What is the Hidden Boost to a FEDCO Turbo Booster?

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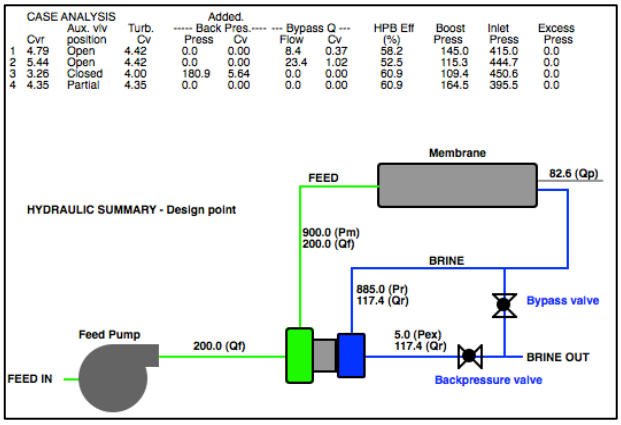
Have you ever wondered "What do I do with my high pressure pump and energy recovery turbo booster if my RO system conditions change?" Studying the possibility of operating condition changes leads you to realize the membranes, their housings, and much of the system are modular. Piping can be rerouted and recycled, the pretreatment system will still work, and there are many items like control valves and flow meters in storage that are still useable.

So, will the pump package still work? The answer is *probably*, if you don't go too much larger or smaller. You are aware of the High Pressure Pump (*HPP*) system curves, so figuring out if the motor needs to be replaced or fine-tuned is not a problem. The turbo booster is a bit different - it was engineered for your original system. So how can you reuse it without worrying about cavitation, damaging it, degrading the performance of the HPP, etc.?

A FEDCO High Pressure Booster (*HPB*) has design features to accommodate system changes. Built into every HPB is a brine control valve that allows partial control of the feed pressure, thereby reducing throttling losses at startup. During normal operation, the brine valve controls the brine pressure and flow with an average of 12% flexibility. To determine the brine valve set point, FEDCO has created its 'Off Design Program' to calculate this.

Once the range of the brine valve has been exceeded, the Off Design Program will indicate that the valve should be opened and excess brine should be passed through the bypass valve. Additionally, if backpressure is needed, Off Design calculates that the brine valve should be closed, allowing for more backpressure by regulating the backpressure valve.



FEDCO Off Design Analysis

The Off Design calculations can be done for several operating points at one time.

If the new system conditions are much different than the original design, a new rotor can be manufactured. The replacement rotor, like the original, is optimally designed with Computational Fluid Dynamics (*CFD*.) The new rotor can work with the original casing and volute at the new flow and pressure.

To conclude, the offering the Off Design Software and retrofit with a new CFD generated rotor, the FEDCO HPB has built-in flexibility and factory support for applications other than its original design**.**