellent resistance to aggressive chemicals	Chemical wastewater
Nickel-Copper Alloy	e.g. Monel® 400 (2.4360)	Excellent resistance to seawater	Offshore, maritime systems

Water Recycling and Closed-Loop Systems

Efficient Use of Resources

In water recycling, metallic filter elements are used to make process water reusable multiple times and to reduce fresh water consumption. Pleated filter elements made of stainless steel mesh and sintered filter inserts enable reliable removal of solids before the water is returned to the process cycle.

Due to the high mechanical stability and cleanability of the metal wire mesh, these systems are particularly suitable for industrial multi-cycle applications. They help reduce operating costs while sustainably improving the resource efficiency of production processes.

Ballast Water Filtration

Protection of Marine Ecosystems

In ballast water treatment, metallic filter elements are used to mechanically separate particles, sediments, and organic suspended matter prior to further treatment. Cylindrical filter inserts and screen filters made of stainless steel mesh are commonly used, designed for high flow rates and continuous operation.

For maritime applications, corrosion-resistant materials such as duplex stainless steel 1.4462 are preferred due to their excellent resistance to chloride-containing seawater. In highly demanding systems, reinforced mesh constructions ensure stable filtration even under fluctuating loads. The robust design allows long maintenance intervals and reliable pre-treatment for downstream disinfection systems.

Seawater Desalination

Highly Robust Filtration Solutions for Demanding Seawater Processes

In seawater desalination, pre-filtration protects downstream membrane systems from particles, biofouling, and sediments. Cylindrical filter elements and screen inserts made of duplex stainless steel (1.4462) or comparable high-performance materials are used.

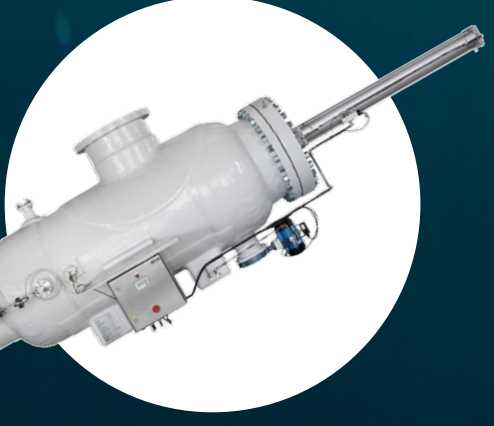
In conjunction with the filtration systems of our subsidiary HETA Verfahrenstechnik, integrated solutions for reliable seawater treatment are created. These include fully automatic systems such as Bernoulli automatic filters and backwash filters, enabling continuous filtration without process interruption even at high contamination loads and large flow rates. They protect sensitive components such as heat exchangers and membranes while extending system service life.

The combination of metallic filter elements and self-cleaning systems enables high-performance pre-filtration with maximum operational reliability even under varying water qualities and maritime conditions. Close coordination between filter media and system engineering also allows precise adaptation to project-specific requirements.

Metallic.

Precise.

Reliable.



WIRE MESH, FILTER ELEMENTS, PROCESS ENGINEERING

PACO GROUP

PACO FILTRATION SOLUTIONS

Founded in 1953, the **PACO Group** has continuously evolved from a traditional metal weaving company into one of the most powerful providers in the field of metallic filter media and the end products made from them - all "Made in Germany." With over 70 years of experience and expertise, PACO develops innovative filtration technologies that not only offer top performance and efficiency but also conserve resources and minimize the ecological footprint. Together with **HETA Verfahrenstechnik**, a member of the PACO Group and a globally operating engineering specialist and manufacturer of complete, highly specialized systems for demanding filtration and separation solutions, the PACO Group is the only manufacturer in Germany that offers metal wire mesh, filter elements and process technology from a single source.

Everything from a Single Source

PACO supports you at every stage of your projects, from conception to production and commissioning. We offer a comprehensive range of solutions that cover all aspects of your requirements:

Engineering

Our engineering expertise enables us to develop customized solutions for demanding filtration and separation processes. From concept to implementation, we support you in all project phases to ensure maximum efficiency and performance.

Metal Wire Mesh

We produce high-quality metal wire mesh for a wide range of applications. With decades of experience, we guarantee precise manufacturing and top quality "Made in Germany."

Filter Elements

Our filter elements are perfectly tailored to your specific requirements and ensure efficient filtration processes. With our extensive expertise, we offer durable and reliable solutions for a wide range of industries.

Systems & Plant Construction

Our subsidiary, HETA Verfahrenstechnik, implements complete, highly specialized filtration systems and plants that meet the highest industrial standards.

Documentation

PACO provides detailed documentation for each product and system upon request, ensuring you always have the necessary information to successfully pass audits and quality controls.

Always the Right Choice

- Over 70 years of expertise
- Customized solutions to mass production
- Product Safety & Conformity Representative (PSCR)
- Made in Germany
- DIN EN ISO 9001:2015
- DIN EN ISO 14001:2015 for Environmental Management
- DIN EN ISO 3834-3 for Welding Companies (Element Construction)
- AD 2000 Code - HP 0 / DIN EN 13445 / DIN EN 13480 in conjunction with DIN EN ISO 3834-2 (Container Construction)*
- ASME Sec. VIII Div. 1 - U-Stamp*
- WHG - specialist company according to the Water Resources Act*

TÜV SÜD ISO 14001

* Valid for HETA Verfahrenstechnik GmbH

Contact