PX PRESSURE EXCHANGER TECHNOLOGY

The Most Widely Used Energy Recovery Device in the World

LENNTECH
Water Treatment Solutions

Energy Recovery's award-winning PX Pressure Exchanger family of products is unmatched in the industry. More than 17,000 energy recovery devices are currently in use around the globe, and in the majority of seawater desalination projects. Here's why.

Up to 98% Energy Savings

The PX captures hydraulic energy from the high-pressure reject stream of seawater reverse osmosis processes and transfers this energy to low-pressure feed water with a peak efficiency of up to 98%. Because the PX itself consumes no electrical power, overall energy consumption is drastically reduced.

Landmark Engineering and Material Science

The PX device is made of aluminum oxide, a high-grade ceramic that's three times as abrasion-resistant as steel. The durability of this material allows the PX to perform without interruption in the harshest conditions.

Highest Availability, Longest Life

With only one moving part, the PX is resistant to failure. Energy Recovery has conducted longevity and performance studies with several devices used for years in the field. The PX will never be responsible for unplanned downtime at your plant, and it can last upwards of 25 years. In fact, they work so well, there's virtually no scheduled maintenance.

Reduced Pumping Requirements

The PX requires a much smaller high-pressure pump than what has historically been used. The technology also separates the high-pressure pump from the energy recovery device. These two factors combine to give plants much more flexibility in operations and can allow plants to reduce their power consumption by as much as 60%.

PX Pressure Exchanger at a Glance

- Up to 98% energy savings
- No scheduled maintenance
- Virtually zero downtime
- 25-year life
- Self-regulating speed adjustment with flow
- No pulsation, valves, pistons or timers
- No need for complicated data communication systems
- Industry standard FRP housing
- Alumina rotor 3x more abrasion resistant than steel
- Titanium, super duplex and super austenitic stainless steel wetted metal components
- Quick and smooth start-up
- Smallest installed footprint when compared with other isobaric ERDs

VASILIKOS PLANT

PX Prime™

The Industry's Best Energy Recovery Solution, Risk-Free

The PX Prime is the latest advancement in Energy Recovery's award-winning PX Pressure Exchanger line, and it is the most advanced energy recovery device for desalination available on the market. We have engineered the PX Prime to perform with even less fluid mixing and enhancements across a variety of factors.

The PX Prime will be the first Pressure Exchanger available through an innovative financial model that has zero upfront cost to the user. The performance has become so dependable, we will guarantee it through a performance contract, passing significant capital expenditure savings on to our customers.

"The Energy Recovery devices have been performing successfully in continuous operation since the plant was first commissioned in August 2008."

Ahmed Ibrahim Al Shahawy, Plant Manager
Air Defense Forces Desalination Plant
Jeddah, Saudi Arabia

Increased Capacity

The performance of the PX unit will accommodate flows greater than 300 gpm (68 m^3/hr).

Less Mixing

The fluid-to-fluid energy transfer in the PX Pressure Exchange produces a minimal amount of mixing. With the PX Prime, that mixing has been further reduced.

PX Prime at a Glance

- First PX available with no upfront costs
- Less fluid mixing
- Industry leading efficiency
- Greater capacity

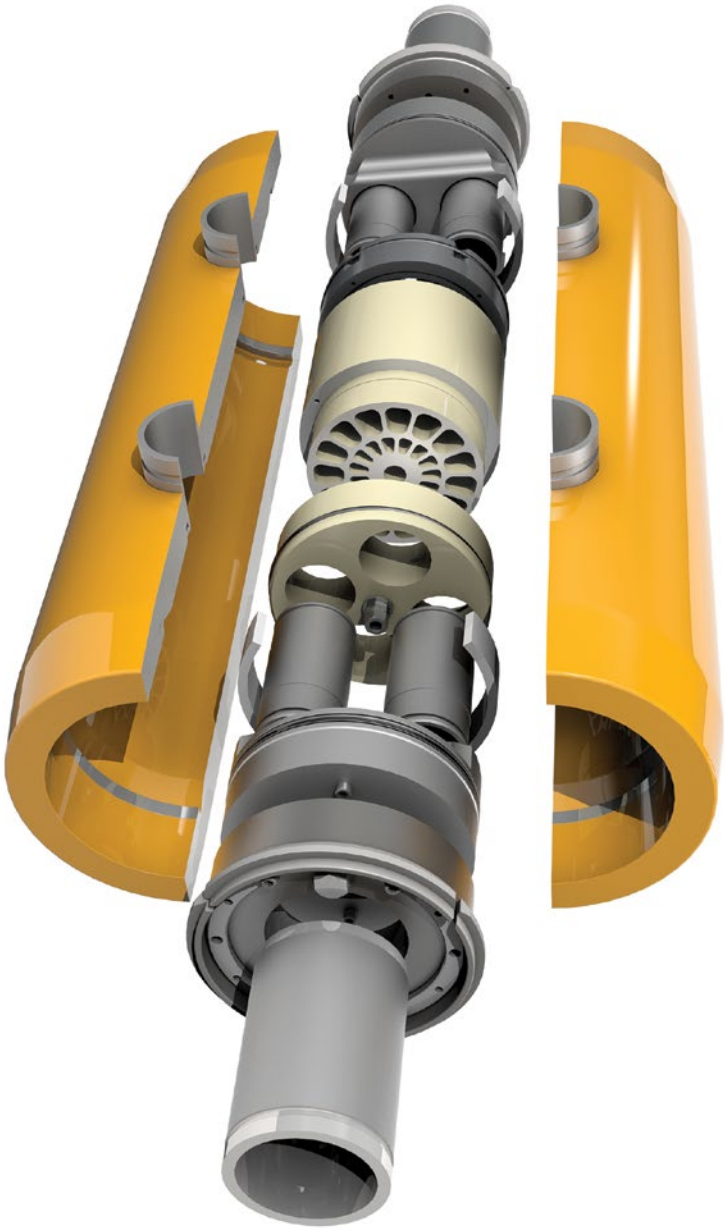
Available PX Solutions

Due to the modular design of the Pressure Exchanger, our technology can be installed into small, medium and large plants, including pilot plants, brackish water, and mobile marine units. They are typically used in parallel to service larger systems and incorporate design improvements that increase capacity and improve durability.

Choose The Right PX Solution for Your Plant

PX Q Series

Part of Energy Recovery's Q series, the PX Q300 is the best energy recovery device available for capital purchase. With the same compact footprint as the PX Prime™ and a robust capacity of 300 gpm, it is designed for any size reverse osmosis desalination plant, with an energy efficiency up to 98%. For this series, the device offers noise reductions down to below 81 decibels. The PX Q series also includes the PX Q260.



PX Model	Minimum Guaranteed Efficiency*	Flow Range per Unit (brine flow)
PX-Q300	97.2%	45.4 - 68.1 m^3/h
PX-Q260	96.8%	40.8 - 59 m^3/h
PX-260	96.8%	40.8 - 59 m^3/h
PX-220	96.8% (@45.4 m^3/h)	31.7 - 49.9 m^3/h
PX-180	96.7% (@36.3 m^3/h)	22.7 - 40.8 m^3/h
PX-140	94.8% (@22.7 m^3/h)	20.4 - 31.7 m^3/h
PX-90	96.0% (@15.8 m^3/h)	13.6 - 20.4 m^3/h
PX-70	95.3% (@11.3 m^3/h)	9.08 - 15.8 m^3/h
PX-45	94.0% (@7.9 m^3/h)	6.81 - 10.2 m^3/h
PX-30	93.4% (@5.6 m^3/h)	4.54 - 6.81 m^3/h

*These minimum guaranteed efficiencies are based on Energy Recovery's factory performance test standards. Models include Q300, Q260, 260 and 220

PX Pressure Exchanger Performance Chart

Figures are calculated using a "mid-flow" range. Use the Energy Recovery Power Model Tool on our company website to help you create a new plant design or a retrofit of an existing plant.