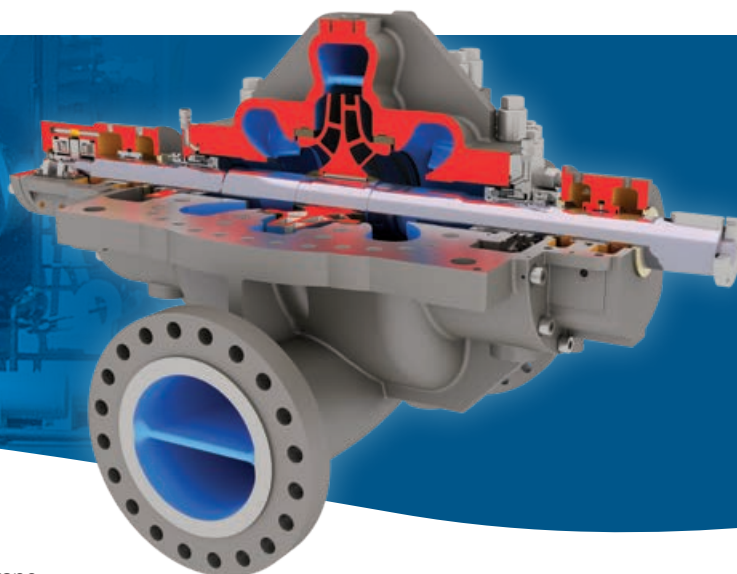




# DVSH-RO

## Single-stage, high-pressure membrane feed pumps for reverse osmosis desalination processes

*Uncompromising reliability  
over a wide flow range*



Flowserve DVSH-RO single-stage, high-pressure membrane feed pumps are engineered to deliver high-efficiency operation and long-term reliability in heavy-duty seawater reverse osmosis processes.

Based on the widely used DVSH ISO 13709/API 610 (BB1) pump, the DVSH-RO pump is configured to meet the specific performance demands of desalination processes. A side-by-side nozzle configuration and optimized hydraulics provide the best hydraulic fit to maximize operating efficiency and stability. Corrosion-resistant materials ensure long-term service life without degradation. The result is uncompromising reliability over a wide flow range.

### A comprehensive portfolio

The DVSH-RO pump is one of a number of pumps offered by Flowserve to meet the specific pumping requirements of the desalination industry. It helps to solidify Flowserve as a single-source supplier with the product portfolio, industry experience and engineering capability to provide carefully selected and balanced pumps to suit the varying demands of all desalination applications and plant configurations.

### Engineered performance and reliability

**Double-suction impeller** provides axial hydraulic thrust balance and is designed for maximum hydraulic efficiency with minimal NPSHR. It is dynamically balanced to assure vibration-free operation as per API/ISO requirements.

**Double-volute, axially split casing design** minimizes hydraulic radial forces in any condition down to the minimum flow, thereby reducing shaft deflection and increasing the life of bearings, seals and wear rings.

**Heavy-duty shaft design** ensures trouble-free performance by operating under the first critical speed. The large diameter and short bearing span minimize deflection.

**Suction and discharge nozzles** are cast in the lower casing half to permit pump disassembly without disturbing the piping. Nozzles are designed to handle external forces and moments equal to or in excess of ISO 13709/API 610 specifications.

**Renewable wear rings** provide hydraulic stability and high-efficiency operation. They also ensure the thrust bearings are properly loaded. Optional laser-hardened or non-metallic wear rings are available.

**Generously sized seal chambers** ensure there is sufficient liquid around the seal faces for optimal flushing and cooling. Seal chambers accept single-cartridge type mechanical seals as well as double- or tandem-cartridge type designs.

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### Typical operating parameters\*

- Flows to 7,000 m<sup>3</sup>/h (30,820 gpm)
- Heads to 550 m (1,820 ft)
- Pressures to 83 bar (1,200 psi)
- Temperatures to 45°C (113°F)
- Frequency of 50 or 60 Hz; compatible with VFD applications

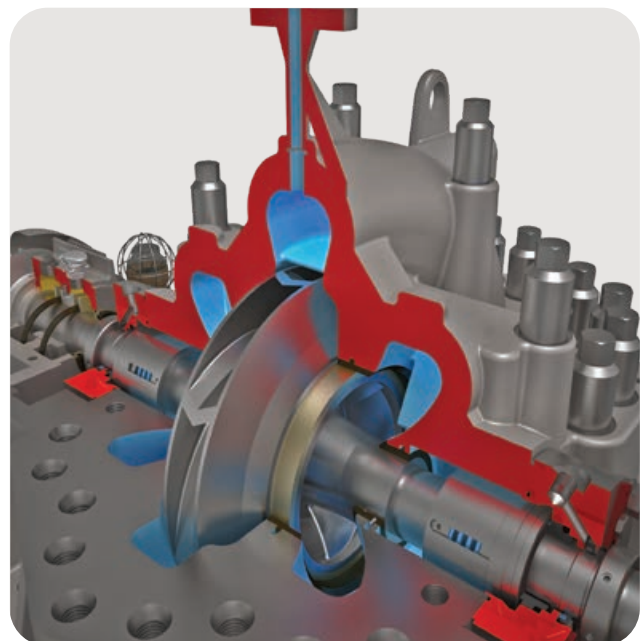
\*For extended range, please consult with our specialists.

### Available bearing configurations

- The DVSH-RO pump is offered with a variety of bearing designs to meet application requirements. The standard radial bearings are single-row, self-aligning, antifriction type. Thrust bearings also are antifriction type and are double-row mounted back-to-back.
- Flowserve engineers will help select the optimal construction — including cooling options — based on specifications, speed and horsepower rating of the pump.
- The bearing housing features 180° bolting and heavy-duty mounting brackets to facilitate maintenance.

### Corrosion-resistant construction

Pitting, crevice corrosion and stress corrosion cracking are major challenges in processing seawater. To maximize service life, wetted components of the DVSH-RO pump are available in a broad range of materials able to resist these aggressive forms of corrosion. These include super duplex stainless steels and proprietary Alloy 885 with PREN >40.



*Double volute, axially split casing design minimizes radial hydraulic forces in any condition down to the minimum flow.*

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PUFLY000056-02 (EN/A4) November 2020