HYDRANAUTICS
High Performance Membrane Products
A NITTO DENKO CORPORATION

RO Sizing

The approximate system size (the number of membrane elements and pressure tubes) required to produce a quantity of product water (permeate) may be determined by the following steps:

a. Select the membrane type and corresponding model number.
b. Select the flux rate (GFD) according to expected feed water quality.
c. Divide the desired plant capacity by the design flux rate and by membrane element surface area (the membrane area is listed in the element specification sheet).
d. Divide total number of elements by the number of elements per pressure vessel. Round result up to the nearest integer.
e. Select the appropriate array to achieve the desired percentage recovery. Increase number of pressure vessels if necessary.

The RODESIGN program displays the recommended pump pressure in addition to the calculated feed pressure. The recommended pump pressure is higher than the feed pressure by 10% of Net Driving Pressure + 3 psi (0.2 bar) for entry loses. This safety margin should usually be sufficient. Alternatively, a safety margin of 10% should be used for system design whenever the fouling rate cannot be predicted. A design should include as a contingency a number of elements 10% higher than calculated by the computer program. Alternatively, the feed pressure should be specified as required for the given product flow with 90% of the calculated membrane elements.

A NOTE OF CAUTION TO THE DESIGNER:

The RODESIGN program only projects RO system performance from a user controlled set of data input and design decisions. The program does not judge whether a system design is realistic or optimized for a given set of conditions. It is the user's responsibility to review and judge the system design based on the anticipated or existing pretreatment, reasonable design guidelines, and experience. The user is strongly recommended to review all RO system designs with the HYDRANAUTICS Technical Support Group or a HYDRANAUTICS Technical Sales Representative.