

Nitto

HYDRANAUTICS
Nitto Group Company

The **leader** of Integrated Membrane Solutions
for water treatment in the **Oil and Gas** industry



OFFSHORE PRODUCTION

OIL SANDS



HYDRAULIC FRACTURING



CONVENTIONAL PRODUCTION, IOR & EOR



DOWNSTREAM OIL & GAS

Serving Oil & Gas Markets

Water treatment requirements in the Oil and Gas industry are increasingly complex, varying widely from customer to customer and from region to region. Hydranautics' Integrated Membrane Solutions provide the solutions required to economically meet these challenges and to benefit our customers' bottom line.

Hydranautics is one of the pioneering membrane technologies companies in the Oil and Gas industry and we look forward to continuing to provide the high quality sophisticated solutions that the industry requires.

OIL SANDS

CONVENTIONAL PRODUCTION, IOR & EOR

HYDRAULIC FRACTURING

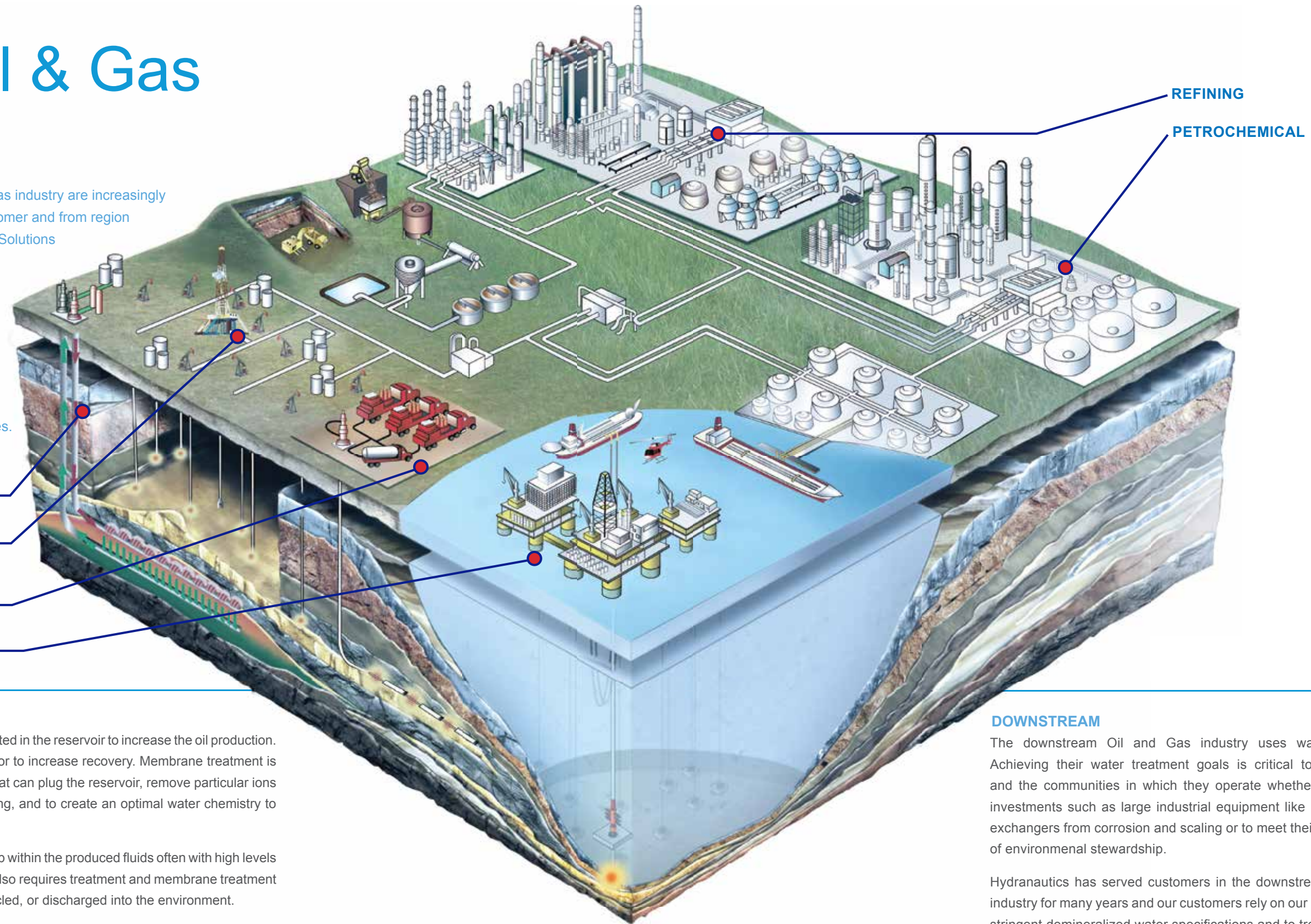
OFFSHORE

UPSTREAM

In the upstream Oil and Gas industry, water is injected in the reservoir to increase the oil production. This water is treated to protect these assets and/or to increase recovery. Membrane treatment is often required to remove fine particulate matter that can plug the reservoir, remove particular ions to decrease the risk of scale formation and souring, and to create an optimal water chemistry to increase the reservoir's productivity.

Water is also a byproduct of production, showing up within the produced fluids often with high levels of oil, solids, and dissolved materials. This water also requires treatment and membrane treatment is used when the water needs to be reused, recycled, or discharged into the environment.

Hydranautics' products are used to treat injection and produced waters for applications including conventional production, thermal production, IOR/EOR, and hydraulic fracturing. Our Oil and Gas customers enjoy access to our broad and high quality product line that is customized to meet the specific requirements of the industry.

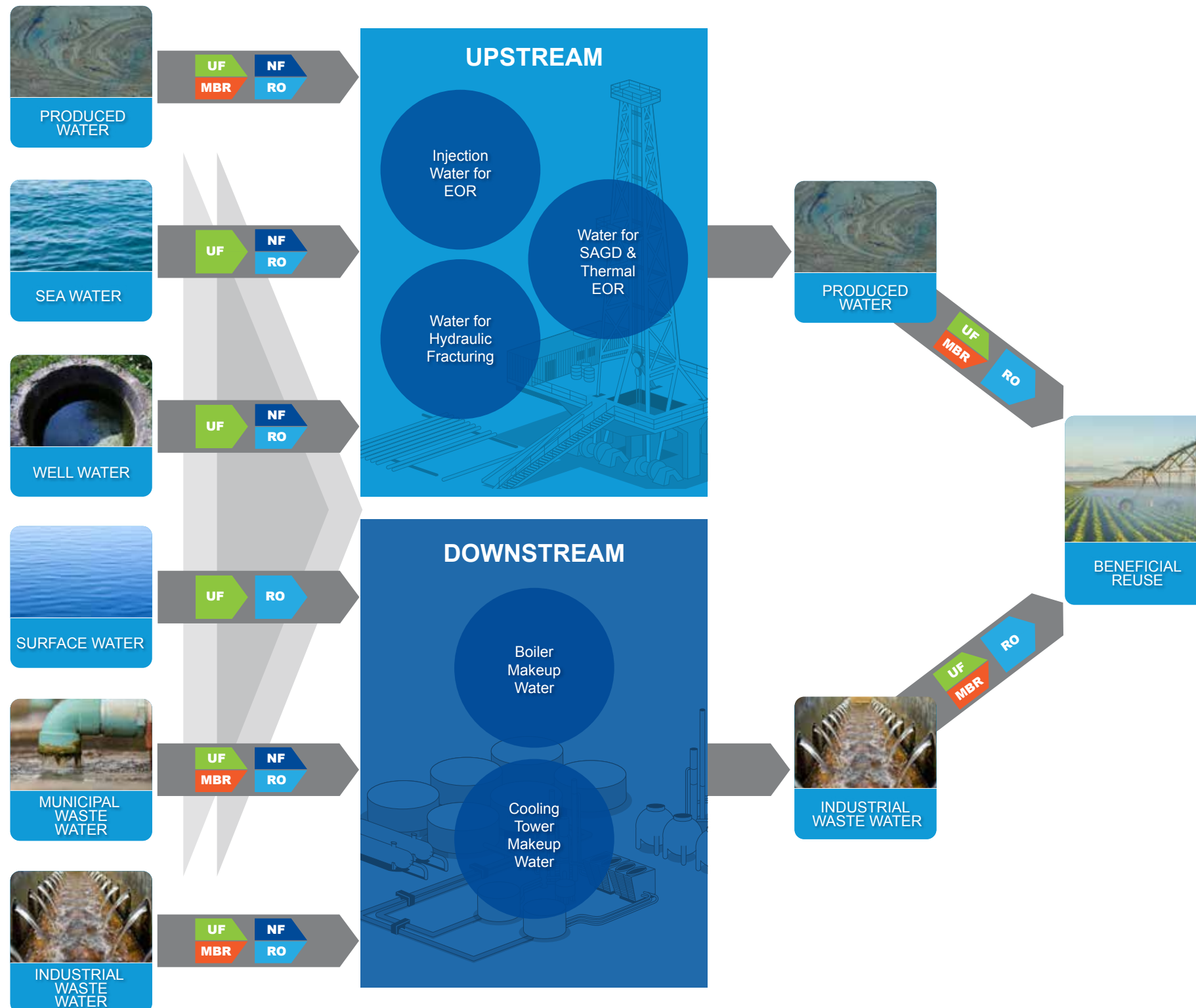


DOWNSTREAM

The downstream Oil and Gas industry uses water extensively. Achieving their water treatment goals is critical to our customers and the communities in which they operate whether it is to protect investments such as large industrial equipment like boilers and heat exchangers from corrosion and scaling or to meet their responsibilities of environmental stewardship.

Hydranautics has served customers in the downstream Oil and Gas industry for many years and our customers rely on our products to meet stringent demineralized water specifications and to treat waste waters with high levels of organic and inorganic contaminants. Refineries and petrochemical plants often utilize membrane processes and our Integrated Membrane Solutions provide a valuable single source for our customer's required solutions.

Integrated Membrane Solutions to Meet the Needs of the Oil and Gas Industry



ULTRAFILTRATION AND MEMBRANE BIOREACTOR

Hydranautics offers a complete range of UF solutions for pretreatment and post-treatment of feed water, wastewater and produced water for onshore, offshore, and subsea applications. These products are used in a variety of applications such as pretreatment to sulfate removal NF membranes, removal of oil and suspended solids from produced water, and for the reduction of organics in industrial wastewater or wastewater from LNG production. Our product line is customized for the industry to reduce weight and footprint and to operate in a large range of temperatures and pressures. It is also extensive, ranging in the membrane material, pore size, and form factor.

NANOFILTRATION AND REVERSE OSMOSIS

Hydranautics has been a leader in Nanofiltration and Reverse Osmosis technologies throughout the history of these technologies. These technologies are core to our business and they are increasingly vital to oil and gas industry globally. Desalination technologies are used for a variety of applications in the oil and gas industry from sulfate removal and tailoring water chemistry for IOR/EOR to desalination of produced water or industrial waste water for recycle and discharge to the environment. The breadth of our product line allows our customers the highest level of flexibility. Our customized product line for the oil and gas industry gives our customers the ability to operate at high temperatures, reduce weight, space, and downtime and to maximize the return on their investment.

SERVICE AND SUPPORT

Hydranautics has a global support structure capable of addressing urgent customer needs including:

- Engineering assistance for system design
- Full laboratory capabilities for membrane autopsy and analysis
- Lab and field testing capabilities
- Global field support including engineers qualified to support offshore operations
- System troubleshooting

INTEGRATED MEMBRANE SOLUTIONS

Ultimately, partnering with Hydranautics offers value and peace of mind to our oil and gas customers around the world. When customers require specific solutions to meet their specific needs, our capability to offer a single source of technical expertise to integrate different membranes has proven to deliver the right solution to meet these unique challenges. We take pride in creating value for our customers through offering the most comprehensive, flexible, innovative, and highest quality products in the market allowing our customers around the world to focus on meeting their business goals.

MISSION:

Create value for customers through innovation

ABOUT HYDRANAUTICS

Since our founding in 1963, Hydranautics has been committed to the highest standards of technology research, product excellence and customer fulfillment. Hydranautics entered the Reverse Osmosis (RO) water treatment field in 1970 and is one of the most respected and experienced firms in the membrane separations industry. We joined the Osaka, Japan based Nitto Denko Corporation in 1987 which was founded in 1918 and now has 117 companies in more than 20 countries, with over 30,000 employees worldwide. Our alliance with this global film industry giant boosts Hydranautics to a superior level of technological sophistication, product performance and customer response.

We are not simply product manufacturers; we are your membrane technology partners. As the leaders of high quality membrane solutions, we believe our obligations extend beyond manufacturing and selling our products. Our skilled staff of technicians, engineers and service professionals assists in designing, operating and maintaining a robust, reliable and efficient membrane system to meet your requirements and exceed your expectations. Our support is offered from early stage conceptual design and engineering to start-up and maintenance, no matter the location globally whether it is on land or offshore.

OCCUPATIONAL SAFETY AND HEALTH POLICY

Our goal is to achieve zero accidents and injuries under the slogan **"We Place Safety Before Everything Else"**. Hydranautics will work together to firmly establish a safe and healthy work place for all employees by observing company rules. In order to realize our policy of "Zero-Accidents and Injuries", we will carry out the following safety principles.

- We have a strong belief that all accidents are preventable.
- We will always consider the consequences of unsafe behaviors and visualize any potential hazards.
- The first priority is to take accident prevention measures. We will make continual efforts to improve our ability to identify risks.
- We will establish behavior in the workplace so that safety and peace of mind are the primary considerations.
- We will always take actions to avoid risks.

QUALITY POLICY

Hydranautics is committed to continuous improvement and delivering best-in-class quality products and services that meet or exceed customer needs in the pursuit of 100% customer satisfaction.

We know the importance of water treatment processes to our customers in the Oil and Gas industry whether for production enhancement or environmental stewardship and we strive to supply our customers with the highest quality products in the market. Hydranautics is the first membrane manufacturer to meet the highest quality industry standards with ISO 9001 Quality System Certification and we test every full scale element that leaves any of our factories, giving each product full traceability.



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● Manufacturing Facilities

● Sales, Service and
Technical Offices

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