

Danfoss

Danfoss



Desalination of Seawater

Place of operation: Mainland Spain

A decentralized water supply is currently and will in the future be one of the options in remote areas. When high-efficiency equipment is built together with the latest technology, low-power consumption can be obtained as proven with this 600 m³/d water maker with less than 2.2 kW/m³ power consumption. The pumps are vertically mounted onto the electric motors.



Desalination of Seawater

Place of operation: Canary Islands Spain

The compact design of the APP pumps enables new thinking in the design of conventional water makers. Here the APP pumps are mounted on top of the membrane train providing new possibilities for OEMs to set new standards in system design. This 300 m³/d ro-skid uses less than 2.3 kW/m³ permeate production.



Desalination of Seawater

Place of operation: Oil Rigs North Sea

Long service life combined with ATEX approved APP pumps mounted together with EX-Proof Zone II motors via stainless steel bell housings. The light weight and compact design of the APP pumps make it cost-effective to maintain and service the system, as the pumps can be transported between harbour and oil rig with helicopters and replaced without any lifting gear or special arrangements.

Danfoss A/S is one of the largest industrial companies in Denmark, with net sales of around DKK 15 billion.

We employ more than 18,500 people, and 6,500 of them work in Denmark in 15 different locations.

Danfoss is an international group and a leader in research, development and production for a wide spectrum of different industries.

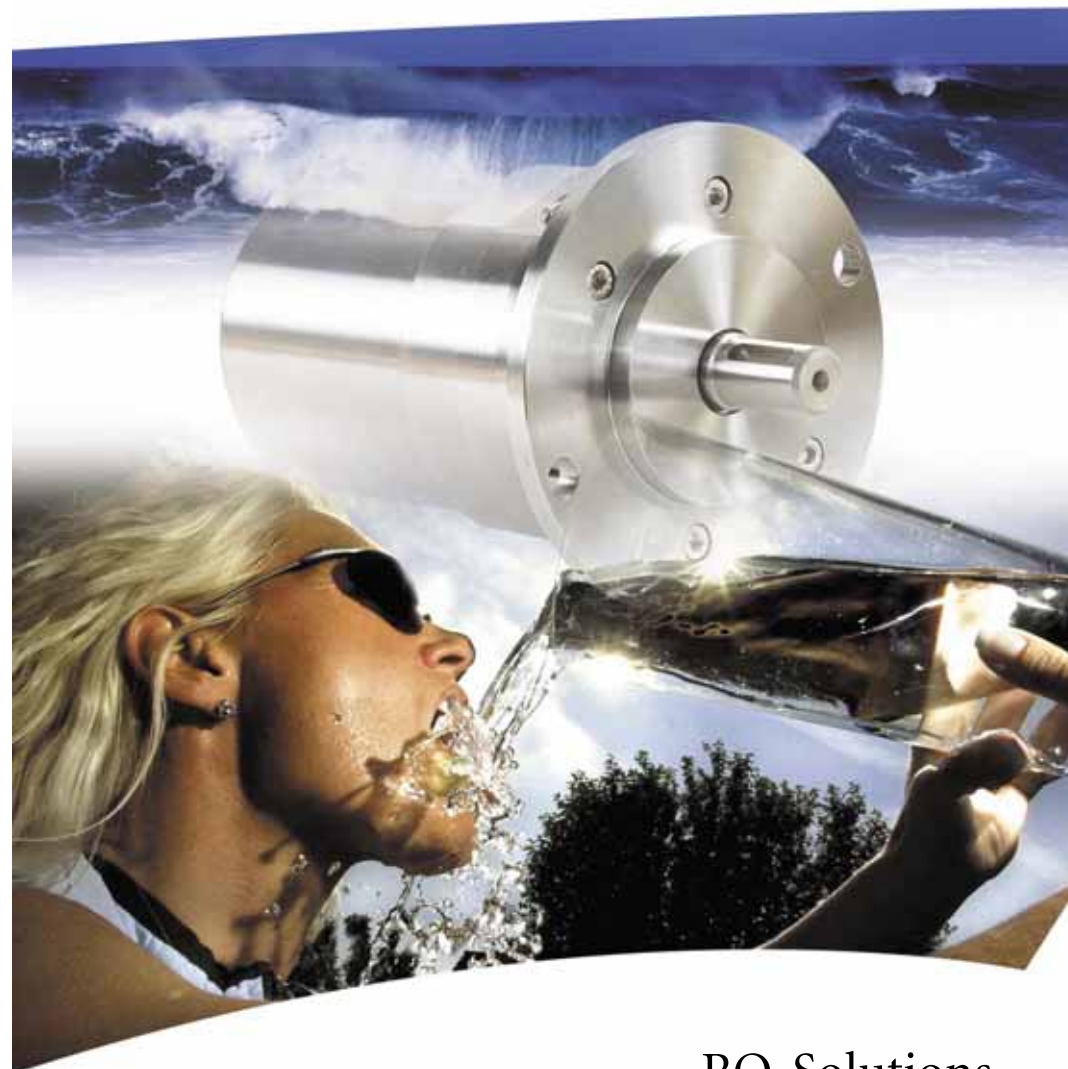
We produce about 250,000 components each day at our 59 factories in 21 countries.

The Group's primary aim is to create quality of life for our stakeholders and to be a leader in refrigeration, heating and motion controls.

Our work is based on our Core Values: Trust, Passion for Technology, Reliability, Global Perspective with Local Commitment and Environmental and Social Responsibility.

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RO-Solutions
.... setting new standards.



APP 0.6-1.0 specifications

		Metric measure	US measure
Flow	APP 0.6	10 l/min	2.6 GPM
	APP 1.0	17 l/min	4.5 GPM
Discharge pressure		10 to 80 bar	140-1150 psi
Inlet pressure		Flodded to 7 bar	Flodded to 100 psi
Pump rpm ¹⁾		700-3000 rpm	700-3000 rpm
Horse power	APP 0.6	1.5 kW	2.0 HP
	APP 1.0	2.2 kW	3.2 HP
Weight		4.4 kg	9.7 lbs
Inlet port		1/2" BSP	1/2" BSP
Outlet port		1/2" BSP	1/2" BSP

APP 1.8-2.2 specification

		Metric measure	US measure
Flow	APP 1.8	28 l/min	7.3 GPM
	APP 2.2	35 l/min	9.2 GPM
Discharge pressure		10 to 80 bar	140-1150 psi
Inlet pressure		Flodded to 7 bar	Flodded to 100 psi
Pump rpm ¹⁾		700-3000 rpm	700-3000 rpm
Horse power	APP 1.8	4.2 kW	5.7 HP
	APP 2.2	5.5 kW	7.0 HP
Weight		7.7 kg	17 lbs
Inlet port		3/4" BSP	3/4" BSP
Outlet port		1/2" BSP	1/2" BSP

APP 5.1-10.2 specifications:

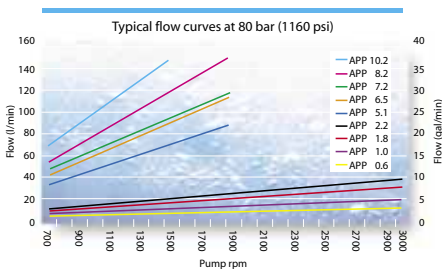
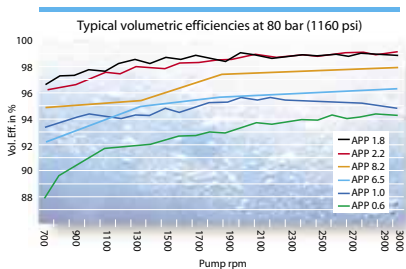
		Metric measure	US measure
Flow	APP 5.1	85 l/min	22.45 GPM
	APP 6.5	108 l/min	28.1 GPM
	APP 7.2	120 l/min	31.7 GPM
	APP 8.2	136 l/min	35.4 GPM
	APP 10.2	170 l/min	44.9 GPM
Discharge pressure		10-80 bar	140-1150 psi
Inlet pressure		Flodded to 7 bar	Flodded to 7 bar
Pump rpm		700-1800 rpm	700-1800 rpm
Horse power	APP 5.1	13.3 kW	17.9 HP
	APP 6.5	15 kW	20 HP
	APP 7.2	18.6 kW	25 HP
	APP 8.2	19 kW	25.5 HP
	APP 10.2	26.7 kW	35.9 HP
Weight		32 kg	70 lbs
Inlet port ²⁾		1 1/2" VIC.	1 1/2" VIC.
Outlet port ²⁾		1 1/2" VIC.	1 1/2" VIC.

¹⁾ Higher speed available. Please contact the Sales Organisation.

²⁾ Other types of connections available on request.

Common material specifications

- All wetted parts : Superdublex, polymer, ceramic
- All external parts: Superdublex, 316 SS, plastic



The Natural Choice

The Axial Piston Pump (APP) is a positive displacement pump design originating from oil hydraulics and subsequently redesigned by Danfoss during the last 15 years, to pump tap and seawater. Tens of thousands of pumps are in operation worldwide proving the pumps to be among the most cost-effective and reliable pumps for membrane applications, both as main high-pressure pumps but also for recovering energy as reversing pumps (motors) in the reject line. The pumps are made in exotic materials incorporating Duplex and Superduplex materials as standard.

Danfoss A/S RO-Solutions offers not only High-Pressure Pumps but also Frequency Inverters, Soft Starters, Valves, Pressure Transmitters and all kinds of "around-the-pump" accessories, since one of our goals is to facilitate supply chain optimisation for our customers.

If your business is among the below mentioned applications:

- Seawater Reverse Osmosis
- Brackish Water Reverse Osmosis
- Nanofiltration, ultrafiltration, microfiltration
- Or even pump and measure low-viscosity corrosive fluids prefiltered down to 10 micron absolute

... have a look on our homepage www.nessie.danfoss.com/rosolution



With APP pumps from Danfoss you get the following benefits

Low energy consumption

Total efficiencies **up to 95 percent** – among the most efficient in the market.

Long service life

Danfoss guarantees service free operation for more **than 8,000 hours** thanks to two design features:

- No oil lubrication: the medium itself lubricates the pump.
- No need for service on a regular basis: the mechanical shaft is the only seal in the pump.

Corrosion resistance

All wetted parts of the pump are designed in duplex, super duplex stainless steel and polymer, **ensuring resistance to corrosive and low viscosity fluids**, e.g. seawater and brackish water.

High-pressure operation

Continuous operation at a discharge pressure **between 10 and 80 bar (145-1160 psi)**. Higher discharge pressures are available on request.

Wide flow range

One pump size covers the same flow range as several centrifugal pumps, because the flow is a linear function of the speed (rpm). The pumps run at **speeds between 700 and 3,000 rpm**.

Low pulsation

A design featuring up to nine pistons reduces pressure pulsations in the **discharge line down to 1.5 percent**, rendering pulsation dampers superfluous addition, and reducing installing cost.

Compact design

The most compact pump on the market, giving system builders a free hand to design more compact systems. The pump may also be directly mounted onto an electrical motor via a bell housing with a flexible coupling.