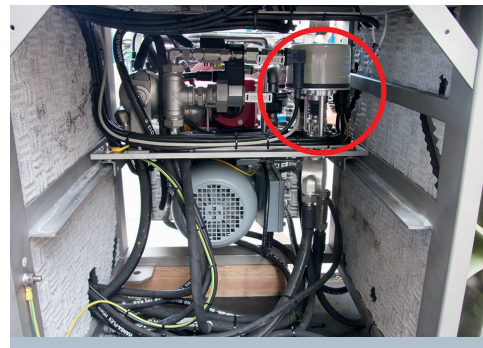


## Control valves for reverse osmosis plants



Installation example in a plant of Ultura GmbH

The physical osmosis effect is a matter of partial pressure balance between two differently concentrated liquids which are separated by a semipermeable membrane. Due to this, molecules pass through the membrane until the partial pressure becomes identical on both sides. In nature, this effect is the basis of cell metabolism. In technology, this effect is most often used for the purification of water.

To accomplish this, we use the principle of reverse osmosis. If pressure on the contaminated liquid is increased over its "natural" osmotic pressure, the molecules reverse. The contaminated medium is thereby more highly concentrated, while the amount on the "clean side" is raised. This pressure is usually generated by a pump. Badger Meter designed a special valve for the pressure regulation in reverse osmosis plants to precisely control this pressure. One of the challenges during the development of this valve was to ensure the long-term chemical resistance to the concentrated liquid. Control valves for reverse osmosis are available in the following sizes: 1", 3/4", 1/2", 3/8" and 1/4" and with Cv values from 6,0 up to 1,8 E-6. The main application field for these types of valves is for seawater desalination on ships and also the cleaning of sewage water.