

LD Technology®

Membrane Technology Evolved



LD Technology®

Innovative Low Fouling Technology for RO Membranes

When high performance is demanded under challenging conditions, Hydranautics' low differential LD Technology® membranes offer excellent performance with conventional pre-treatment. They have set a new standard for consistent performance with lowest capital and operating costs.

Key Features:

Enhanced Membrane Chemistry

- High and stable salt rejection

Innovative Thicker Spacer Design

- Reduced pressure differential
- Reduced fouling
- Enhanced cleaning performance

Proprietary Vented Seal Carrier

- Eliminate pressure shocks during startups

Applications:

- Boiler makeup water for power generation
- Ultrapure water for semiconductor manufacturing
- Ultrapure water for pharmaceutical industries
- Surface water and waste water sources with high fouling potential
- Zero Liquid Discharge (ZLD) / HERO process



Benefits of LD Technology®

High and Stable Salt Rejection

- Produces highest permeate quality
- Salt rejection is maintained under high pH operation and cleanings; thus achieving longer membrane life

Reduced Pressure Differential

- Reduces feed pressures and power consumption; thus saving energy costs and decreasing carbon footprint of the system

Reduced Fouling

- Innovative feed spacer design prevents colloidal and particulate fouling reducing cleaning frequency

Enhanced Cleaning Performance

- Innovative thick feed spacer design cleans membranes effectively; thus reducing cleaning efforts and costs

Eliminate Pressure Shocks during Startups

- Patented seal carrier air vents prevent membrane damage due to pressure shocks by releasing air quickly during startups

Hydranautics' Product Offerings with LD Technology®

CPA Membranes with LD Technology®

Hydranautics' CPA membranes are the trusted industry standard in high purity applications. They provide the highest salt rejection rates in the industry. The **CPA5**, **CPA6** and **CPA7** membranes are available with the low differential LD Technology®. They are useful where high purity water is critical like in power generation, semiconductor and pharmaceutical industries.



ESPA Membranes with LD Technology®

Hydranautics' energy-saving ESPA membranes are used in a wide range of water treatment applications. The **ESPA2** and **ESPA4** membranes are available in the LD variant using LD Technology®. ESPA membranes are useful in treating wastewater, bottled water for the F&B industry and in treated sewage effluent (TSE) applications.



SWC Membranes with LD Technology®

The SWC membranes offer a consistently pure end-product with lowest energy consumption at varying levels of seawater salinities worldwide. The **SWC4**, **SWC5** and **SWC6** membranes are available with the low differential LD Technology®. They are useful in conventional and hybrid seawater desalination plants; and in boron reduction for potable and agricultural water.



LFC Membranes with LD Technology®

LFC membranes are innovative low fouling membranes which combine the attributes of a neutrally charged surface with hydrophilicity to achieve the lowest colloidal fouling in the most demanding feed water conditions. **LFC3** membranes using LD Technology® are useful in treating municipal and industrial wastewater with organic fouling potential.



Nitto

Innovation for Customers

HYDRANAUTICS

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About Hydranautics

Since our founding in 1963, Hydranautics has been committed to the highest standards of technology research, product excellence and customer fulfillment. Hydranautics 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 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 assist in designing, operating and maintaining a robust, reliable and efficient membrane system to meet your requirements and exceed your expectations.

Contact us to help us understand your unmet needs so that we can develop tailored solutions for you.