



The Mobile Water Treatment Plant 5



The water treatment plant MWTP 5 is designed for production of fresh water of quality according to STN standards, or the WHO 1993 "Guidelines for drinking water quality".

Utilisation

The source can be either territorial water (water stream, water pond), or underground water (bore, well). The plant is planned for treatment of waters ranged according to STN standards into category A,B and C. The plant is not destined for treatment of sea water, or contaminated water (by toxic or radioactive matters).

The water treatment plant removes from water besides insoluble matters also iron, manganese, aluminum, the aggressive CO₂, α-activity and radon. It considerably decreases the content of organic matters (including humic CHSK – Mn,TOC), colour, haze and bioeston and thus decreases the demand for disinfectants. Also heavy metals (Pb, As, Cd) are removed in the treatment. The treatment does not remove ions NH₄⁺, NO₃⁻, SO₄²⁻.

As an option it is possible to deliver the water treatment plant for non-standard raw waters like sea water, brackish or water unspecifically polluted with toxic or radioactive matters.

Comparison of analysis – river water

		raw water	treated 5m ³	treated 5,5m ³	treated 6m ³
PH					
Nitrates	mg / l	6,43	7,02	7,48	7,59
Nitrites	Mg / l	27,1	11,2	10,9	10,9
Calcium, Magnesium	M mol / l	0,048	0,01	1,01	0,01
Mn	Mg / l	0,9	0,92	0,92	0,92
Phenols	Mg / l	18,6	1,4	0,5	0,5
Sulphates	Mg / l	0,046	0,02	0,02	0,02
TOC	Mg / l	80,52	78,4	78,4	79,7
Al	Mg / l	2,89	0,2	0,27	0,02
As	Mg / l	0,041	0,025	0,026	0,026
Cd	Mg / l	0,075	0,005	0,005	0,005
Pb	Mg / l	0,0322	0,0001	0,00022	0,00009
Fe	Mg / l	0,0942	0,007	0,0169	0,004
		4,82	0,0246	0,0229	0,016

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Accessories

The treatment plant is equipped with a small laboratory for simple laboratory checking of operation as to the quality of produced water. The set of spare parts, as prime equipment, serves for eventual maintenance and repairs. The service manual, the operational manual for service and the directives for maintenance of the unit create the integral part of delivery. The professional training for operators is also included in the price of the unit. The unit set is produced from first class anticorrosive steel (AISI 304) and plastic materials. The treatment plant does not require maintenance as to the corrosion exposition. The readily available chemicals, usually used in water management, are utilized for the operation of water treatment plant.

Operation and technical parameters

External temperature:

-15 °C to +40 °C

Water temperature:

+4 °C to +25 °C

Capacity (according to water temperature):

2000 to 5000 l/h (max 120m³ /day)

Fresh water storage in accumulation tank:

3000 l

Quality of fresh water:

STN 75 7111, WHO 1993

"Guidelines for drinking water quality"

Electric energy:

3x400V / 230V, 50 Hz

Power output:

15 kW

Operational input:

up to 5 kW

Transport weight including cartridges:

9000 kg

Activation time:

ca. 1 to 1,5 hour



Microbiological analysis

The testing consisted in contamination of raw water from Vltava river by testing strains E.coli and Ent. Faecalis ordinarily 10/ml and heavy metals (As, Pb, Cd). The treated water was taken from the storage tank for fresh (already treated) water after overflow of 5 m³, 5,5m³, 6m³ what should response to the already treated water after its artificial contamination, because the volume of all water phases in MWTP 5 is ca. 5m³.

		raw water	treated 5m ³	treated 5,5m ³	treated 6m ³
Feces coliform bacteria	KTJ/ml	2,8	0	0	0
Coliform bacteria	KTJ/ml	3	0	0	0
Feces streptococcus	KTJ/ml	2,6	0	0	0
Mesophile bacteria	KTJ/ml	5	1	1	1
Psychrophile bacteria	KTJ/ml	6	0	0	0

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