

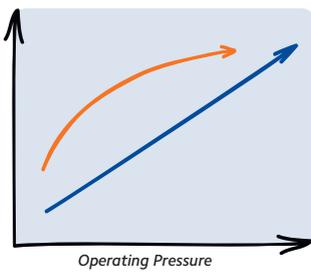
Introducing SPECTRUM Membranes

SPECTRUM uses state-of-the-art technology to manufacture a range of high-performance membrane products.

Factors that affect membrane performance

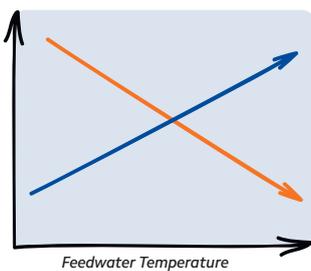
 **Permeate Production**
 **Rejection Rate**

Operating Pressure



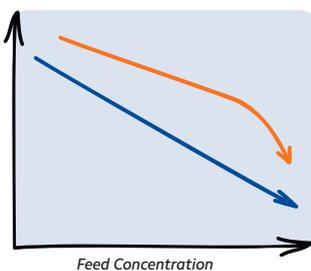
The amount of permeate water that an RO membrane will produce is directly affected by the operating pressure. As pressure increases the amount of permeate produced also increases along with the rejection rate to a certain point.

Feedwater Temperature



Feedwater temperature will have a dramatic effect on RO membrane permeate production and rejection rate. The higher the feedwater temperature the higher the permeate production and the lower rejection rate.

Feed Concentration



The higher the feedwater concentration the lower the permeate flow and % rejection rate of the RO membrane. Increasing the operating pressure can counter this effect.

ERO vs SRO

When it comes to choosing a membrane, it is important to consider the application requirements and the membrane's operating specifications. SPECTRUM's offering of commercial and industrial RO membranes has two ranges to provide a solution for a variety of application conditions.

ERO (High Production, Lower Pressure)

With an average rejection rate of 99%, the ERO range of membranes has been designed to deliver higher permeate flow rates in lower pressure applications. Whilst an optimum balance of performance is achieved at 10.3 bar, the ERO delivers exceptional performance at pressure as low as 6.9 bar, which is perfectly suited to tap water applications with a feed water concentration typically of 500 mg/l or less.

SRO (High Rejection)

For applications that demand higher permeate quality, the SRO range has been manufactured to deliver consistent permeate quality from higher concentration feed water sources up to 10,000 mg/l. Operating at 15.5 bar and with an average rejection rate of 99.5%, the SRO range is perfectly suited to industrial processes, such as boiler feed and microelectronics.

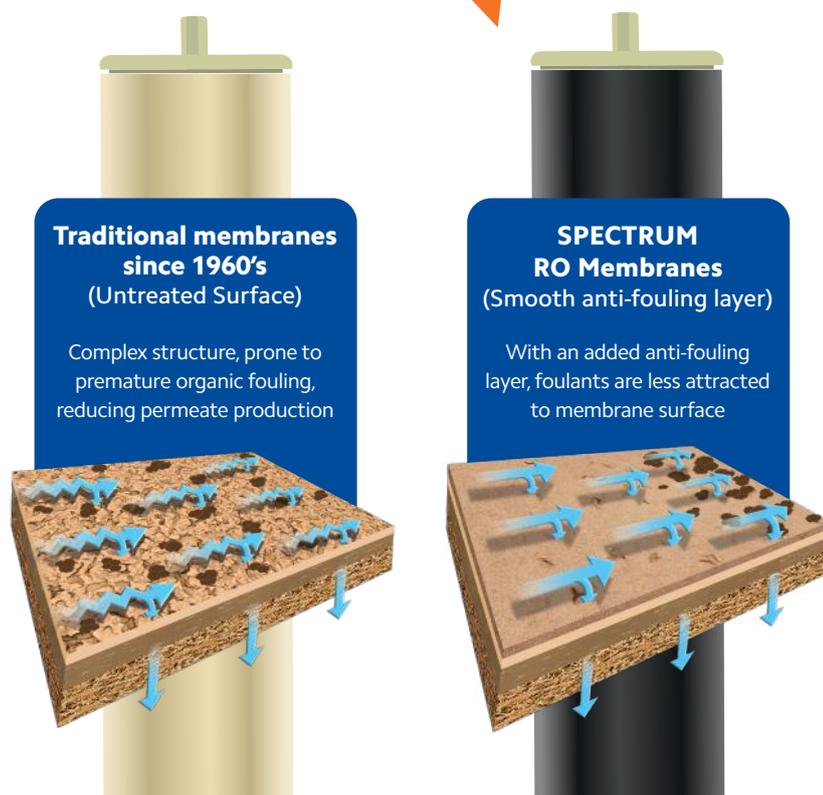
SPECTRUM Membrane Up Close



Media Innovation For a long life membrane

Reverse osmosis membranes are renowned for being extremely susceptible to both physical damage and plugging. The complex structure of a normal RO membrane can be prone to premature organic fouling, reducing permeate production, resulting in early changeout.

To lower energy consumption and extend element life, SPECTRUM RO membrane is cast uniquely with an additional anti-fouling layer applied to the surface of the flatsheet. This additional anti-fouling layer makes the external surface of the flatsheet smoother, reducing the binding sites of potential membrane foulants whilst creating a more neutral membrane surface to reduce interaction with charged ions.



Membrane Cross-Reference Guide SPECTRUM RO membrane compared to other industry manufacturers.

	SPECTRUM	AXEON	Hydranautics	SUEZ	Toray	Dupont	Oltremare
2.5" Membranes	ERO-2521	HF4-2521	ESPA-2521	AK2521TM	-	XLE-2521	LOW2-2521
	ERO-2540	HF4-2540	ESPA-2540	AK2540TM	-	XLE-2540	LOW2-2540
	SRO-2521	HR3-2521	-	AG2521TM	-	TW30-2521	BR2-2521
	SRO-2540	HR3-2540	-	AG2540TM	-	TW30-2540	BR2-2540
4" Membranes	ERO-4021	HF4-4021	ESPA-4021	AK4021TM	-	XLE-4021	LOW2-4021
	ERO-4040	HF4-4040	ESPA2-LD-4040	AK90	TM10A	XLE-4040	LOW2-4040
	SRO-4021	HR3-4021	-	AG4021TM	-	TW30-4021	BR2-4021
	SRO-4040	HR3-4040	CPA7-LD-4040	AG90	TM710D	TW30-4040	BR2-4040
8" Membranes	ERO-8040	-	ESPA2-LD	AK-365	TMG20-370C	-	LOW2-HR-8040
	ERO-8040-HF	-	ESPA4-LD	AK-400	TMG20-400	LE-400	LOW24-8040
	SRO-8040	-	CPA2	AG-365	TM720-370	BW30-365	BR2-8040
	SRO-8040-HF	-	CPA3	AG-400	TM720-400	BW30-400	BR3-8040

RO for Residential and Small Commercial Applications



 SPECTRUM



1.8 & 3" Membranes Suitable for most 12" Housings

Fully automated production ensures consistency whilst maximising the usable surface area of this multi-leaf membrane. The SRO elements repeatedly perform to specification, with flows up to 30% higher than traditionally hand-rolled elements, which are often prone to high failure rate in-situ. The SRO membranes are a reliable choice for applications from laboratory to residential systems. Designed for use with SPECTRUM EMH and most other industry 12" housings.

Specification

Operating Temperature	4 - 45°C
Maximum Operating Pressure	20.7 bar
Minimum Operating Pressure	3 bar
Maximum Feed Flow Rate	7.6 LPM
Minimum Feed Flow Rate	1.9 LPM
Maximum Recommended Recovery	35 %
pH Range, Continuous Operation	3-10
Maximum Feed Silt Density Index	5 SDI
Chlorine Tolerance (Total Exposure 2000 mg/l - hours) (mg/l)	<0.1
Maximum Feedwater Turbidity	<1 NTU
Maximum Feedwater Quality (TDS)	<500 mg/l
Recommended Shelf Life	2 Years

Materials of Construction

Permeate Tube ABS	Outer Wrap Tape
Feed Channel Spacer Polypropylene	Brine Seal EPDM
Membrane Polyamide Thin-Film Composite	O-rings EPDM
Permeate Collection Material Polyethylene Terephthalate (PET)	

Configurations

Diameter (")

1.8 (nominal) 3 (nominal)

Length (")

12

- Unique anti-foulant media extends life
- Higher active area for increased flow
- Individually packaged for protection

Dimensions



Product	Dimensions (")			Active Area ft ² (m ²)	Membrane Leaves
	A	B	C		
SRO-1812-35	0.67	11.7	1.54	3.1 (0.29)	1
SRO-1812-50	0.67	11.7	1.75	3.7 (0.34)	2
SRO-1812-75	0.67	11.7	1.75	4.5 (0.42)	2
SRO-1812-100	0.67	11.7	1.90	6.6 (0.61)	3
SRO-1812-150	0.67	11.7	1.90	8.2 (0.76)	3
SRO-3012-500	0.67	11.7	3.0	17.8 (1.65)	7

Part Number

Flow Rate

Product Code	Operating Pressure 4.1 bar (60 psi)		Operating Pressure 3.4 bar (50 psi)	
	LPH	Avg Rejection %	LPH	Avg Rejection %
SRO-1812-35	5.8	98.5	5.2	98.0
SRO-1812-50	9.4	98.5	7.8	98.0
SRO-1812-75	11.1	98.5	10.5	98.5
SRO-1812-100	17.1	98.5	13.7	98.5
SRO-1812-150	27.9	98.0	22.5	98.0
SRO-3012-500	78.8	96.0	66.9	95.5