

Commercial Reverse Osmosis Systems

Reverse osmosis systems are designed for desalination and demineralization of water. In simple terms, the primary purpose of reverse osmosis systems is water distillation.

Reverse osmosis is a process where practically all dissolved substances are removed from the solvent (water).

It's a straightforward method for water distillation, yet it requires the correct selection of necessary equipment.

The main requirements for the quality of water supplied to the input of the reverse osmosis system are:

Iron (Fe)	< 0.3 mg/l
Manganese (Mn)	< 0.1 mg/l
Silt Density Index (SDI)	< 3
Hydrocarbons	absence
Free Chlorine	absence
Hardness Salts (Ca ²⁺ and Mg ²⁺)	< 0,1 mg-eq/l
Total Salt Content	< 1000 mg/l

Operating conditions: feed water pressure 2–5 bar, feed water temperature 5–25 °C, ambient temperature 5–35 °C.

If the hardness salts in the feed water exceed the levels specified in the table, it's recommended to consider installing an anti-scalant dosing system.

Operating Principle: Prepared water, meeting the quality requirements specified in the table, is fed into the system. The water supply to the system is regulated by the feed water valve. Water passes through a mechanical filtration system with a filter rating of 1-5 µm. Next, the water enters the pipeline before the boosting pump, where a pressure sensor is installed to monitor water presence in the system, safeguarding the pump from dry running. Then, the water pressure is boosted by the boosting pump and directed into specialized housings containing membrane elements, facilitating the direct separation of water into two streams: concentrate (dirty water with high salt content and high electrical conductivity) and permeate (clean water without salts and with low

electrical conductivity). The permeate passes through a flow meter into a storage tank, while the concentrate is divided into two streams: one sent to the drainage and the other returned before the boosting pump. This process aims to increase the water flow rate through the membrane, positively impacting the flushing of impurities from its surface and extending the membrane's lifespan. Flow regulation is managed by regulating valves. Periodically, hydraulic flushing is conducted using a flushing valve to wash away membrane deposits into the drainage. The quality control of purified water is monitored by a conductivity sensor displaying electrical conductivity on the system's display.

Reverse osmosis systems with a productivity of 250 - 1500 liters per hour.

They are used for desalinating water in homes or for production processes with low water consumption.



Model	Kri RO-250	Kri RO-500	Kri RO-750	Kri RO-1000	Kri RO-1250	Kri RO-1500
Nominal productivity, l/h	250	500	750	1000	1250	1500
Concentrate flow, l/h	75	150	225	300	375	450
Pump motor power, kW	0.55	0.55	1.5	1.5	2.2	2.2
Electrical connection, V/Hz	220/50	220/50	3x400/50	3x400/50	3x400/50	3x400/50
Number of 4040-type membranes, pcs.	1	2	3	4	5	6
Overall dimensions of the unit (LxWxH), mm	1500x520x350	1500x520x350	1650x660x700	1650x660x700	1650x660x700	1650x660x740
Weight, kg	46	50	85	105	175	165
Order code, №	KriRO250	KriRO500	KriRO750	KriRO1000	KriRO1250	KriRO1500

Basic supply kit includes: frame, fine filtration filter, booster pump, shut-off and regulating fittings, rotameters, controller with conductivity sensor, dry run relay, membrane housing, membranes, pressure gauges.

In addition to the basic configuration, reverse osmosis systems can be equipped with remote access automation (e.g. via phone), a feed water blending line, or a membrane flushing system. Additional options should be considered when placing an order.