PERMIONICS®
Customized membrane solutions

CELEBRATING 46 YEARS OF EXCELLENCE

High Performance Architecture RO Membrane Elements

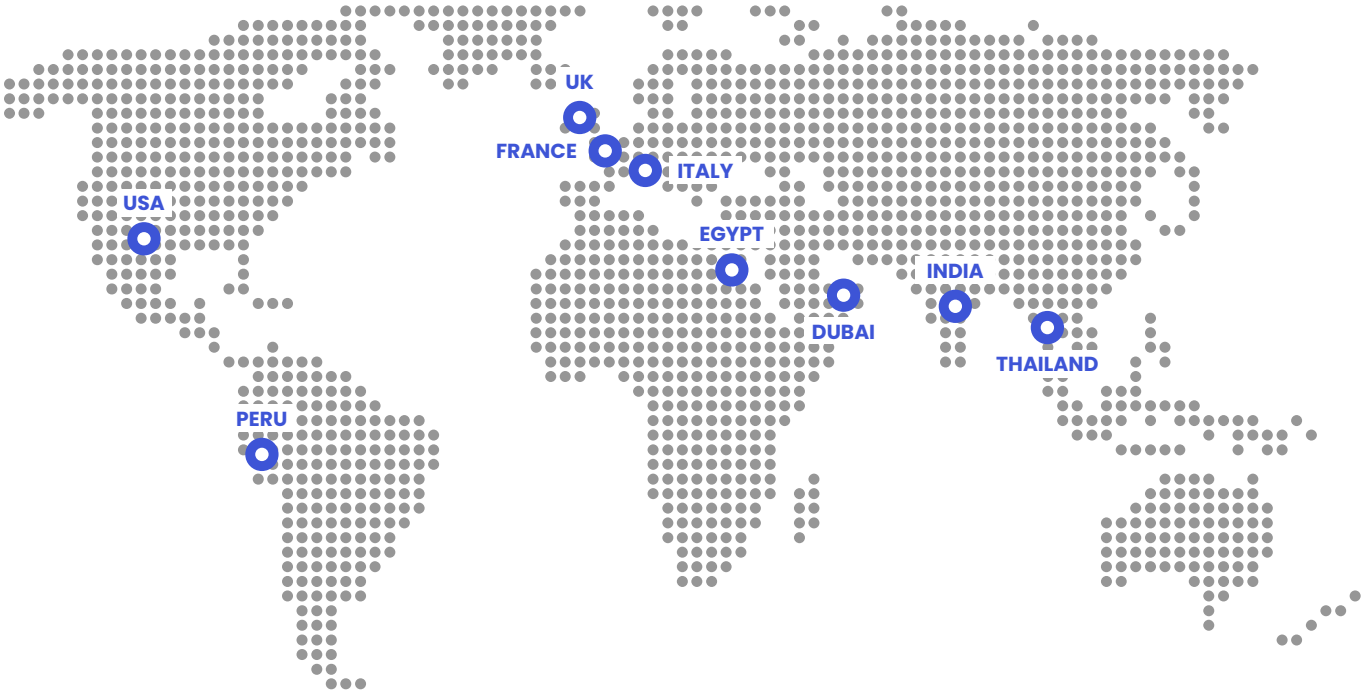
Legacy . Expertise . Reliability . Innovation . Quality

ABOUT
PERMIONICS

With a deep, 50+ year heritage as an Indian, liquid-liquid separation company, Permionics offers indigenously developed, custom membrane solutions for industrial use. Pioneering technological advancements in the space for decades, we are today a key global player providing end-to-end total industrial water management solutions, with a promise of high-quality and a customer-centric approach.

Our specialized membranes and membrane-based solutions form key components of world-class industrial equipment, with extensive application in industries such as pharmaceutical, herbal-based nutraceuticals, bioprocessing, fisheries, soy production, food & beverage, oil & gas, textiles, semiconductors, solar energy, sugar processing, inks dyes & pigments production, etc.

Working with an agile, design-thinking mindset, our specialists collaborate with customer teams to solve problems through technological innovation. We believe in moving fast, and delivering value while keeping costs efficient and product quality top-notch. This agile approach helps customer businesses get a competitive edge, and stay ahead of the curve.



By offering sustainable, cost-effective solutions for a wide range of industrial applications - we play a crucial part in reducing their carbon footprint and taking an environmentally responsible approach to business.

We take immense pride in the fact that all our membranes are designed and developed in India, by Indian engineers and innovators, reflecting our commitment to contributing to the country's economic growth and self-sufficiency. Our operations are rooted in the rich diversity and innovation that our country has to offer.

By manufacturing our products locally, we not only create job opportunities but also support the skill development and prosperity of the communities around us.

"From Sheet casting to rolling, all our membranes are proudly manufactured in India at our state of the art facility in Vadodara, India."

PRODUCTS – MEMBRANES

PERMIONICS
HPA RO MEMBRANES

All our RO (Reverse Osmosis) membranes are reinforced with cutting-edge ***HPA (High Performing Architecture) Technology***, that not only improves membrane performance and output purity but also enhances long-term durability amounting to substantial cost-savings and minimizes environmental impact.

Our membranes have extensive uses across a spectrum of applications including potable drinking water, boiler feed water, wastewater treatment, surface water treatment, industrial process water, seawater desalination, electronic rinse water, agricultural irrigation, and pharmaceutical industries. The HPA technology gives our clients a key benefit, in comparison to any other membrane in the market, enabling them to achieve varying degrees of product purity, at phenomenal cost advantages.

Permionics has a state-of-the-art, full-fledged casting and coating facility as well as multiple spiral winding facilities within India - with the ready capacity to support customers with the right membrane solutions, perfectly suited to their industry's needs.

HIGHLIGHTS

- *Unique, Performance-enhancing HPA Coated Reverse Osmosis Membranes, developed by Permionics R&D*
- *Integrated membrane and system manufacturing capabilities*
- *Manufacturing of flat sheet and spiral wound elements*
- *Tailormade systems that fit your process, industry standards, and budgets*
- *Customised membrane solutions*
- *200+ membrane processes and applications*
- *In-house & onsite pilot plant trails*

Head Office:
3/29 – 4/19, B.I.D.C. Gorwa, Vadodara – 390016 Gujarat, India
contact@permioncs.com | www.permionics.com

LF

Low-fouling, High-rejection HPA-enhanced RO for wastewater management

Our cutting-edge HPA (High Performing Architecture) technology, coupled with advanced membrane materials and innovative Turboclean design tackles the industry -wide challenge of membrane fouling, resists contaminant accumulation, and delivers high-performing, resilient membranes that stand the test of time.

- Enhanced with HPA, hydrophilic and high-rejection properties are engineered to exhibit a strong affinity for water molecules, making them an excellent choice for water filtration, purification, and treatment applications.
- HPA coupled with turboclean reverse osmosis design offers incredibly effective results on feeds ~50 NTU with high COD close to 2000 PPM.
- Biostatic properties deter the growth of microorganisms, such as bacteria, algae, and fungi, on membrane surfaces.
- Reduced CIP frequency by at least 50%
- Smooth surface, near-neutral charge, low scale absorption nature of membrane provides superior, longer life and better cost-economy
- FRP-wrapped membranes offer improved membrane performance, corrosion resistance, high-pressure resistance, versatility, and longevity across applications.

VARIANTS:

HPA RO-8040-LF-WW

HPA RO-4040-LF-WW

Features	Advantages	Applications/Uses
◉ HPA Hydrophilized Coated Reverse Osmosis Membranes ◉ High Rejection ◉ FRP Wrapped ◉ Turboclean Design ◉ Biostatic properties ◉ Near-neutral Charge ◉ Smooth surface	◉ Low-fouling ◉ High-performance filtration ◉ Sturdy, long-lasting, low maintenance ◉ Cost-effective ◉ Highly versatile & customizable	Our membranes cater perfectly to industries grappling with demanding water and wastewater conditions. They provide advanced membrane solutions that ensure effective results for high-turbidity feed water, a heightened fouling resistance, and minimal energy consumption. ◉ High COD wastewater recycling ◉ STP water recycling ◉ High fouling suface water filtration, purification & treatment.

BW

Specialized HPA-enhanced RO for Brackish Water

Brackish water, with its unique blend of salinity and impurities, presents a distinct challenge in water treatment. Conventional methods often fall short of delivering the required purity levels. This is where our specialized Reverse Osmosis (RO) technology steps in.

- Designed specifically for brackish water conditions, specialized RO systems offer a targeted high-rejection solution for effective desalination and purification.
- Our specialized HPA-coated RO membranes are engineered to reduce the settling of scaling salts and other contaminants, therefore, allowing water molecules to freely pass through while rejecting dissolved salts and impurities, resulting in water that meets or exceeds quality standards, at lower energy consumption.

VARIANTS:

HPA RO-8040-BW-400
HPA RO 8040 BW - 440
HPA RO-4040-BW

Features	Advantages	Applications/Uses
◉ HPA Hydrophilized Coated Reverse Osmosis Membranes ◉ High Rejection ◉ FRP Wrapped ◉ Turboclean Design ◉ Biostatic properties ◉ Near-neutral Charge ◉ Smooth surface	◉ High-performance filtration ensures consistent water quality, in varying brackish feeds ◉ Sturdy, long-lasting, low maintenance ◉ High chemical tolerance and biostatic properties ◉ Cost-effective	These membranes are intricately designed to address the challenges of brackish water sources, accounting for their varying levels of salinity, mineral composition, and contaminants. ◉ Potable water ◉ Pure water ◉ Process water ◉ Industrial water demineralization ◉ Food and beverage ◉ Chemical processing ◉ Metal Finishing ◉ Electronics

LP

Specialized HPA-enhanced Ultra Low-pressure RO

Our uniquely designed Low-Pressure LP- RO membranes can operate at lower water pressure differentials, <1000 PPM TDS - as compared to regular RO membranes, making them more energy-efficient and cost-effective. With a range of possible applications from drinking water purification, to point-of-use systems, and small-scale industrial processes.

These membranes effectively remove a wide range of contaminants from water, including dissolved salts, minerals, heavy metals, and organic compounds. This results in high-quality, purified water suitable for drinking and various industrial processes.

Further enhanced with our cutting-edge HPA technology, these first-rate membranes promise longevity, durability, and excellent performance.

- Ultra low-pressure membrane elements for low TDS feed waters, < 1000 PPM
- Can operate at half the pressures of standard BW RO membranes while keeping rejection levels intact
- Provides superior performance compared to similar offerings in the market.
- Reduced energy consumption by 25%

VARIANTS:

HPA RO-8040-W-LP-400

HPA RO-4040-W-LP

Features	Advantages	Applications/Uses
◉ HPA Hydrophilized Coated Reverse Osmosis Membranes ◉ FRP Wrapped ◉ Turboclean Design ◉ Biostatic properties ◉ Near-neutral Charge ◉ Smooth surface	◉ High-performance filtration ensures consistent water quality, even with low pressure feeds ◉ Sturdy, long-lasting, low maintenance ◉ High chemical tolerance and biostatic properties ◉ Cost-effective ◉ Low energy consumption ◉ Low environmental impact	These membranes are particularly designed keeping in mind the unique challenges of low-pressure water feeds in smaller industries or remote locations. They can effectively eliminate dissolved salts, minerals, heavy metals, and organic compounds, at low water pressures. Applications include: ◉ Low TDS water <1000 PPM ◉ Drinking water ◉ Point-of-use systems ◉ Small-scale industrial processes

HPA HR

Specialized HPA-enhanced, High Rejection RO Membranes For Waste Water

VARIANTS:

HPA RO HR-8040-LF-WW
HPA RO HR-4040-LF-WW

Designed to handle the unique challenges presented by wastewater RO reject feeds, our HPA-enhanced RO membranes offer an excellent low-fouling, high rejection and high-performance alternative to regular RO. These sturdy membranes can withstand the high salt content of RO rejects while upholding the filtration performance in the long term.

Surface-treated with our cutting-edge HPA technology, they deliver low-fouling, enhanced durability, and better cost-economics compared to any other RO in the market.

- ≈ High permeate (freshwater) recovery from wastewater RO rejects, with high rejection of salts
- ≈ HPA-enhancement to deliver higher durability and resistance to fouling
- ≈ High BOD and COD tolerance
- ≈ Designed to minimize energy consumption while maintaining high performance
- ≈ Sturdy built, leading to longer membrane lifespans and reduced replacement costs
- ≈ Energy efficient and low environmental impact

Features	Advantages	Applications/Uses
◉ HPA Hydrophilized Coated Reverse Osmosis Membranes ◉ High Rejection ◉ FRP Wrapped ◉ Turboclean Design ◉ Biostatic properties ◉ Near-neutral Charge ◉ Smooth surface	◉ High-performance filtration ensures consistent water quality, even with low pressure feeds ◉ Sturdy, long-lasting, low maintenance ◉ High chemical tolerance and biostatic properties ◉ Cost-effective ◉ Low energy consumption ◉ Low environmental impact	Built to withstand the harsh wastewater RO rejects concentrations these reverse osmosis membranes are durable, sturdy and high on performance. Enhanced with HPA technology - they deliver consistent results for longer durations, bringing down overall costs. Applications include - ◉ High wastewater TDS RO Rejects TDS >10,000 PPM

SW

Specialized, High Rejection RO Membranes For Sea Water

The efficiency of desalination systems heavily depends on the quality and performance of the membranes. Designed particularly to meet the unique, exacting demands of seawater desalination, this variety of RO membranes offers a cutting-edge low-fouling, high-rejection option enabling the conversion of seawater into freshwater for drinking, agriculture, and industrial use.

Our BARC-certified membranes can achieve salt rejection rates of 99% or higher, ensuring the production of clean drinking and industrial water. They are sturdy and can withstand the high salt content of seawater feeds while upholding the filtration performance in the long term. Further, addressing one of the most imposing environmental challenges of brine disposal - our membranes bring categorical innovation to reduce the negative impact whiledelivering fresh, usable water for a variety of implementations.

Surface-treated with our cutting-edge HPA technology, they deliver low-fouling, enhanced durability, and better cost-economics compared to any other seawater-specific RO in the market.

VARIANTS:

- SWRO-8040-400
- SWRO- 4040

- ≈ BARC Certification of seawater membrane
- ≈ High permeate (freshwater) recovery from seawater with high rejection of salts
- ≈ Designed to minimize energy consumption while maintaining high performance
- ≈ Sturdy built, leading to longer membrane lifespans and reduced replacement costs
- ≈ Energy efficient and low environmental impact

Features	Advantages	Applications/Uses
◉ BARC-Certified, Reverse Osmosis Membranes ◉ FRP Wrapped ◉ High Rejection	◉ High-performance filtration ensures maximum effective brine removal, even without pretreatment ◉ Sturdy, long-lasting, low maintenance ◉ High salt, chemical tolerance ◉ Cost-effective	Our membranes can achieve salt rejection rates of 99% or higher. Our focused and ongoing R&D has led to improvements in membrane design and materials suitable for filtering and purifying seawater feeds effectively.

Features	Advantages	Applications/Uses
	◉ Low energy consumption ◉ Low environmental impact	These RO membranes are durable, sturdy, and high-performance, and can deliver outstanding results while minimizing the negative impact on the environment. Without the need to rely on pretreatment processes, the cost economics as well works better, in the long term. Applications include: ◉ Untreated Seawater with high salt content

MODELS AVAILABLE

Size	Model Name	Permeate Flowrate (GPD)	Maximum Salt Rejection (%)	Effective Area (Sq ft)	Test Condition	Application (Feed water: TDS)
8″	HPA RO-8040-LF-WW	10500	99.6	400	225 psi 2000 ppm NaCl at 25°C	Suggested for < 10,000 PPM
4″	HPA RO-4040-LF-WW	2200	99.6	85	225 psi 2000 ppm NaCl at 25°C	Suggestedfor < 5,000 PPM
8″	HPA RO HR-8040-LF-WW	7000	99.6	400	400 psi 10000 ppm NaCl at 25°C	Suggested for > 10,000 PPM
4″	HPA RO HR-4040-LF-WW	1950	99.6	80	400 psi 10000 ppm NaCl at 25°C	Suggested for > 10,000 PPM
8″	HPA RO-8040-BW-400	11000	99.8	400	225 psi 2000 ppm NaCl at 25°C	Suggested for < 10,000 PPM
8″	HPA RO-8040-BW-440	12100	99.8	440	225 psi 2000 ppm NaCl at 25°C	Suggested for < 10,000 PPM
4″	HPA RO-4040-BW	2000	99.7	85	225 psi 2000 ppm NaCl at 25°C	Suggested for < 5,000 PPM
8″	HPA RO-8040-W-LP-400	11000	99.3	400	150 psi 1500 ppm NaCl at 25°C	Suggested for < 1,500 PPM
4″	HPA RO-4040-W-LP	2600	99	85	150 psi 1500 ppm NaCl at 25°C	Suggested for < 1,500 PPM
8″	SWRO-8040-400	7000	99.8	400	800 psi 32000ppm NaCl at 25°C	Suggested for > 25,000 PPM
4″	SWRO-4040	1950	99.4	80	800 psi 32000ppm NaCl at 25°C	Suggested for > 25,000 PPM