

# Ussu Engineering

Ussu Engineering is serving in the field of environmental technology. We service, design, manufacturing and installation of Water and Waste Water Treatment Systems. We give service as engineering the whole system, designing Projects, Consulting, Manufacturing, Revision of existing facilities, operation of water and wastewater treatment plants in Abroad and Domestic Market.



Our company does Projects on a Turn-key bases for the physical, chemical and biological waste water treatment plants, water treatment systems, river water treatment clarifier systems, well water treatment systems, sea water purification (desalination), softening and demineralization units, Reverse-Osmosis systems, disinfection systems, gas chlorination and wet-scrubber systems, concentrators, mixers, pressurized sand-carbon -anthracite filters, and all treatment plant equipment.

We could also supply all kinds of pumps, pipes and fittings, odor removal systems, liquid bacterial production and supply, water treatment chemicals and laboratory equipment.

Our main exporting countries are Middle East, Turkish Republics and Balkan Countries.

# US-RO Reverse Osmosis Systems



Reverse osmosis systems, which the most general definition is, removal process of the anion and cation by an advanced filtration method which the highest technologies are used as a water treatment system. Water is forced to pass from a semi permeable membrane sheet which has 5 angstrom size pores with diameters

by applying high pressure. Water, flow from the surface to the center of the membrane.

During this pass, organic and inorganic substances, heavy metals, projects veins, bacteria, etc. in the structure of the water retains by the membrane and discharges from the reject line. %95 - %99 Purified water can be collected to a tank through permeate line. System flush before the stop procedure and before the start procedure in order to clean the surface of the membrane.



In this type of systems, for longer and effective use of membranes, pre-filtration and dosing systems must be designed and installed correctly.

Automation is always most important point for the US-RO systems. There are 3 units of pressure transmitter measuring the pressure continuously. One unit is for low pressure at inlet, one is for high pressure after the high pressure pump and one is for the drain

line. In addition to these pressure switches, conductivity meter, permeate and drain flow meter, dosing systems level switches and tank level switches are controlled from Siemens PLC are in standard manufacturing scope.



Standard US-RO systems we use; Filmtec/USA membranes, Grundfos/Denmark pumps, Siemens PLC, Codeline pressure vessels, Wika pressure switches and Proval control valves. US-RO is our company registered trademark.



By the pressure transmitter mounted at the high pressure pump inlet, prevents the pump from the damages due to low pressure at inlet. In the case "Low Inlet Pressure" warning being given automatically and the system stops. In order to protect the membranes from the damages of high pressure above the permitted limits, another pressure transmitter is mounted to the outlet of the high pressure pump. When the pump outlet pressure exceeds the set point than "High Membrane Inlet Pressure" warning being given automatically and the system stops. In order to protect the membranes from the damages of closed drain valve, a pressure transmitter is mounted to the drain line. When "High Reject Line Pressure" warning being given automatically; system stops.

Membrane software program is selecting high pressure pump capacity based on the performance of the membranes after 2 years running. For the start-up time, capacity of high pressure pump is higher so as an option we can install VFD on this pump and you can save energy for first 2 years.

# Sample System US-RO 30

Pre-chlorination Dosing System	Emec 05/05	1 duty
Raw Water Feed Pumps	Grundfos, SS 316, CRN Series	1 duty + 1 stand-by
Automatic Sand Filter	Ussu Engineering, D : 1900	1 duty
Automatic Carbon Filter	Ussu Engineering, D : 1900	1 duty
Antiscalant Dosing System	Emec 05/05	1 duty
Cartridge Filter	15 x 40", SS 316	1 duty
Membranes	Filmtec SW30 ULE 440i	30 duty
Membrane Vessels	Codeline, 600 psi	5 duty
High Pressure Pumps	Grundfos, SS 316, CRN Series	1 duty + 1 stand-by
Piping	SS 316 for HP, PVC for LP	
Flow Meters	6 – 30 m <sup>3</sup> /h, rotameter type	2 duty
Conductivity Meter	Emec, 0 - 2000 mikros/cm	1 duty
Manometers	0 – 6 bar and 0 – 20 bar	10 duty
Pressure Switches	Wika/Germany	3 duty
CIP Pump	Grundfos, SS 304, CR Series	1 duty
CIP Tank	1000 Liter PE	1 duty
CIP Filter	9 x 40", SS 304	1 duty
Post-Chlorination Dosing System	Emec 05/05	1 duty
pH Neutralization System	Emec 05/05	1 duty
40 ft ISO Container	Air conditioner installed	1 duty
Control Panel, MCC and PLC	Siemens PLC	1 duty
Start-up Chemicals	All required chemicals for 1 week	

## Contact Us

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