



## UF-PACK™ Ultra-Filtration Package Systems for Greywater Treatment and Wastewater Tertiary Treatment

The UF-PACK™ is a system used for Greywater Treatment as well as Tertiary Wastewater Treatment for reuse applications. It is based on the ultrafiltration (UF) technology using low-fouling hollow fiber membranes and can provide high quality water effluent. It is unique due to its compactness, effectiveness, and ease of installation.

DEVISE ENGINEERING offers a number of standard models ranging from 100 to 1,500 m<sup>3</sup>/day, which can be supplied in standard ISO freight containers or as complete skid-mounted units.

### Reliable and Efficient System

UF-PACK™ is suitable for either indoor or outdoor installation (containerized system) and can operate under any weather conditions, such as extreme heat (desert conditions) or freezing temperatures, as it incorporates special features to support harsh operating environments.

The design of each UF-PACK™ plant is based on actual quality and volumetric data of the feed water to be filtered. The expected effluent quality from UF-PACK™ Units is shown in the table below:

| UF-PACK™ Effluent Quality               |
|---|
| BOD <sub>5</sub> < 10 mg/l              |
| COD < 50 mg/l                           |
| TSS < 2 mg/l                            |
| Turbidity < 1 NTU                       |
| Total coliform bacteria < 20 CFU/100 mL |

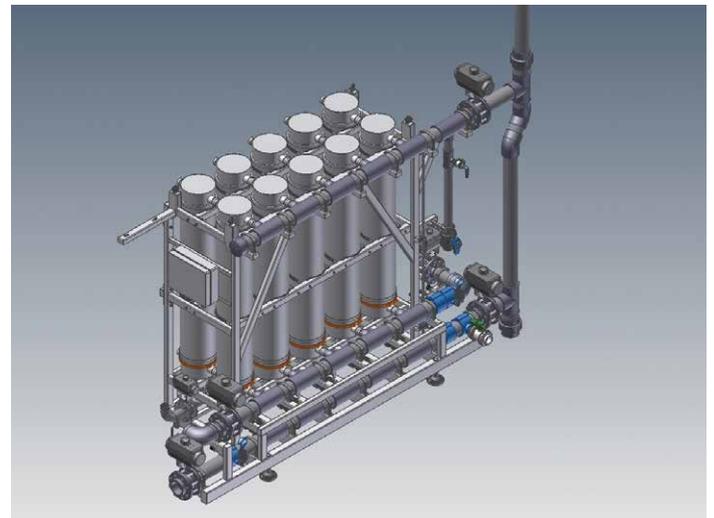
The above values are expected after an efficient biological treatment of the wastewater

### Ultrafiltration Technology

The hollow fiber UF membranes provide a physical barrier that rejects micro solids, bacteria cells, colloidal turbidity, macromolecules and viruses. This technology has been proved effective in numerous water reuse installations worldwide. The resulting filtered water quality is characterized by low turbidity and SDI values and, therefore can be fed directly to the final recipient for reuse or to a downstream reverse osmosis installation for further treatment, if required.

The UF-PACK™ is highly stable pressure-driven membrane separation unit operating in dead-end mode. During normal operation, the water is allowed to permeate through the membrane fibers in an outside-in fashion whereas almost all suspended and colloidal solids are retained on the membrane surface. This leads to a significant turbidity reduction in the filtrate stream.

Periodic back flushing, using filtered water, is performed at fixed time intervals, during which the flow direction through the membranes is reversed (i.e. inside-out). This is used to effectively remove most of the suspended solids layer gradually built-up on the feed side of the membrane fibers.



# Advantages

## Smart Solution

- State-of-the-art technology
- High applied flux values and obtainable recoveries
- Fully tested before dispatch
- Ready to plug & play
- Modular design
- Ideal for refurbishment on existing plants to offer increased quality effluent for reuse
- Easy transportation, deployment and installation
- Space saving - Small foot print
- Low energy demand

## Easy Operation

- Fully automatic
- Controlled by PLC and/or SCADA
- User friendly interface (touch screen HMI)
- Remote monitoring
- Excellent performance with process stability
- Low chemical demand

## High Performance and Quality

- Hydrophilic low-fouling membranes
- Reliable operation at high solids content
- Effective retention of bacteria cells & colloids
- High-quality & consistent permeate production
- High & reliable system performance
- Easy & low maintenance

## Plant design

The raw wastewater is initially treated by using the DEVISE HIGH-RATE™ BioPlants and the resulting secondary effluent and coliforms can then be polished using the DEVISE UF-PACK™.

The produced filtered water is virtually free of suspended solids (high clarity) containing only very small concentrations of soluble organics (BOD & COD). This water can be subjected to residual disinfection and stored for further use according to local regulations.



UF treatment Skids



Advanced Engineering



Easy to Transport



Plug & Play



Modular Design



Prefabricated Units



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