

EMS Mekorot Projects Ltd.

About EMS:

EMS Mekorot Projects is a subsidiary of the "Mekorot" Israel's national water supply company and constitutes the operational unit of Mekorot. The company was established in 1961 as the leading and largest operational company in the area of water infrastructure in Israel. Additionally, it provides a comprehensive range of services within one framework including the formulation of solutions related to engineering, planning and full supervision in all production processes, installation, operation and test runs (Turn key projects) of water infrastructure.

Extent of activity

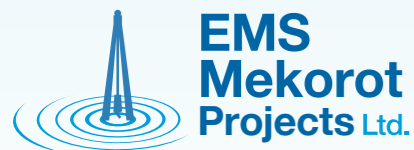
- Construction of pumping stations.
- Development, production and repairs of pumps for a variety of flow rates and pumping equipment.
- Execution of civil engineering and infrastructure projects at pumping stations and at water and sewage treatment facilities.
- Installation of water, sewage and wastewater lines at diameters of up till 108".
- Shallow and deep drilling up to 1.5 km.
- Construction and reconstruction of reservoirs and water pools.
- Reservoir sealing with floating coverings (exclusive provider in Israel)!
- Planning and installation of water systems for treatment, sampling and monitoring (water quality and safety).
- Planning and construction of reverse-osmosis desalination plants, electro-dialysis plants, chlorination and fluorination facilities, and sewage and wastewater treatment facilities (including tertiary treatment).
- Production and installation of electrical boards, command and control systems (local and remote) and cathodic protection systems.
- Unique activity involving cloud seeding for rain enhancement.
- Repairs, calibration and testing of water meters.



Granite 1 Mobile Ultrafiltration System



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Granite1 – mobile ultrafiltration system

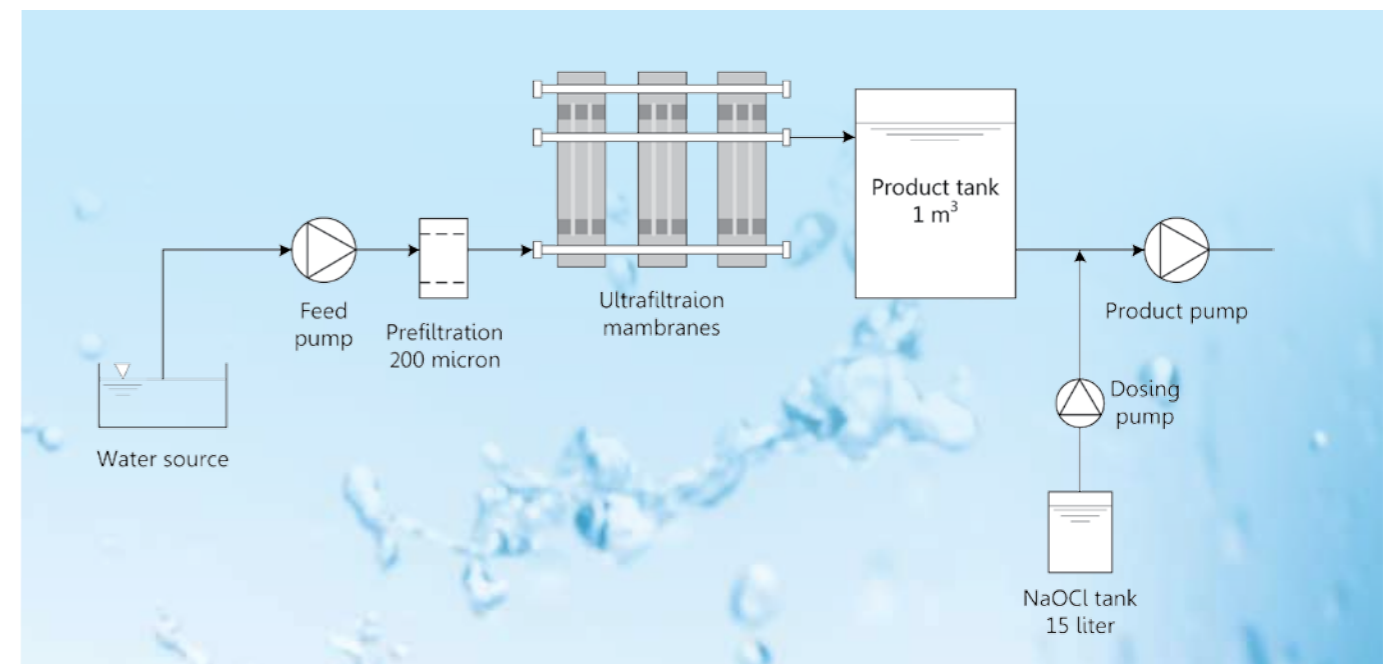
General

Earthquakes, floods, natural disasters and emergencies may damage water sources and the water supply system, disrupting regional water supply. EMS Mekorot water treatment system has designed the "Granite1" mobile ultrafiltration system to deal exactly with such situations. The system is portable, mounted on a trailer and is equipped with a diesel generator to ensure operation in situations when the electricity grid is not available. Water treatment is performed by Ultrafiltration membranes, a technology that ensures removal of particles (suspended and collidal), bacteria virus and protozoa from the raw water. The system produces 120 cubic meters of drinking water a day, sufficient for 6,000 people in emergency situations. The unit is designed for quick set up and operation. It is equipped with a PLC and a local display panel, allowing fully automatic operation. Supply scope includes a feed pump, automatic micronic filter, ultrafiltration membranes, backwash pump, product pump, chemical feed systems, diesel generator and auxillary systems.

Data table

Filtration technology	Ultrafiltration
Raw water source	Well or surface water (river / spring / lake)
Turbidity removal	Raw water turbidity: design 50 NTU, max 100 NTU Product water turbidity: less than 0.3 NTU
Microorganisms removal	Virus - 4 log Bacteria - 9 log Giardia and Cryptosporidium - up to 4 log
Size of particles removal	Up to 0.02 micron
Product chlorination system	Included
Product flow rate	5 m ³ /hr
Prefiltration	200 micron, including automatic flushing system
Number of UF units	3
Membrane area	38 m ² (per unit)
Filtration flux rate	58 l/mh
Hypochloite consumption for product water disinfection	4.4 liter / week
Chemical consumption for membrane periodic cleaning	Hydrochloric acid 33%: 4.2 liter /week Caustic soda 48%: 4.9 liter/week
Power supply	Electricity grid or generator
Average power consumption	4 kW
Specific power consumption	0.8 kWh/m ³
Generator	Diesel, 12kW, including 200 liters fuel tank
Fuel Consumption	50 liter / day
Power connection	400/230V, 50Hz
Control	Fully automated, including GE controler and display

Feed pump	6.6 m ³ /h * 3.5 bar Self priming up to 7 meter
Product pump	5 m ³ /hr * 5 bar
Flexible product water tank	5 m ³
Certificates	NSF/ANSI 61
Trailer	Tandem axle, braking system, spare wheel, taillights, brake lights
Dimensions (mm)	1460(W) X 3600(L) X 2500(H)
Total weight	1850 kg
Perimeter lighting	Included
Documents	System handbook, Operation and maintenance manual



Benefits

- Easily portable system – trailer mounted and hauled by a pickup truck
- Raw water can be pumped from an open water source (spring / river / lake) or alternatively from the existing water supply grid
- Quick set up and operation – System up and running in less than 20 minutes
- Supply scope includes a diesel generator and a 200 liter fuel tank, mounted on the trailer
- The system is designed for high raw water turbidity – 50 NTU, everage peaks up to 100 NTU
- 9 log bacteria removal and 4 log removal of virus and protozoa (Giardia and Cryptosporidium)
- Including product disinfection system, product supply pump and a 5 m³ flexible product storage tank