



## Pall IMPRO™: Intelligent Maximum Performance Reverse Osmosis

**impro**™

**IMPRO™ Reverse Osmosis (RO) systems** are designed to maximize water recovery, consume less energy and minimize membrane fouling and scaling. These reliable units reduce waste streams by 50 — 80% while easily handling challenging feedwaters.

Featuring patented closed circuit reverse osmosis (CCRO) technology, Impro systems are ideal for extracting purified water from a wide range of applications using standard RO membrane elements and components. The smart configuration gives operators direct control of recovery rate, permeate flow and offers unmatched flexibility and ease of use.

### THE BENEFITS

- **Higher Recovery:** Packaged filtration system recovers up to 95% of wastewater, significantly more than conventional RO
- **Minimum Waste Disposal:** Highest guaranteed recovery reduces disposal costs compared to traditional membrane technologies
- **Intelligent Operation:** Automatically adapts to variations in feed water composition, temperature, and flow
- **Reduced Energy Consumption:** Operates near thermodynamic minimum



### TYPICAL APPLICATIONS

- Industrial boiler feed or cooling tower makeup
- Brine minimization
- Brackish water treatment
- Municipal wastewater reuse

## STANDARD FEATURES

Automatic response to feed variations

Programmable logic controller with remote monitoring and control functionality

Chemical dosing systems

NSF-certified components

## OPTIONAL FEATURES

Membrane pretreatment

Clean-in-Place (CIP) and flushing systems

Mixed-bed permeate polishing

Transfer pumps, storage tanks

## OPERATING PARAMETERS

<b>Adjustable Recovery</b>	75 — 98%
<b>Rejection</b>	95.0 — 99.5%
<b>Adjustable Flux</b>	6 — 25 gfd (10 — 42 l/mh)
<b>Feed</b>	TDS 0 — 10,000 mg/L
<b>Temperature</b>	36 to 113 deg F (2 to 45 deg C)
<b>Maximum Pressure</b>	450 psi (31 bar)
<b>Inlet Pressure</b>	10 — 60 psi (0.8 — 4.0 bar)

## THE IMPRO IS AVAILABLE IN A VARIETY OF STANDARD SKID-MOUNTED CONFIGURATIONS

Model	Average Permeate Flow (gpm [m <sup>3</sup> /hr])	Maximum Permeate Flow (gpm [m <sup>3</sup> /hr])	Number of Elements
IMPRO 50	50 [11]	75 [17]	12
IMPRO 100	100 [23]	140 [32]	20
IMPRO 150	150 [34]	190 [43]	32
IMPRO 200	200 [45]	280 [64]	40
IMPRO 300	300 [68]	350 [79]	60
IMPRO 450	450 [102]	560 [127]	96
IMPRO 600	600 [136]	700 [159]	120
IMPRO 900	900 [204]	1,120 [255]	192



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