

An apparatus for continuous closed-circuit consecutive sequential desalination of a salt water solution by reverse osmosis that comprises a closed circuit system comprising one or more desalination modules (M1-M5) having their respective inlets and outlets connected in parallel by conducting lines, each of desalination modules comprising one or more membrane elements, a pressurizing device (PP) for creating counter pressure to enable reverse osmosis desalination and replacement of released permeate by fresh, a circulation system for recycling the desalinated solution through the desalination modules, a conducting line system for removing brine effluent a valve system (V) to enable periodic discharge of brine from the closed circuit without stopping desalination, and monitoring and control systems (CM1, CM2, PM1, PM2) to enable continuous closed circuit desalination of desired recovery proceed in consecutive sequential steps under variable or constant pressure conditions.