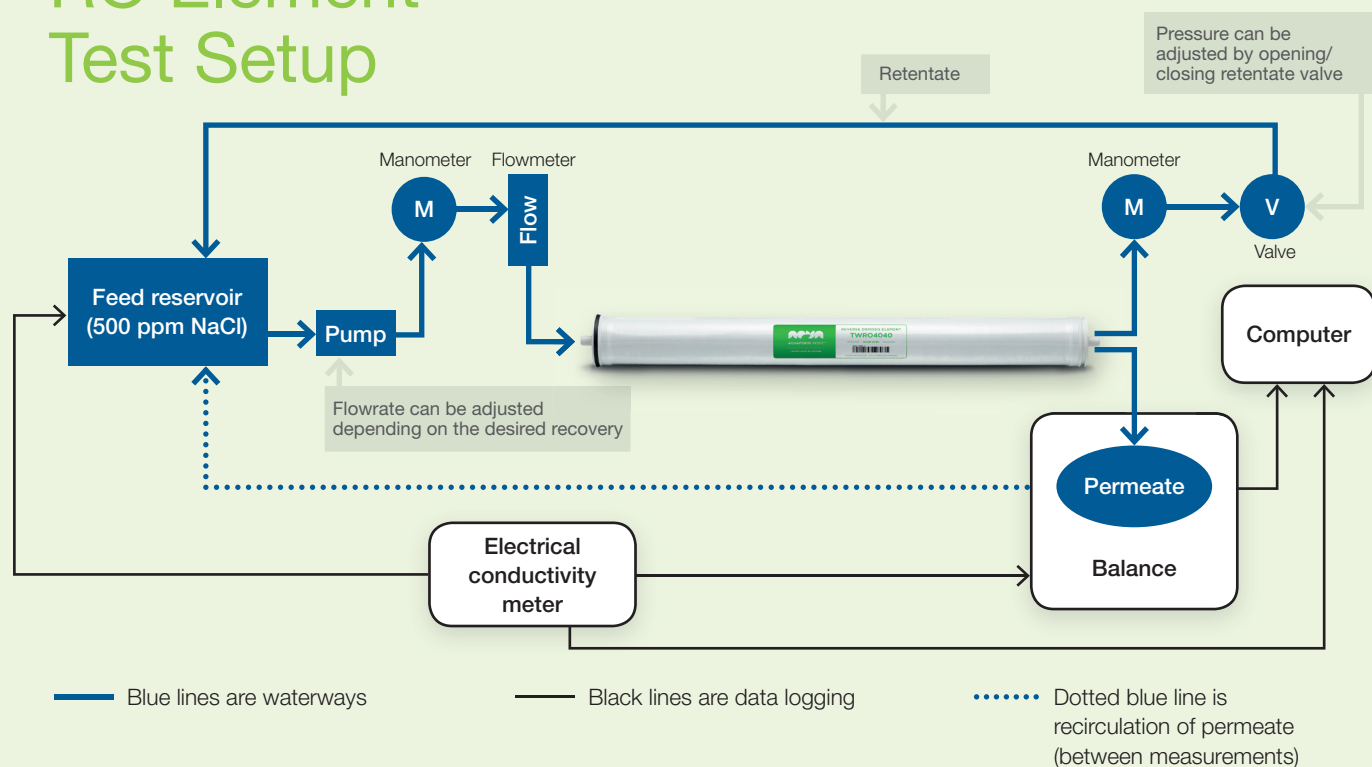


RO Element Test Setup



Testing preparation

- Flush membrane element with deionized water for 1 h at 100 psi (6.9 bar). Permeate and retentate flows should be directed to a waste collection drain during flushing.
- Prepare feed water reservoir (600 L /160 gal) with 500 ppm NaCl.
- Feed water temperature must be 25 °C (77 °F) during testing.
- Feed water pH must be 8 during testing. Adjust pH with NaHCO₃.

During test

Permeate and retentate flows are recycled to the feed reservoir (according to scheme above).

Pressure

- 4040 elements are tested at an applied pressure of 100 psi (6.9 bar).

Recovery

- 4040 elements are tested at 15% recovery.
- Recovery (%) is calculated as $(Q_p/Q_f) \cdot 100\%$ with Q_p : permeate flowrate (L/h) and Q_f : feed flowrate (L/h).

Flowrates

- Feed flowrate is set according to the desired recovery of 15%.
- Permeate flowrate (L/h or gal/d) is assessed by the weight increase over time detected by the balance. Alternatively, the time required to produce a predefined permeate volume (e.g. 10 L / 2.5 gal) can be measured.

Rejection

- Salt rejection (%) is calculated from electrical conductivity measurements in both feed and permeate according to the following formula: $R = [1 - (EC_p/EC_f)] \cdot 100\%$ with EC_p : electrical conductivity of the permeate ($\mu\text{S}/\text{cm}$) and EC_f : electrical conductivity of the feed ($\mu\text{S}/\text{cm}$).

Stabilization time

- Suggested operating time should be at least 4 h (preferably 24 h) before permeate flowrate and salt rejection are assessed.

Return produced permeate to the feed reservoir after flowrate and rejection measurements.

Disclaimer:

This document is intended as a guideline only for quality control testing of Aquaporin Inside® TWRO 4040 elements. For more information, please contact your Aquaporin representative or aquaporin@aquaporin.com

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