
fileder
EXPERTS IN FILTRATION
Pure Water Membranes
by Hydranautics
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Introducing Hydranautics

Hydranautics uses state-of-the-art technology to manufacture a range of high-performance membrane products, making them one of the global leaders in membrane technology.

Nitto Denko Corporation, Hydranautic's parent company, is Japan's leading diversified materials manufacturer with the technical expertise to add various functionality to sheets, films and other materials using a range of technologies.

Hydranautics started in the RO water treatment field in 1980, becoming part of the Nitto Group company in 1987. With over 50 years experience combined and access to Nitto's knowledge base and advanced technology, Hydranautics is able to produce high quality, integrated membrane solutions by using cutting-edge polymer technology.

Research and Development

Hydranautics continues to produce effective and innovative membrane products for the water treatment industry by utilising two research and development centres based in the USA and Japan.

Multi-location Manufacturing Facility

To meet growing global demand in an efficient and timely manner, Nitto Global Membrane Division has three manufacturing locations; USA, Japan and China.

Worldwide Manufacturing

The Nitto Global Membrane Division consists of the Hydranautics headquarters in the USA, a membrane manufacturing plant in Japan and an assembly facility in China, in addition to a network of offices and warehouses.

Oceanside, CA, USA
Founded: 1963

Shiga, Japan
Founded: 1986

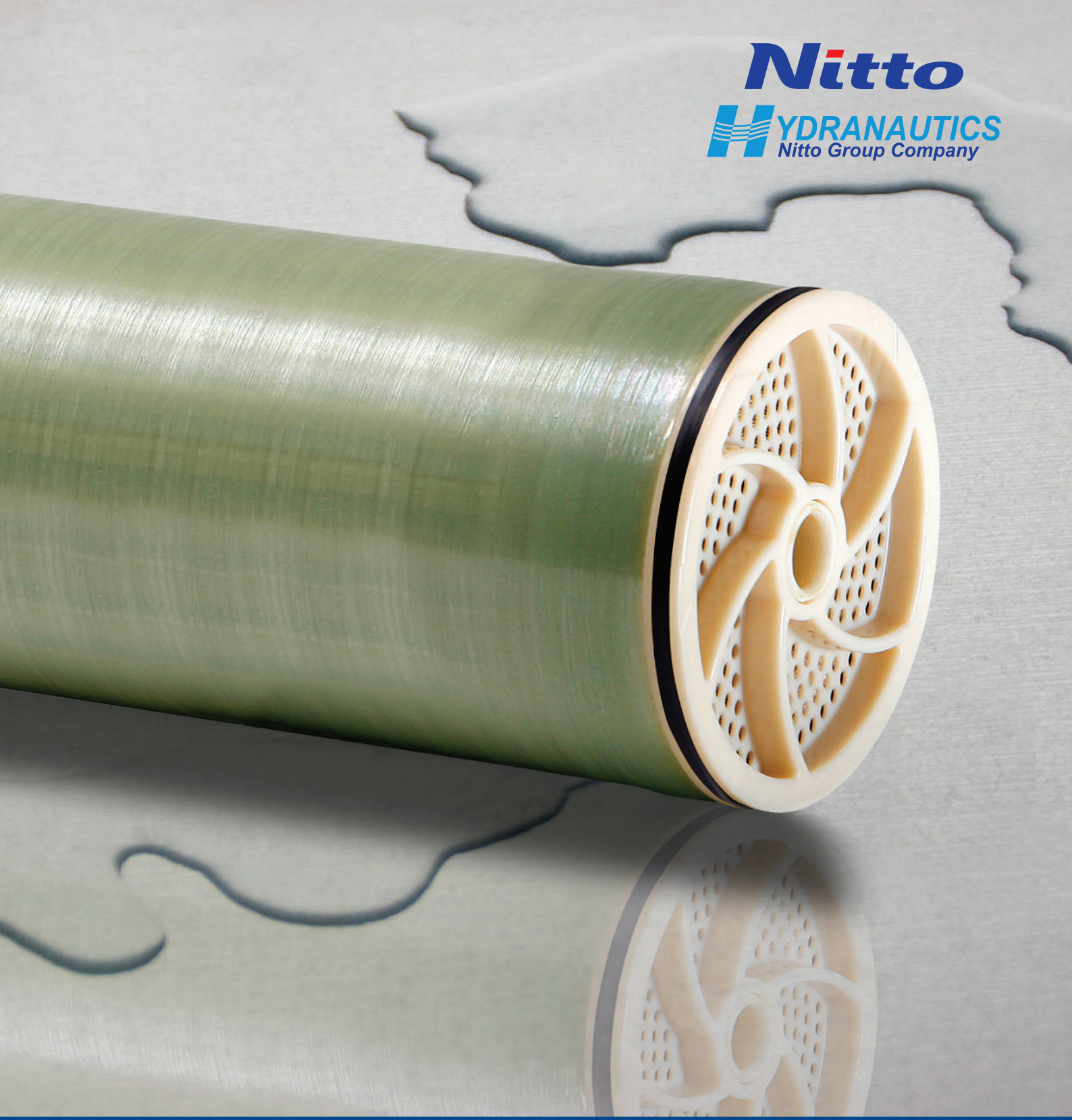
Shanghai, China
Founded: 2001

System Projection Software

IMSDesign (Integrated Membrane Solutions Design) is an advanced sizing tool capable of quickly and accurately designing and analysing membrane-based systems.

Using IMSDesign Fileder can give users complete control to compare and analyse the information used in membrane selection and system design.

This control assures full client confidence in the projected performance of Hydranautics membrane.



8" 8040 Membranes

26.3-34.7 LPM

Used to treat water from virtually any water source, 8" membranes are used in purification and desalination systems as a reliable solution to high production and stringent water quality requirements. Benefiting from decades of research and development, Hydranautics membranes continue to lead the market.

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8" Membrane elements continuously meet and satisfy the increasing demands of the water treatment industry through exceptional product quality, outstanding performance and with some of the highest salt rejection rates in the industry.

The Next Generation Membrane CPA7

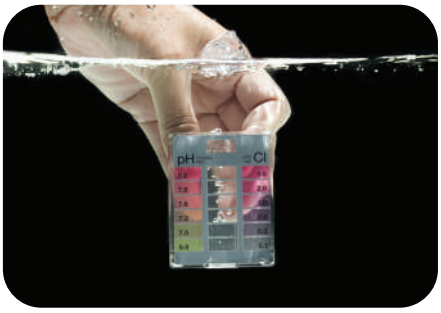
The CPA7 series is the newest addition to the CPA range utilising the latest manufacturing processes to deliver the highest salt rejection in the industry. These ultra-high rejection membranes are perfectly balanced delivering high permeate flow whilst fulfilling the purest water quality requirements.

Power Generation

Steam generation plants typically use RO quality water to reduce the amount of scale forming ions in the water, preventing the number of boiler blow down required to maintain the system.

Food and Beverage

Consistent and controllable water quality is paramount to ensure physical characteristics of end-product such as appearance, smell and taste are maintained at the required standard.

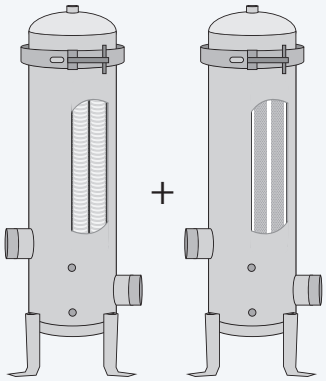


Brackish Water Treatment

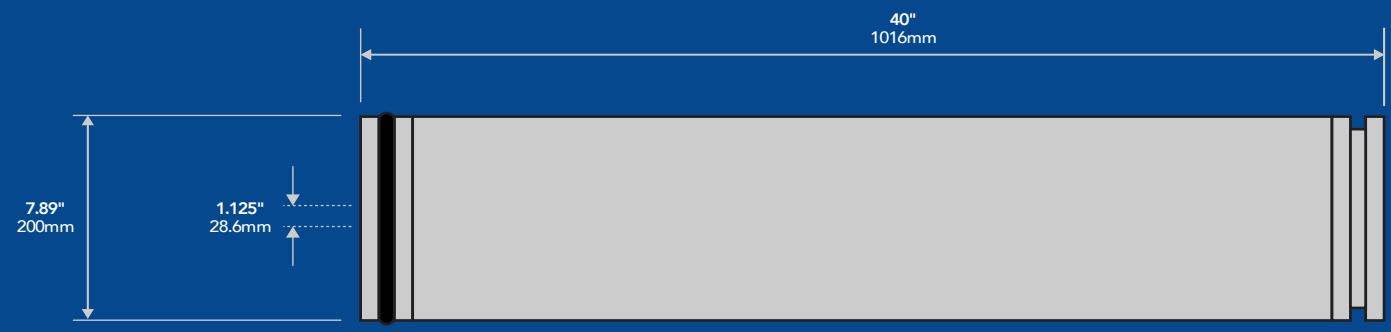
Private water supplies offer an economic source of water but are subject to varying quality. Fluctuations in contaminants such as iron, manganese and sulphate can be treated using specially designed LFC3-LD reverse osmosis membranes.

RO Pre-filtration

Effective pre-filtration is essential for many applications including RO, where it is key to maximise membrane life. RO membranes can be susceptible to premature fouling and oxidation damage from sediment, organics and chlorine which can significantly reduce pure water production and/or permeate quality. Typically feedwater with an SDI (Silt Density Index) less than 5 is recommended to ensure optimal membrane performance. To achieve this, Fileder recommends 5 micron sediment removal (SPECTRUM PSP). For chlorinated feedwater supplies, the SCB-S activated cabon block, purposely designed for high capacity SPECTRUM multi-round housings should be installed after the sediment stage to target chlorine and organics.



Dimensions



8" Membranes

Optimum Parameters

Using the latest Hydranautics projection software, Fileder has highlighted the performance of each membrane at its recommended feed parameters (marked with a ☆) as well as different operating criteria to show where each membrane can perform at its optimum as well as making individual element comparison easy and simple.

The following data is based on Hydranautics projection software at 15% recovery, 25°C feed water temperature and pH 6.5 - 7.

CPA7-LD

CPA7-LD is the latest generation product in the range delivering high permeate flows coupled with the highest salt rejection in the industry.

	Feed Concentration (PPM)		
	500	1000	1500 ★
Feed Pressure (bar)	14.5	15	15.5
Permeate Flow (LPM)	30.2	30.2	30.2
Rejection (%)	99.8	99.8	99.8

CPA7 MAX

The CPA7 MAX uses 440ft^2 of CPA7 membrane to produce an element which provides exceptional permeate flow rates and ion rejection.

	Feed Concentration (PPM)		
	500	1000	1500 ★
Feed Pressure (bar)	14.5	15	15.5
Permeate Flow (LPM)	33.2	33.2	33.2
Rejection (%)	99.8	99.8	99.8

ESPA1

The original low energy element, the ESPA1 has high permeability which means it can produce large volumes of high quality water from low TDS feed waters.

	Feed Concentration (PPM)		
	500	1000	1500 ★
Feed Pressure (bar)	9.5	10	10.5
Permeate Flow (LPM)	31.5	31.5	31.5
Rejection (%)	99.5	99.4	99.3

ESPA4 MAX

Maximising surface area in this high energy saving element, the ESPA4 MAX has one of the highest permeate production in the industry and is ideally suited where volume of product water is a priority.

	Feed Concentration (PPM)		
	500 ★	1000	1500
Feed Pressure (bar)	7	7.4	7.9
Permeate Flow (LPM)	34.7	34.7	34.7
Rejection (%)	99.1	99.0	98.8

Materials of Construction

Membrane Media
Composite Polyamide

Brine Seal
Ethylene Propylene (EPR-80)

Specification

Max. Applied Pressure
41.4 bar (82.7bar for SWC5-LD)

Max. Chlorine Concentration
< 0.1 ppm

Max. Operating Temperature
45°C

Max. Feedwater Turbidity
1.0 NTU

Max. Feedwater SDI
5.0

Max. Feed Flow
284 LPM

Max. Pressure Drop for Each Element
1.0 bar

Performance Technologies

High Rejection
Reduced salt passage for high purity requirements

High Flow/Production
Increased membrane durability and enhanced cleaning performance

Low Fouling
Lower colloidal fouling, lower differential pressure

Seawater
Engineered to treat high salinity feedwaters.

ESPA2-LD

ESPA2 membranes provide optimum salt rejection and permeate flows at a lower operating pressure than the CPA range. They are chosen when lower permeate TDS and lower feed pressures are required.

	Feed Concentration (PPM)		
	500	1000	1500 ★
Feed Pressure (bar)	9.4	9.9	10.4
Permeate Flow (LPM)	26.3	26.3	26.3
Rejection (%)	99.7	99.7	99.6

ESPA2-LD MAX

The first of its kind to combine LD technology in a 440ft^2 membrane, the ESPA2-LD MAX offers low feed pressure, low fouling and exceptional permeate production.

	Feed Concentration (PPM)		
	500	1000	1500 ★
Feed Pressure (bar)	9.4	9.9	10.3
Permeate Flow (LPM)	31.5	31.5	31.5
Rejection (%)	99.7	99.6	99.6

LFC3-LD

LFC3 membranes combine the attributes of a neutral surface charge and hydrophilicity, this provides significant reduction in fouling and increases the membrane's efficiency.

	Feed Concentration (PPM)		
	500	1000	1500 ★
Feed Pressure (bar)	14.5	15.0	15.5
Permeate Flow (LPM)	28.8	28.8	28.8
Rejection (%)	99.8	99.7	99.7

SWC5-LD

Utilising low differential LD technology, the SWC5-LD minimises colloidal fouling whilst providing optimum salt rejection and permeate flows from seawater fed systems.

	Feed Concentration (PPM)		
	16000	24000	32000 ★
Feed Pressure (bar)	36	46	55
Permeate Flow (LPM)	23.7	23.7	23.7
Rejection (%)	99.8	99.8	99.8

Test Conditions*

Operating Temperature
25°C

pH Range
6.5-7.0

Permeate Recovery
15%

*The specified performance is based on data taken after approximately 30 minutes of operation. Actual testing of elements may be done at conditions which vary from these exact values; in which case, the performance is normalised back to these standard conditions. Permeate flow for individual elements may vary ±15% from the value specified.

Packaging

Elements are enclosed in a sealed polyethylene bag containing <1.0% sodium meta-bisulfite solution and protected by a rigid outer box.

Available to purchase individually or as a pallet:
SINGLE QTY: 1 (16kg)
PALLET QTY: 16 (256kg)

Shelf Life
36 months from date of manufacture.
For General Storage Procedures refer to:
http://membranes.com/knowledge-center/technical-service-bulletin-tsb/