

ENGINEERING  
TOMORROW

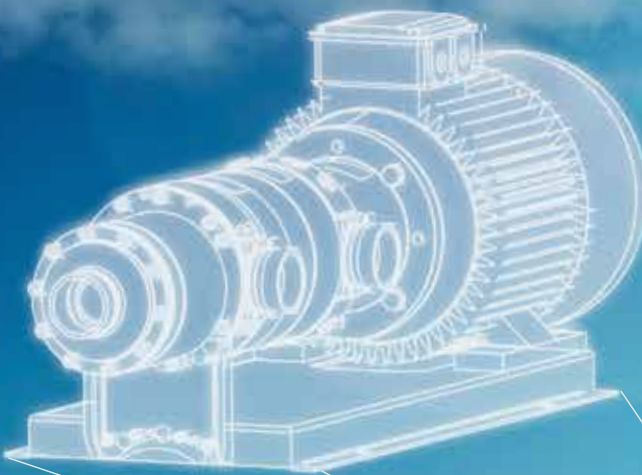
*Danfoss*

Danfoss iSave

# Superior **energy recovery** in SWRO



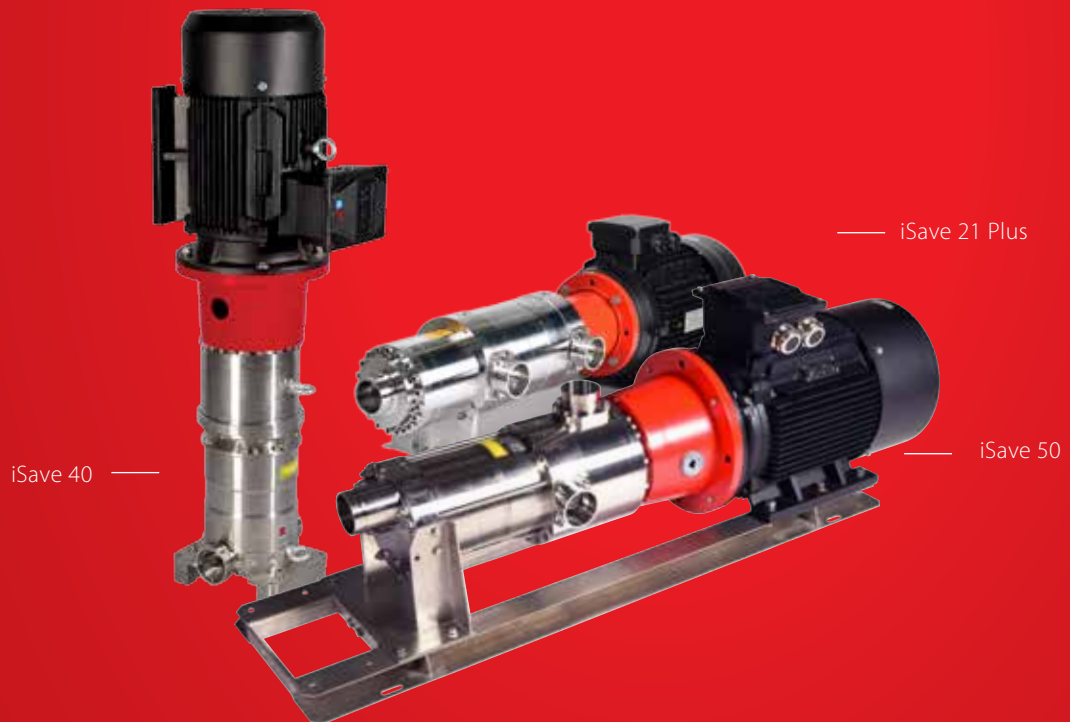
**ATS WATER  
TECHNOLOGY**



**60%**

energy savings  
with iSave  
compared to  
non-ERD systems

# Danfoss iSave



Danfoss iSave is a patented, high-efficiency Energy Recovery Device (ERD) that guarantees constant membrane feed in SWRO applications of any size – on land, at sea or on the move.

With efficiency rates of up to 92%, Danfoss iSave captures wasted pressure from the membrane reject flow and transfers it directly to the membrane feed

flow – without the use of separate high-pressure flow meters.

Available in sizes from 21 m<sup>3</sup>/h to 70 m<sup>3</sup>/h, Danfoss iSave is the first isobaric ERD on the market to combine rotary isobaric pressure exchanger, high-pressure booster pump and electric motor in a fully integrated and easy-to-use 3-in-1 solution.



Danfoss APP

## The perfect partner to Danfoss iSave

The light and compact Axial Piston Principle pumps are designed specifically to handle low-viscosity corrosive liquids at high pressure. Self-lubricating and made entirely from non-corrosive materials (Duplex/Super Duplex stainless steel, carbon-reinforced PEEK), a Danfoss APP pump will deliver constant flow throughout its very long service life – without fuss, noise or time-wasting service.

# Swim in a **sea of savings**

## **Save** energy

Near-perfect energy transfer will ensure net **energy savings of up to 60% compared to non-ERD systems.**

## **Save** space

The ground-breaking 3-in-1 design of the **iSave** **has the smallest footprint in the ERD category,** allowing you to produce more potable water in less space.

## **Save** system costs

**iSave allows system designers to cut costs** by using smaller, less expensive high-pressure pumps as main pumps.

## **Save** on suppliers

Combine the iSave ERD with a Danfoss APP pump to get **the market's most energy-efficient SWRO package** from a highly reliable single supplier.

## **Save** total ownership costs

Eliminate expensive high-pressure flow meters, minimize the use of piping and fittings and **reduce system permeate costs to below 2.2 kW/m<sup>3</sup> at 60 barg,** while getting access to worldwide support and service networks.

# Simple



## Simple installation

Danfoss iSave is much simpler to install than other ERDs. As a compact and integrated 3-in-1 solution that can be installed both horizontally and vertically, **iSave requires less installation space, less lifting and less pipework.**



## Simple and flexible design

System designers get more freedom with Danfoss iSave. **The compact iSave provides greater design flexibility with less pipework and boasts a wide range of flow options,** which can safely be extended to cover even larger flows by running two or more iSaves in parallel.



## Simple to use

Danfoss iSave is designed for automatic operation and virtually fail-safe. **Rotor-spin is controlled by the electric motor, completely eliminating the risk of overflow/overspin during start-up and operation.** This makes iSave the ideal solution if your SWRO application is operated by changing staff with varying skill levels.





# ... and **reliable**



## — **Low maintenance**

Danfoss iSave is a very reliable and low-maintenance performer. With its direct-drive electric motor and its self-lubricating and pipe-free 3-in-1 design, **the iSave is not only very easy to service – it can also be done onsite.** Expected time between service is minimum 2 years within our specified parameters.



## — **Long service life**

The Danfoss iSave is based on a field-proven recovery principle and built from corrosion-resistant high-grade Duplex/Super Duplex stainless steel or polymer components. **The design also eliminates the need for a high-pressure shaft seal and uses a single low-pressure mechanical shaft seal instead.** All design decisions have been made to ensure that the Danfoss iSave range boasts an impressively long service life.



## — **Constant flow**

**Using a positive displacement pump as a booster pump ensures that the iSave will provide constant flows at all times – regardless of pressure changes.** Where other isobaric ERDs will struggle to produce even flows in the concentrate line if differential pressure changes, the iSave will just keep on supplying the perfect membrane feed.

## Customer reviews of Danfoss iSave

*"When you're working within the constraints of a container, the size of every component really matters. **The iSave has a very small footprint, which made it easy to integrate, but the big win will be the boost in efficiency. We expect to reduce our energy costs significantly by using the iSave.**"*

**Henry Tan,**  
Evoqua Water Technologies Pte Ltd

*"Many of our SWRO installations are operated and maintained by crews from all around the world, and often one crew takes over from another without too much training. **The iSave means that we no longer have to worry about people making mistakes when adjusting flow controllers. Installation is also much simpler, with everything contained within the one item of equipment.**"*

**Daniel Shackleton,**  
Salt Separation Services Ltd.

*"As a turnkey supplier of environmentally friendly water treatment solutions, we rely on quality components that are easy to install, operate, and maintain. **By placing the iSave in our large RO units, we're able to provide substantial savings to our customers in the form of lower energy costs and service expenses. We're also able to meet our customers' requirements of green and energy-efficient solutions.**"*

**Michael Karlsson**  
Enwa Water Technology



## Improve your system with free iSave Selection Tool

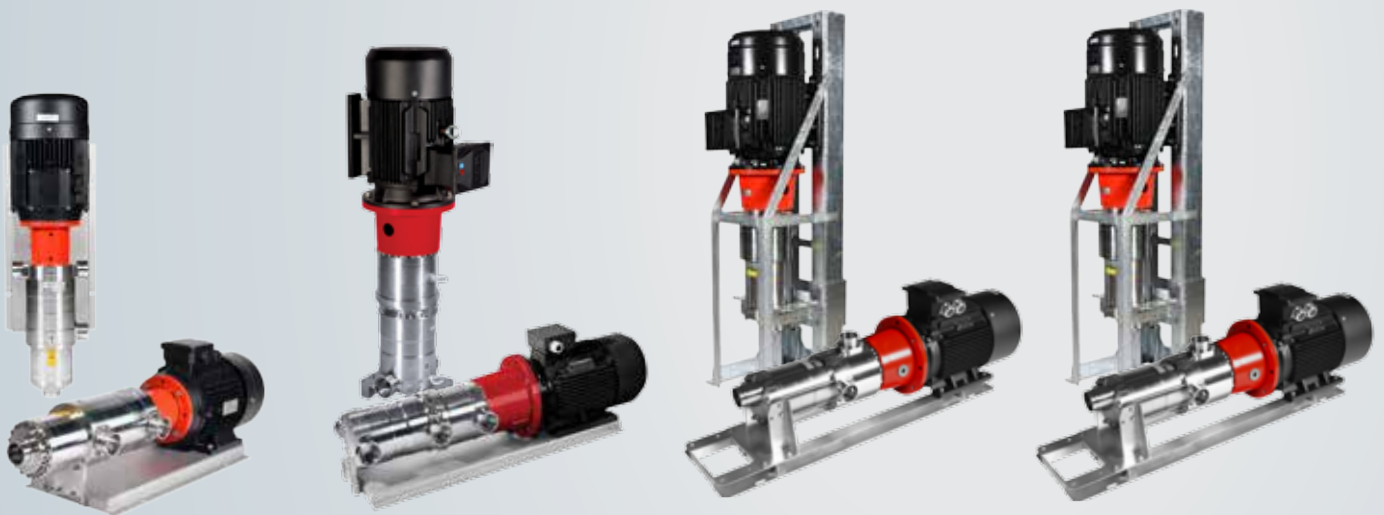
The free iSave Selection Tool can help you make your SWRO system more efficient, reliable and compact.

- Easy selection
- Unique calculation tool for OEMs and system designers
- Save selections for future projects

Download the iSave Selection Tool at [hpp.danfoss.com/isavetool](http://hpp.danfoss.com/isavetool)

# Danfoss iSave

The Danfoss iSave Energy Recovery Devices are designed and optimized for Sea Water Reverse Osmosis applications – on land, at sea or on the move. Based on patented and field-proven technology, Danfoss iSave is a fully integrated 3-in-1 solution that can be scaled to provide unrivalled energy savings and constant flows in SWRO applications of any size and type.



iSave 21 Plus	iSave 40	iSave 50	iSave 70
Flow range: 6-22 m <sup>3</sup> /h 26-96 gpm	Flow range: 21-41 m <sup>3</sup> /h 92-181 gpm	Flow range: 42-52 m <sup>3</sup> /h 184-228 gpm	Flow range: 50-70 m <sup>3</sup> /h 220-308 gpm
Max outlet pressure: 83 barg/ 1,203 psig	Max outlet pressure: 83 barg/ 1,203 psig	Max outlet pressure: 83 barg/ 1,203 psig	Max outlet pressure: 70 barg/ 1,015 psig
Max differential pressure: 5 barg/72 psig	Max differential pressure: 5 barg/72 psig	Max differential pressure: 5 barg/72 psig	Max differential pressure: 5 barg/72 psig
Speed: 500-1,500 rpm	Speed: 600-1,200 rpm	Speed: 525-650 rpm	Speed: 625-875 rpm

## Danfoss High Pressure Pumps – pioneers in SWRO

Danfoss High Pressure Pumps is a fast-growing division of the Danfoss Group. We work hard for our customers – from extensive presale solutions consultancy to ensuring on-time delivery and uncompromising after-sales service.

Customers benefit from Danfoss' industry-leading R&D resources and best-in-class quality systems, as well as its worldwide manufacturing, distribution and service networks. Based on Danfoss' decades of experience with developing pumps for critical applications, our division has pioneered the development of axial piston pump technology to bring all the advantages of positive displacement pumps to high-pressure applications like SWRO.

## Global sales and service

Danfoss High Pressure Pumps is a global SWRO solutions supplier with sales and service offices throughout the world. We deliver and service our products and solutions quickly and reliably whether your SWRO application is fixed or mobile, on land or at sea. Wherever you are, we'll be there for you.



## Ask the SWRO experts

Our dedicated team of SWRO experts are standing by to provide design support, technical expertise and customer service. Whatever you need to know about SWRO or our solutions, we have the answers.

For more information, please visit [hpp.danfoss.com](http://hpp.danfoss.com)



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