



JOSAB
ECOLOGICAL WATER SOLUTIONS



PRODUCT CATALOGUE
2015

JOSAB ECOLOGICAL LOW COST HIGH FLOW WATER

The JOSAB Ecological Aqualite™ System purifies water using unique methods based on the use of filter housings containing the mineral Aqualite™. This technique provides purification without any chemical additives. Through its adsorption and ion-exchanging properties, Aqualite™ effectively removes heavy metals, radioactive fallout (Cs, Sr), nitrogen compounds, petroleum products, etc.

Protozoas are known to be resistant to chlorine, the JOSAB Ecological Aqualite™ System is able to filter out particles down to the size of 1 micron and removes approximately up to 98% of bacteria and parasites. The addition of UV light allows for a complete removal of, for example, heterotrophs, coliforms and E. coli bacteria, as well as Giardia lamblia and Cryptosporidium. No chemicals are used in the standard purifying process.

- Low environmental impact
- Ecological – No chemicals
- Low energy consumption – Less than 1 Watt per liter potable water
- User friendly
- Operational within hours
- Less consumables
- Reduced water consumption
- Significant water clarity
- Improved T10-value – More efficient UV sterilization

SWIFT AND EASY TO USE

JOSAB's ecological water purification solutions are designed for easy transportation to the point-of-need. With the pre-fabricated components it creates one of the fastest plug and play complete water purification solutions on the market. The treatment plant can be operational within a few of hours.

The JOSAB Ecological Aqualite™ System has few moving parts. The result is less wear and low production and maintenance cost. The highly efficient filter media, Aqualite™ allows for compact units with very high capacity and volume ratio. Staff with limited technical knowledge can be trained to operate the system within a few hours.

It is also possible to build the unit on site, on a truck flatbed, or car/truck pulled trailer. For emergency purpose, pallet or wheel mounted units, up to a capacity of 6m³/h can be offered.

JOSAB ecological water purification solutions feature modular technical components and easy exchangeable sections, that can be readily matched and tailored to a wide variety of raw water conditions to help meet specific water treatment needs.



AQUALITE™ SYSTEM

WATER TREATMENT SOLUTIONS

STANDARD PRODUCT RANGE

Model	Container size in feet*	Production m ³ /day**	Power kWh***	Power use in watt per produced liter of safe potable water
SC2700	45	1800 - 3000	36	0,28 - 0,47
SC1800	40	1200 - 2000	24	0,29 - 0,47
SC900	20	600 - 1000	13	0,29 - 0,49
SC500	20	400 - 650	12	0,46 - 0,75
SC100	20	100 - 170	3,5	0,41 - 0,69
P100	Pallets	78 - 130	2,5	0,46 - 0,76
P25	Pallets	20 - 33	0,8	0,58 - 0,96
PortableBasic	Wheels	14 - 24	0,8	0,88 - 1,37
PortablePro	Wheels	10 - 15	0,6	0,96 - 1,44

* ISO class sea high cube container. Size based on standard installation.

Additional add-ons can give a larger container size.

**based on 23 hours production per day and 1 hour per day backwashing.

***standard for a manual unit

The raw water quality will determine the flow rate through the unit. Influencing factors on the flow rate are particle density and the presence of heavy metals. In all cases the result of the water analyses will determine the recommended flow rate and add-ons.

ADD-ONS:

- Flocculation system which includes a pH adjustment system, to bind and filter out particles less than 1 micron.
- pH-adjustment system, in case pH levels in the raw water are too low or too high.
- Bag filtration system, can be installed, as an alternative to flocculation system .
- Activated carbon (AC) filtration system, when the raw water has too much organic residue or containing high levels of chlorine.
- Water quality control monitors.





AQUALITE™

The superior water purification material

The JOSAB Ecological Aqualite™ System uses a product called Aqualite™, a clinoptilolite, which is a natural zeolite with exceptional adsorption capacity. Aqualite™ is found in the Rátka mine, in Northern Hungary. After mining the large blocks of Aqualite™, further production takes place at JOSAB's own new indoor production plant in Szerencs.

Aqualite™ is used in water purification systems, for producing pure drinking water from freshwater sources. Aqualite™ cleans the water in a single step, and the process is entirely free from chemicals. Water purified using Aqualite™ meets the quality demands of WHO's regulation for drinking water.

The advantage of Aqualite™ is its physical/chemical adsorption, ion-exchanging and catalytic properties:

- Uniform pore structure and large pore volume
- Pore diameter 0.1 – 1.0 nanometer (nm)
- Filters particles greater than 1 microns
- Large specific area
- Reduces bacteria
- Reduces heavy metals, ammonium and hydrogen compounds
- Adsorbs chemical and petroleum products

Aqualite™ functions like a molecular strainer (sieve): i.e. it removes substances from water by adsorption.

Aqualite™ adsorbs:

Ammonia, nitrate, nitrogen, hydrogen-sulfide, heavy metals, carbon-oxygen, oil-derivates, ethylene, ethane, n-butane, oxygen, etc.

Aqualite™ adsorbs and/or separates with catalytic effect:

Potassium (K)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Strontium (Sr)
Lead (Pb)	Copper (Cu)	Silver (Ag)	Mercury (Hg)	Nitrogen (N)
Nickel (Ni)				

Aqualite™ is a bactericide which reduces Heterotrofa, Coliforma and E-coli bacteria with 91.5 – 97.5 %.

A special filter technology in combination with a UV sterilizer, guarantee clean and safe water. This technology is patented.



Properties and saturation of the ion-exchanger

Aqualite™ has a cation-exchange capacity, or in other words it is negatively charged. This means that it will work as an ion-exchanger. When a solution containing cations is passing through the ion-exchanger, the cations will change place with the counter ions and thereby stay in the ion-exchanger and the counter ions goes into the solution. The cations are adsorbed

Aqualite™ changes ions of pollutants to potassium- or sodium-ions, which are harmless.

Some cations will be bounded stronger in the ion-exchanger than others, the ion-exchanging priority order:

$\text{NH}_4 > \text{K} > \text{Fe}, \text{Mn} > \text{Cs} > \text{Zn} > \text{Ba}, \text{Sr}, \text{Pb}, \text{Ca} > \text{Cu}, \text{Ag}, \text{Hg}, \text{Co} > \text{Al} > \text{Mg}, \text{Li} > \text{Ni}$

When a solution containing many cations from above priority order, passing through the ion-exchanger, the competition for the binding points will be arranged according to the priority order. At last all binding-points are saturated with cations from beginning of the above priority order, and material has to be regenerated or replaced.

Physical properties of Aqualite™

Physical form:	Grey granules
Size:	0.6 – 2.0 mm and 5.0 – 10.0 mm
Ionic form:	Sodium
Ion exchange capacity:	1.2 – 1.3 mval/g
Adsorption capacity:	0.1 – 0.2 cm ³ /g
Dynamic water adsorption capacity:	26 mg/g
Particle density:	2.2 – 2.3 kg/l
Volume density:	0.8 – 0.85 l/kg
Active area:	200-500 m ² /g
Hardness:	300 – 400 kp/cm ²
Melting point:	400 °C
Water solubility:	Insoluble

*Josab's production plant
in Szerencs, Hungary*

Optimal operating conditions

Max operating temperature:	80°C
Minimum bed depth:	600 mm
Recommended bed depth:	1000 – 1200 mm
Service flow rate:	7 - 15 m/h at 1000 mm
Backwash flow rate:	25 – 40 m/h
Bed expansion:	30 – 40 %
Regenerant:	NaCl
Flow rate:	2 – 4 m/h
Concentration:	10 % w/w
Min contact time:	6 minutes



SC2700

Data

Containing 3 individual series, each with 4 filter houses.

1800 - 3000 m³/day (based on 23 hours production per day and 1 hour backwash per day)

Power 36 kWh (for a standard manual unit)

0.28 - 0.47 W per produced liter of safe potable water

Container

ISO class 45 feet high-cube sea container

Quantity: 1 pc

Filter media

Fraction 0.63 - 2.0 mm Aqualite™ 9 900 kg

Fraction 5.0 - 10.0 mm Aqualite™ 2 100 kg

Pump

Flow rate up to 715 l/min (43 m³/h)
with 48 m head.

Dynamic head up to 64 m

Quantity: 3 pcs

UV sterilizer

UV-light having a light intensity of 400 Joule/m²

Flow rate up to 850 l/min (51 m³/h)

Standard working hours: 10 000 h per lamp

Quantity: 3 pcs

Centrifugal separator

Flow range: 33.5 - 65 m³/h

Pressure loss range 0.3 - 0.9 bar

Material: Carbon steel

Pressure: min 1 bar max 12 bar

Quantity: 3 pcs

Chlorine injection

Pulse operated chemical pump for the injection
of 0.5 mg/l chlorine as recommend by WHO

Capacity range 0.74 - 19 l/h

Stroke frequency adjustment 0 - 100%
(recommended 30 - 100%)

Quantity: 1 pc

Filter housing

Body in PA 1100 mm x 2310 mm with
bottom and top nozzle system

Quantity: 12 pcs

Tubing and valves

In the single series: Diameter 3" / DN 80 / 90 mm

Main entry and exit: Diameter 6" / DN 150 / 160 mm





Module Side Opening (electric), this module is used in the SC900E (1x), SC1800E (2x) and SC2700E (3x)





Entry doors to the 2 Side Opening modules mounted in a SC1800 for a Chinese customer



SC1800

Data

Containing 2 individual series, each with 4 filter houses
1200 - 2000 m³/day (based on 23 hours production per day and 1 hour backwash per day)
Power 24 kWh (for a standard manual unit)
0.29 - 0.47 W per produced liter of safe potable water

Container

ISO class 40 feet high-cube sea container
Quantity: 1 pc

Pump

Flow rate up to 715 l/min (43 m³/h)
with 48 m head.
Dynamic head up to 64 m
Quantity: 2 pcs

Centrifugal separator

Flow range: 33.5 - 65 m³/h
Pressure loss range: 0.3 - 0.9 bar
Material: Carbon steel
Pressure: min 1 bar max 12 bar
Quantity: 2 pcs

Filter housing

Body in PA 1100 mm x 2310 mm with
bottom and top nozzle system
Quantity: 8 pcs

Filter media

Fraction 0.63 – 2.0 mm Aqualite™ 6 600 kg
Fraction 5.0 – 10.0 mm Aqualite™ 1 400 kg

UV sterilizer

UV-light having a light intensity of 400 Joule/m²
Flow rate up to 850 l/min (51 m³/h)
Standard working hours: 10 000 h per lamp
Quantity: 2 pcs

Chlorine injection

Pulse operated chemical pump for the injection
of 0.5 mg/l chlorine as recommend by WHO
Capacity range 0.74 - 19 l/h
Stroke frequency adjustment 0 - 100%
(recommended 30 - 100%)
Quantity: 1 pc

Tubing and valves

In the single series: Diameter 3" / DN 80 / 90 mm
Main entry and exit: Diameter 5" / DN 125 / 140 mm





Monitor section of the SC900E (electric) with control cabinet and chlorine injection



SC900

Data

Containing 4 filter houses.

600 - 1000 m³/day (based on 23 hours production per day and 1 hour backwash per day)

Power 13 kWh (for a standard manual unit)

0.29 - 0.49 W per produced liter of safe potable water

Container

ISO class 20 feet high-cube sea container

Quantity: 1 pc

Pump

Flow rate up to 715 l/min (43 m³/h)
with 48 m head.

Dynamic head up to 64 m

Quantity: 1 pc

Centrifugal separator

Flow range: 33.5 - 65 m³/h

Pressure loss range: 0.3 - 0.9 bar

Material: Carbon steel

Pressure: min 1 bar max 12 bar

Quantity: 1 pc

Filter housing

Body in PA 1100 mm x 2310 mm with
bottom and top nozzle system

Quantity: 4 pcs

Filter media

Fraction 0.63 – 2.0 mm Aqualite™ 3 300 kg

Fraction 5.0 – 10.0 mm Aqualite™ 700 kg

UV sterilizer

UV-light having a light intensity of 400 Joule/m²

Flow rate up to 850 l/min (51 m³/h)

Standard working hours: 10 000 h per lamp

Quantity: 1 pc

Chlorine injection

Pulse operated chemical pump for the injection
of 0.5 mg/l chlorine as recommend by WHO

Capacity range 0.74 - 19 l/h

Stroke frequency adjustment 0 - 100%
(recommended 30 - 100%)

Quantity: 1 pc

Tubing and valves

Diameter 3" / DN 80 / 90 mm



SC500

Specifications

Data

Containing 4 filter houses, placed along the long side of the container
400 - 650 m³/day (based on 23 hours production per day and 1 hour per day backwashing)
Power 12 kWh (for a standard manual unit)
0.46 - 0.75 Watt per produced liter of safe potable water

Container

ISO class 20 feet high-cube sea container
Quantity: 1 pc

Pump

Flow rate up to 715 l/min (43 m³/h)
with 48 m head.
Dynamic head up to 64 m
Quantity: 1 pc

Centrifugal separator

Flow range 21.5 – 34.5 m³/h
Pressure loss range 0.3-0.9 bar
Material: Carbon steel
Pressure min 1 bar Max 12 bar
Quantity: 1 pc

Filter housing

Body in PA 900 mm x 2310 mm with
bottom and top nozzle system
Quantity: 4 pcs

Filter media

Fraction 0.63 – 2.0 mm Aqualite™ 2 200 kg
Fraction 5.0 – 10.0 mm Aqualite™ 350 kg

UV sterilizer

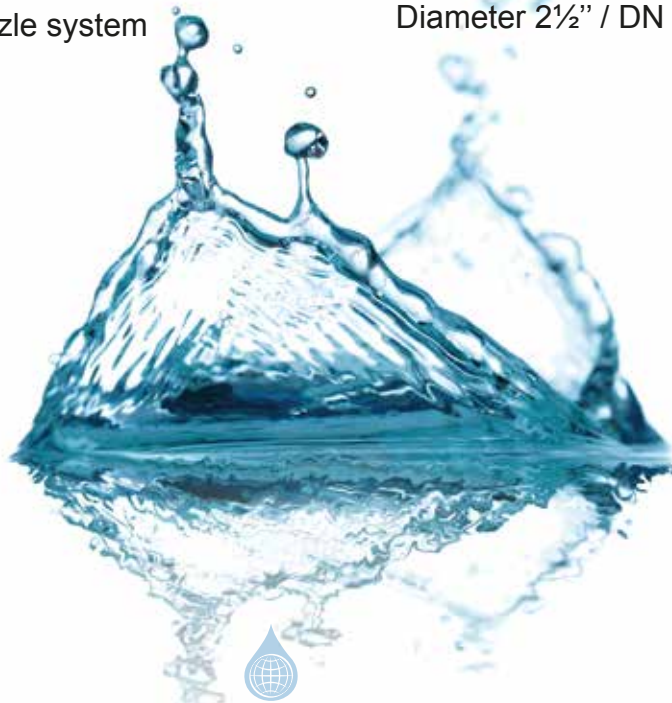
UV-light having a light intensity of 400 Joule/m²
Flow rate up to 580 l/min (35 m³/h)
Standard working hours: 10 000 h per lamp
Quantity: 1 pc

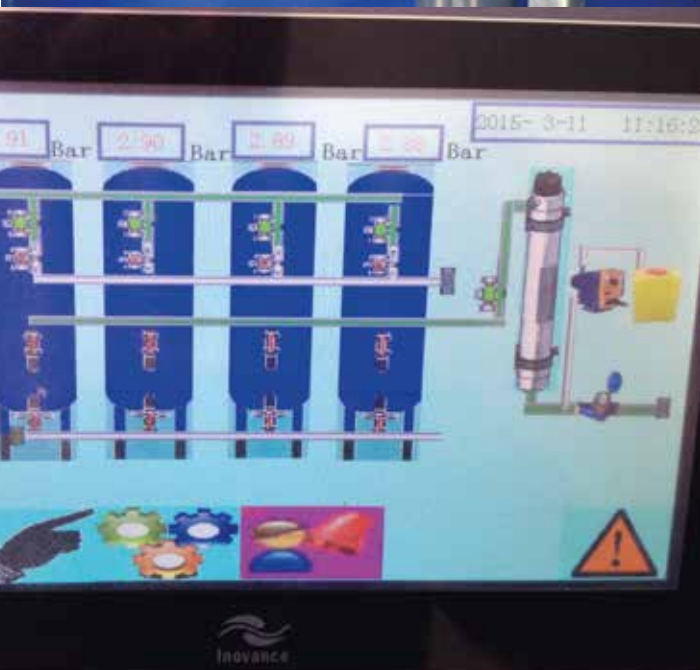
Chlorine injection

Pulse operated chlorine for injection of WHO
recommended injection of 0.5 mg/l
Capacity range 0.74 - 19 l/h
Stroke frequency adjustment 0 - 100%
(recommended 30 - 100%)
Quantity: 1 pc

Tubing and valves

Diameter 2½" / DN 65 / 75 mm





SC500E (electric) a full automatic controlled unit, with electrical valves and full-colour touchscreen control display.



SC100

Specifications

Data

Containing 4 filter houses

100 - 170 m³/day (based on 23 hours production per day and 1 hour per day backwashing)

Power 3.5 kWh (for a standard manual unit)

0.41 - 0.69 Watt per produced liter of safe potable water

Container

ISO class 20 feet high-cube sea container

Quantity: 1 pc

Pump

Flow rate up to 100 l/min (7,6 m³/h)

Max H = 49 m

Quantity: 1 pc

Centrifugal separator

Flow range 4.7 – 7.6 m³/h

Pressure loss range 0.3-0.9 bar

Material: Carbon steel

Pressure min 1 bar Max 12 bar

Quantity: 1 pc

Filter housing

Body in PA 465 mm x 2121 mm with bottom and top nozzle system

Quantity: 4 pcs

Filter media

Fraction 0.63 – 2.0 mm Aqualite™ 500 kg

Fraction 5.0 – 10.0 mm Aqualite™ 100 kg

UV sterilizer

UV-light having a light intensity of 400 Joule/m²

Flow rate up to 115 l/min (6.8 m³/h)

Standard working hours: 10 000 h per lamp

Quantity: 1 pc

Tubing and valves

Diameter 2" / DN 50 / 63 mm



Chlorine injection

Pulse operated chlorine for injection of WHO
recommended injection of 0.5 mg/l
Capacity range 0.74 - 19 l/h
Stroke frequency adjustment 0 - 100%
(recommended 30 - 100%)
Quantity: 1 pc



SC100M (Manual) *manual* operated valves



P100 previously M6000

Data

Modular unit of 4 filter houses mounted on 4 Europallets, ideal for larger emergency use.
78 - 130 m³/day (based on 23 hours production per day and 1 hour backwash per day)
Power 2.5 kWh (for a standard manual unit)
0.46 - 0.76 W per produced liter of safe potable water

Modular pallet based system

Filter housing units
Quantity: 1200 x 800 x 1900 mm 2 pcs
Pump and centrifugal separator unit
Quantity: 1200 x 800 x 1100 mm 1 pc
UV sterilizer and chlorine injection unit
Quantity: 1200 x 800 x 1600 mm 1 pc
All units in round tubes stainless steel frames for easy lifting.

Pump

Flow rate up to 96 l/min (5,8m³/h)
Max H = 49 m
400 V, 3-phase, 50 Hz, 2,2 kW
Quantity: 1 pc

Centrifugal separator

Flow range: 4.7 - 7.6 m³/h
Pressure loss range: 0.3 - 0.9 bar
Material: Carbon steel
Pressure: min 1 bar, max 12 bar
Quantity: 1 pc

Filter housing

Filter housing in stainless steel 316L
400 mm x 1600 mm
with bottom and top nozzle system
Quantity: 2 x 2 pcs

Filter media

Fraction 0.63 - 2.0 mm Aqualite™ 500 kg
Fraction 5.0 - 10.0 mm Aqualite™ 100 kg

UV sterilizer

UV-light having a light intensity of 400 Joule/m²
Flow rate up to 115 l/min (6.8 m³/h)
Standard working hours: 10 000 h per lamp
Quantity: 1 pc

Chlorine injection

Pulse operated chemical pump for the injection of 0.5 mg/l chlorine as recommend by WHO
Capacity range 0.74 - 19 l/h
Stroke frequency adjustment 0 - 100% (recommended 30 - 100%)
Quantity: 1 pc

Hoses

Diameter 2" / DN 50 / 63 mm
In- and out going hoses 25 m
Cam lock connections (UN approved)

Total weight: 950 kg



*P100 (M6000) unit in Myanmar
From left to right
Module 1 with pump and centri-
fugal separator.
In the middle
module 2 and 3
with the 4 filter
 housings. To the
right module 4
with UV sterilizer
and chlorine
injection. In front
of module 4 two
boxes with
hoses, tools and
spare parts.
The two boxes
are transported
with module 4*



*Several P100
(M6000) units
packed for trans-
port for the
Swedish Civil Con-
tingencies Agency
for delivery to
Myanmar*



P25 previously M1500

Data

Flexible modular emergency unit based on a single filter system mounted on 2 Europallets.
20 - 33 m³/day (based on 23 hours production per day and 1 hour backwash per day)
Power 0.8 kWh (for a standard manual unit)
0.58 - 0.96 W per produced liter of safe potable water

Modular pallet based system

Operating units

Quantity: 800 x 600 x 1900 mm 1 pc

Filter housing unit

Quantity: 1200x800x1400 mm 1 pcs

All units in round tubes stainless steel frames for easy lifting.

Pump

Flow rate up to 23 l/min (1.4 m³/h)

Max H = 49 m

400 V, 3-phase, 50 Hz, 0,8 kW

Quantity: 1 pc

Centrifugal separator

Flow range: 0.7 - 1.6 m³/h

Pressure loss range: 0.3 - 0.9 bar

Material: Carbon steel

Pressure: min 1 bar, max 12 bar

Quantity: 1 pc

Filter housing

Filter housing in stainless steel 316L

400 mm x 1600 mm

with bottom and top nozzle system

Quantity: 1 pc

Filter media

Fraction 0.63 - 2.0 mm Aqualite™ 125 kg

Fraction 5.0 - 10.0 mm Aqualite™ 25 kg

UV sterilizer

UV-light having a light intensity of 400 Joule/m²

Flow rate up to 25 l/min (1.5 m³/h)

Standard working hours: 10 000 h per lamp

Quantity: 1 pc

Chlorine injection

Pulse operated chemical pump for the injection of 0.5 mg/l chlorine as recommend by WHO

Capacity range 0.74 - 19 l/h

Stroke frequency adjustment 0 - 100%

(recommended 30 - 100%)

Quantity: 1 pc

Hoses

Diameter 2" / DN 50 / 63 mm

In- and out going hoses 25 m

Cam lock connections (UN approved)

Total weight: 300 kg



ADD-ONS

All containerized and modular units can be fitted with extra modules for pretreatment, after treatment or both pre- and after treatment.

PRETREATMENT

Flocculation

In certain cases the particles in the raw water are below 1 micron in size and hence would not be captured by the systems standard filters. In such cases flocculation can be needed to bind particles to create larger particles. Flocculation always causes a drop of pH levels, that's why often a pH adjustment is needed in combination with flocculation.

Bag filtration

Small particles can also be separated with the use of bag filters. As bag filters can easily get clogged, Josab does not recommend bag filters in an automated set-up where optical inspection is minimal.

pH adjustment

In case of low or high pH levels the container will be fitted with a pH adjustment injection system and static mixer. The pH levels are monitored with the help of an optical eye.

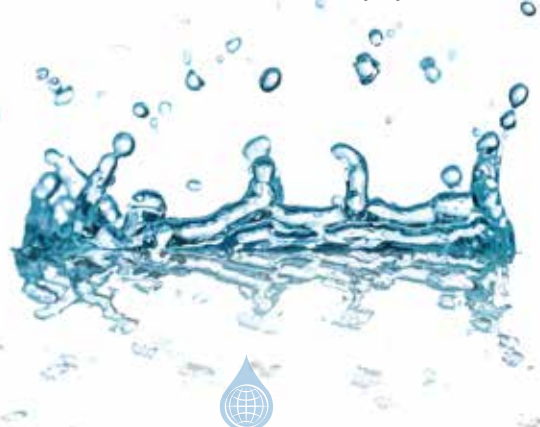
AFTER TREATMENT

Activated carbon filtration

Water sources can contain high levels of chlorine and/or organic residue. In those cases the treated water needs to pass an activated carbon filter in order to be able to remove chlorine and/or organic particles. Activated carbon filtration operates with exchangeable cartridges that can be cleaned and reused.

TEST EQUIPMENT

All containerized units can be fitted with electronic test equipment that monitor the treated water



PORTABLE BASIC

Emergency supply of drinkable water from polluted freshwater sources

Specifications (1 filter house)

Data

14 - 24 m³/day (based on a 23 hours production per day and 1 hour backwash per day)

Power 0.8 kWh (for a standard manual unit)

0.8 - 1.37 Watt per produced liter of potable water

Handcart

Steel, 1170 x 520 x 390 mm, (track width 42 cm)

Quantity: 1 pc

Pump

Flow rate up to 18 l/min (1,1 m³/h)

Max H = 45 m, 220-240 V, 0.6 kW

Quantity: 1 pc

Filter housing

Polyamide pressure tank,
356 x 1118 mm

Filter media

Fraction 0.63 – 2.0 mm Aqualite™ 70 kg

Included in the delivery

All necessary hoses

Chlorine tablets, 0.6 kg

Electrical extension cable, 25 m

Unit total weight: 95 kg

Portable Basic purifies ground-, well-, river- or lake water, by removing/reducing e.g., particles, odor, taste, bacteria and viruses. The unit is used where there is an immediate need to produce large amounts of drinkable water. Aqualite™ Portable Basic cleans between 1 and 2 m³ of water every hour.

Please note!

Aqualite™ PortableBasic is intended for use in emergency situations only. The unit operates at high flow rates, which can only be used when the quality of the water can be partly sacrificed for the benefit of quickly producing large volumes of drinkable water. The effluent water cannot be fully guaranteed to meet all requirements for drinking water according to the WHO's guidelines.



PORTABLE PRO

Build to fit airplane doors for quick emergency delivery

Data

10 - 15 m³/day (based on a 23 hours production per day and 1 hour backwash per day)
Power 0.6 kWh (for a standard manual unit)
0.96 - 1.44 W per produced liter of safe potable water

Frame

Stainless steel 316L with removable wheels
Size: 57 x 75 x 116 cm (track width: 93 cm)
Quantity: 1 pc

Pump

Flow rate up to 12 l/min (0,7 m³/h)
Max H = 49 m, 1,05 kW, single phase, 50 Hz.
Quantity: 1 pc

Centrifugal separator

Flow range: 0.7 - 1.6 m³/h
Pressure loss range: 0.3 - 0.9 bar
Material: Carbon steel
Pressure: min 1 bar max 12 bar
Quantity: 1 pc

Filter housing

Filter housing in stainless steel 316L
400 mm x 1100 mm
with bottom and top nozzle system
Quantity: 1 pc

Filter media

Fraction 0.63 - 2.0mm Aqualite™ 70 kg
Fraction 5.0 - 10.0mm Aqualite™ 15 kg

Please note!

Portable Pro is intended for use in emergency situations only.

The filter bed is lower than other units and operates due to this at lower flow rates, however it is fully equipped with all features as our larger units. This means it will give the benefit of quickly produced smaller volumes of safe, drinkable water. The effluent water can be fully guaranteed to meet all requirements for drinking water according to the WHO's guidelines.



UV sterilizer

UV-light having a light intensity of 400 Joule/m²
Flow rate up to 20 l/min (1.2 m³/h)
Standard working hours: 10 000 h per lamp
Quantity: 1 pc

Chlorine injection

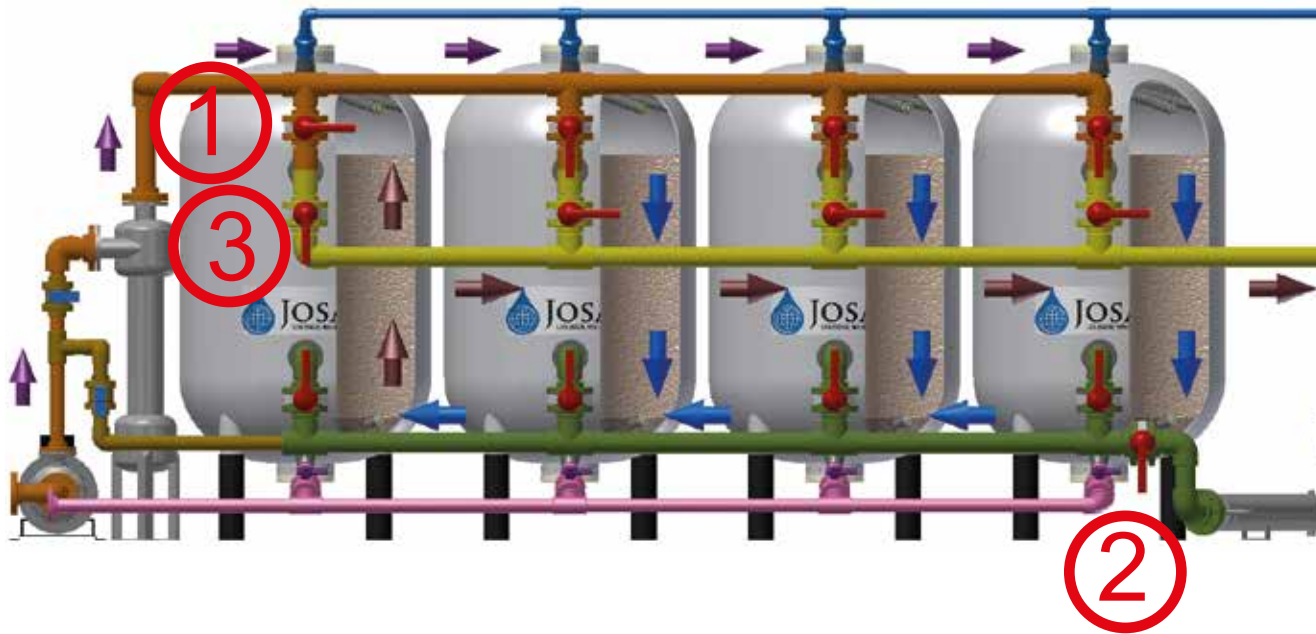
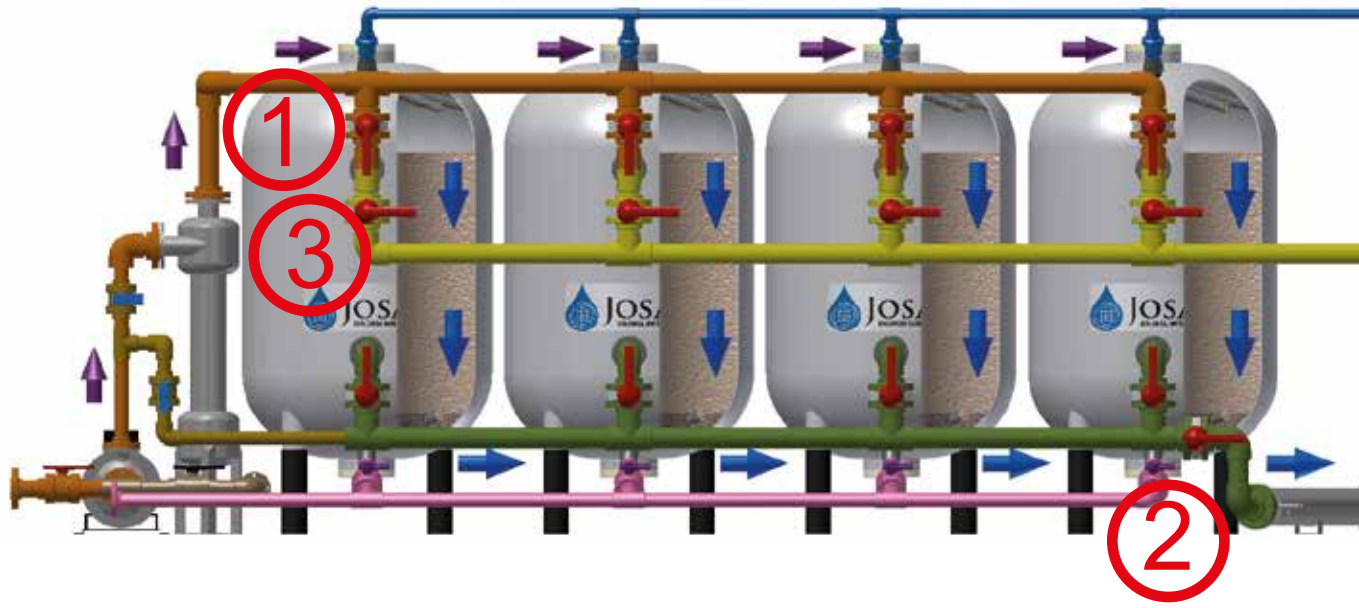
Pulse operated chemical pump for the injection of 0.5 mg/l chlorine as recommended by WHO
Capacity range 0.74 - 19 l/h
Stroke frequency adjustment 0 - 100% (recommended 30 - 100%)
Quantity: 1 pc

Hoses

Diameter 2" / DN 50 / 63 mm
In- and out going hoses 25 m
Cam lock connections (UN approved)

Total weight: 400 kg





STANDARD OPERATION

The JOSAB ecological water treatment plant works with the easy principal of pre filtration with a centrifugal separator to remove all particles larger than 1 micron after which the water is divided into 4 filter housings (orange piping in the drawing). The filter housings include the special Aqualite™ for adsorption of particles as described in the Aqualite™ section of the product catalogue.

The water is collected together for treatment (green piping in the drawing) into the UV sterilizer.

To preserve the water from contamination a small amount of chlorine is added (0,5mg per liter in accordance with WHO guidelines).

When the pressure in the Aqualite™ filter housings is slowly rising it means that the surface of Aqualite™ bed is blocked and backwashing is needed. Backwashing can be done by the system itself without the use of external supply of water.

BACKWASHING

By closing the exit to the UV sterilizer (2) all water is kept within the filter housings. Closing the valve to filter housing that needs to be cleaned (1) and opening the backwash valve (3) of the same filter housing. Clean water of the 3 remaining filters will be used to push the water through the fourth filter housing from the bottom and out to the backwash piping (yellow piping in the drawing) taking all dirt from the filter housing with it.

After about 15 minutes or so the water will be clean again and valves (1) and (3) are placed back to the normal positions and the same procedure can be done with the other 3 filter housings. When all filter housings are cleaned and valves are placed back in their normal positions, the valve to the UV sterilizer can be opened up again and normal procedure can continue.

REGENERATION

Aqualite™ reduces heavy metals etc. by ion exchange. The filter-bed is saturated when no more ion exchanging takes place. However, regenerating the filter media with 10 - 12 % salt solution (NaCl – regeneration solution) can restore the Ion exchange capacity. This might be necessary after 1 week or after 1 - 2 months depending on quality of the raw water source, content of heavy metals etc.

To regenerate, drain the filter housings of water and replace it with salt solution, leave it overnight and use an external clean water source for back washing (see example).

Waste water from the regeneration with salt solution can contain heavy metals which can be harmful to the environment.

Please note: Waste from regeneration should be taken care of as environmentally hazardous material.

Regeneration can be offered in a service contract with Josab or the local Josab agent.



MANUAL OR AUTOMATED

Depending on location and wishes of the customer the containerized units can be manual, semi automated or fully automated.

The basic units of the containerized water treatment plants will be delivered with manual operated ball valves up to the size of 4" / DN100 / 110 mm. Larger valves are butterfly type or the whole units is with butterfly type valves.

Automated water treatment plants can be supplied either with electrical ball valves (max 3") or electrical butterfly valves.

COST OF OPERATION

The power consumption for the Josab ecological water treatment plant is low, less than 0.75 W per produced liter of safe potable water (emergency units up to 1.44 W). Besides cost for electricity and personnel, there are cost for annual change of UV lamps with included sleeves and the minimal amount of chlorine doses.

The expected lifespan of Aqualite™ is approximately six years. This means that with a proper handling, backwashing and regeneration according to the recommended cycle, Aqualite™ has a lifespan which is longer than traditional water treatment processes.

For regeneration clean salt is mixed with water. The amounts of regeneration is based on the local raw water quality used prior to the water treatment process. This salt is often available on the local markets.

The operation cost for a standard unit without the add-ons is around € 0.10 / m³ for the smaller units and € 0.02 / m³ for the largest unit.



SERVICE

GENERAL SERVICE AGREEMENT

All Josab ecological water treatment plants sold are also offered with a general service agreement. The general service agreement is adapted to a specific unit based on use and local circumstances. General service agreements will be offered for a period of 2 - 12 years. The service contract offer everything from a regular check-up to a full service package.

A basic general service agreement will be compulsory to receive our guarantee regarding any of Josab ecological water treatment plant, components and accessories that are included in the selling price. A general service agreement can be issued by Josab and its subside or by Josab authorized agents. All agreements must follow Josab's standard and be approved by Josab.

INTERNET BASED LOGBOOK

As part of the service agreement customers will have to keep a logbook. For the container based water treatment plants this is an electronic logbook mounted to the electrical cabinet and that can be downloaded to the customer page internet. This allows for close monitoring and up to date read outs for optimal service quality and continuous operation.

CERTIFICATE OF APPROVAL

Every unit that leaves the production plant is tested and checked according to the certificate of approval, this follows the unit to the site of operation where a new check is done by Josab appointed technicians and the customer.

TRAINING OF PERSONAL

A training is given to the personal that will operate the unit and these personal will receive a diploma of certified operator and an excess code to the internet based logbook.

WARRANTY

Warranties for the products used in the Josab water treatment plants is one year given that all steps of the General Service Agreement and maintenance are followed. Aqualite™ has, when used and serviced in accordance with the General Service Agreement and manual has an expected lifetime of approximately 6 years. The Josab Ecological Aqualite™ System is covered by a warranty only when regular maintenance by the certified operator has been performed and documented in the logbook.



OTHER APPLICATIONS

JOSAB's main application is purifying drinking water. However, thanks to the unique features of Aqualite™, it can be used for many other applications.

Offshore systems

Maritime systems

Ground sanitation

Irrigation systems

Waste water purification etc

Fish and prawn farming

Swimming pools

Green houses

Process water



THE COMPANY

Josab International AB (Publ), founded in 1986, is a listed company on the Stockholm stock exchange and with headquarters in Stockholm, Sweden.

JOSAB manufactures and sells ecological water treatment solutions based on, by the company patented, unique filter material Aqualite™. The company has subsidiaries in Hungary, China and India. In other parts of the world JOSAB has local representatives. Josab has delivered water purification plants to locations in Europe, Africa and Asia. JOSAB's ecological water purification plants are recommended by several international bodies.

In March 2014 Heilongjiang InterChina Watertreatment Co Ltd (ICW) became the largest shareholder in Josab International AB (Publ). Heilongjiang InterChina Watertreatment Co Ltd operates water and wastewater treatment plants around China on the assignment of the Chinese government.

The company is listed on the Shanghai stock exchange.

REFERENCES

- Josab International AB is a preferred supplier to the Swedish Civil Contingencies Agency (MSB).
- The United Nations Global Market (UNGM) have approved and registered JOSAB as an approved supplier of Water Treatment.
- Official, national agencies in Ghana and Nigeria have certified and approved the JOSAB Ecological Water Treatment Plant as recommendable for purification of drinking water.
- The National Institute of Hygiene in Poland has approved JOSAB Ecological Water Treatment Plant for production of potable water in municipalities.
- In Denmark, Roskilde Amt has approved JOSAB Ecological Water Treatment Plant to purify water used to irrigate products intended for public consumption.
- The Environmental Board in Helsingborg, Sweden has approved the use of JOSAB Ecological Water Treatment Plant for purification of groundwater at construction sites.

Organizations and companies using JOSAB Ecological Aqualite™ Systems

UNICEF
Red Cross
UNHCR
UNMISS
Save the children
Regideso Burundi
IOCC Serbia
Marinfloc
etc





JOSAB

ECOLOGICAL WATER SOLUTIONS

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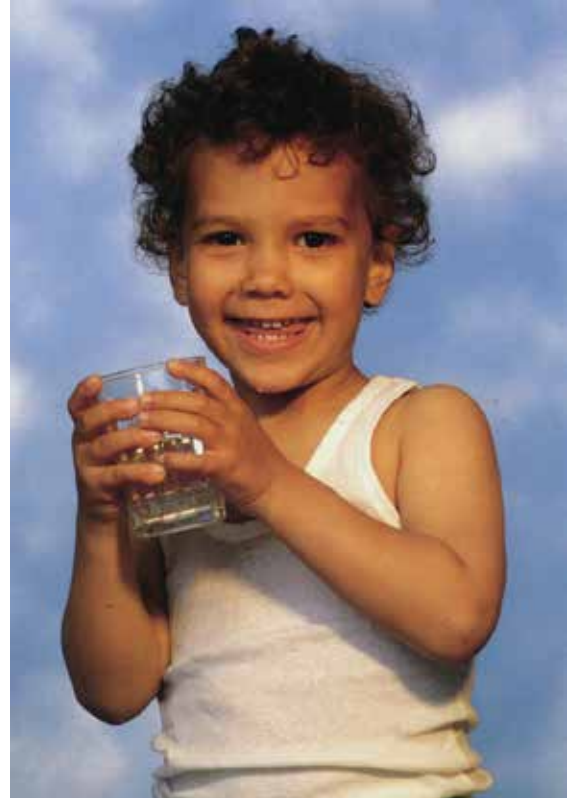
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