



# 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, Hydranautics'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 are 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





## 4" 4040 Membranes

5.3-6.2 LPM

Established as the industry standard size for small commercial applications, the 4040 range from Hydranautics offers a variety of technologies such as high rejection, low operating pressure and low

fouling properties. Each of these characteristics is engineered to suit the requirements of different markets.

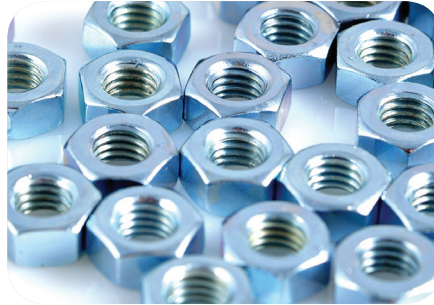


Since its initial development in the 1950's reverse osmosis has become the recognised solution to produce purified water. Now used globally, membranes are being installed into an abundance of markets such as aquatics, food and beverage, hydroponics and semiconductors.



### Glass Wash

Reverse osmosis provides a spot-free rinse, eliminating the need for chemical detergents and additives. Membranes are typically installed within integrated mobile systems.



### Finishing

Whether for rinsing and drying of conductive components or top-up water for plating baths, RO quality water is used extensively in the finishing industry.



### Pharmaceutical

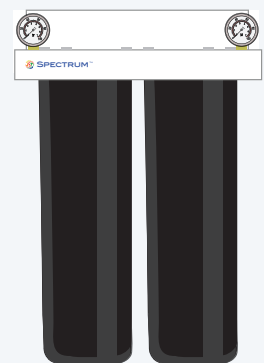
Ultra pure water is typically used in the pharmaceutical industry to control all aspects of potential contamination as small as specific salts, metals and other ions.

## Membrane Performance vs Price

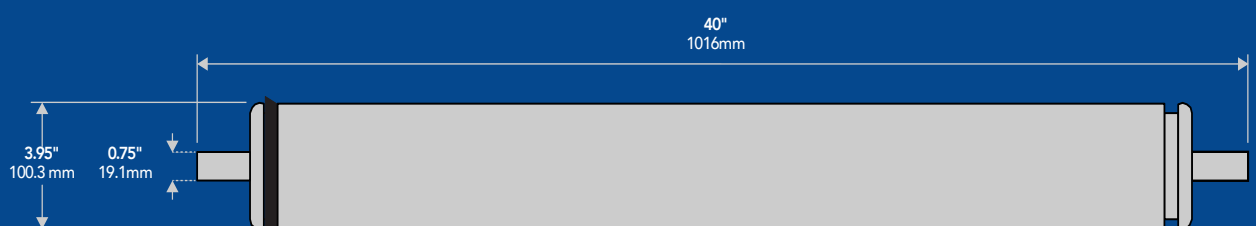
The decision on which membrane is most suited to an application should always be based on the performance of the element, however price can also be an influencing factor, sometimes causing users to sacrifice performance over cost. For this reason, Filerder has levelled the playing field making all but the innovative CPA7 and specialist LFC3 membranes the same price, ensuring your application can benefit from Hydranautics advanced technology.

## RO Pre-filtration

Effective pre-filtration is essential for many applications including RO, where it is key to maximise membrane life. Highly sensitive 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 specified for 4" membranes, Filerder recommends 5 micron 20" Large Diameter sediment removal (SPECTRUM PSP-5-20BB) followed by a high capacity activated carbon block for chlorine and organic protection (SCB-5-20BB).



## Dimensions



# 4" Membranes

## Optimum Parameters

Using the latest Hydranautics projection software, Filerder have 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.

Concentration (PPM)	
500	1500 ☆
14.9	15.4
5.8	5.8
99.5	99.5

## The Next Generation Membrane CPA7

The CPA7 series is the newest addition to the CPA range taking advantage of 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.

### CPA7-LD-4040

The CPA7 is a sixth generation membrane delivering ultra-high purity water even under challenging feedwater conditions. The CPA7-LD specifically is the perfect choice delivering the best combination of high rejection and high flow capability with the added benefit of LD Technology™ to minimise fouling.



	Feed Concentration (PPM)		
	500	1000	1500 ☆
Feed Pressure (bar)	14.5	15	15.5
Permeate Flow (LPM)	6.1	6.1	6.1
Rejection (%)	99.8	99.8	99.8



**Membrane Media**  
Composite Polyamide

**Brine Seal**  
Ethylene Propylene (EPR-80)



**Max. Applied Pressure**  
41.4 bar

**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**  
60 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

### ESPA2-LD-4040



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)	9.6	10.1	10.6
Permeate Flow (LPM)	5.3	5.3	5.3
Rejection (%)	99.7	99.6	99.6

### ESPA4-LD-4040



ESPA4 are the lowest feed pressure membranes in the range offering low energy consumption. This ultra-low operating pressure still delivers uncompromising high levels of salt rejection.

	Feed Concentration (PPM)		
	500 ★	1000	1500
Feed Pressure (bar)	6.8	7.3	7.8
Permeate Flow (LPM)	6.2	6.2	6.2
Rejection (%)	99.1	99.0	98.8

### CPA2-4040



CPA2 is a tried and tested product delivering the traditional balance between high permeate flow and high rejection at regular operating pressures of 15.5 bar.

	Feed Concentration (PPM)		
	500	1000	1500 ★
Feed Pressure (bar)	14.4	14.9	15.4
Permeate Flow (LPM)	5.8	5.8	5.8
Rejection (%)	99.6	99.6	99.5

### LFC3-LD-4040



LFC3 membranes combine the attributes of a neutral surface charge and hydrophilicity, providing significant reduction in fouling and increased membrane efficiency.

	Feed Concentration (PPM)		
	500	1000	1500 ★
Feed Pressure (bar)	14.5	15	15.5
Permeate Flow (LPM)	5.5	5.5	5.5
Rejection (%)	99.8	99.7	99.7

## 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  $\pm 15\%$  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 box:  
SINGLE QTY: 1 (4kg)  
BOX QTY: 4 (16kg)

### Shelf Life

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