

MISC-4 NOMINAL FLOWS & PRESSURES

Reverse osmosis water maker system pressures are temperature related. There are two fundamentally different principles of watermaker operation: Spectra Watermakers operate on a Constant Flow Principle while less energy efficient water makers use a Constant Pressure System. In colder water a watermaker will make the same amount of product at a higher pressure (Spectra Constant Flow Principle), or less product at the regulated pressure (other "Constant Pressure" systems).

Product water salinity (ppm) is a function of pressure across the membrane and flow through the membrane. The higher the pressure and flow the more salt will be rejected, and the lower the salinity will be.

The Spectra Clark pump takes lower pressure from the feed pump and "intensifies" it to the higher pressures (approx 700psi) required at the membrane. Various models have different ratios of intensification. The pressures shown on the Spectra gauges and panels are the feed pressure not the membrane pressure. Because each model has a different feed pressure ratio, each model will have a different Nominal operating pressure. And, because sea temperatures vary widely and Spectra Watermaker membrane pressures vary with sea temperature, each model has a Nominal Operating Pressure Range, but system flow should vary only slightly

VENTURA 150	55-70 PSI	1.5GPM
200C	70-80 PSI	1.5GPM
CATALINA 300	90-110 PSI	2.3GPM
380C	90-110 PSI	2.7GPM
NEWPORT 400	100-115 PSI	2.8GPM
NEWPORT 700	150-170 PSI	3.8GPM (15% Clark Pump)
NEWPORT 700	190-210 PSI	2.6GPM (20% Clark Pump)
NEWPORT 1000	190-210 PSI	3.5GPM

Normal pressures may fall outside of these nominal pressures in extreme arctic or tropical inland sea conditions.

If pressures are out of range, before proceeding, check product quality with a calibrated TDS meter, check product flow rate with a flow meter or timed quantity check, and check power consumption with an accurate meter.

Pressures below nominal can be due to worn Feed pumps, Low voltage, suction side flow restriction, poor membrane condition or a Clark pump problem. Pressures above normal can be caused by discharge side filters, Clark pump resistance, membrane fouling, and brine discharge system restriction.

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