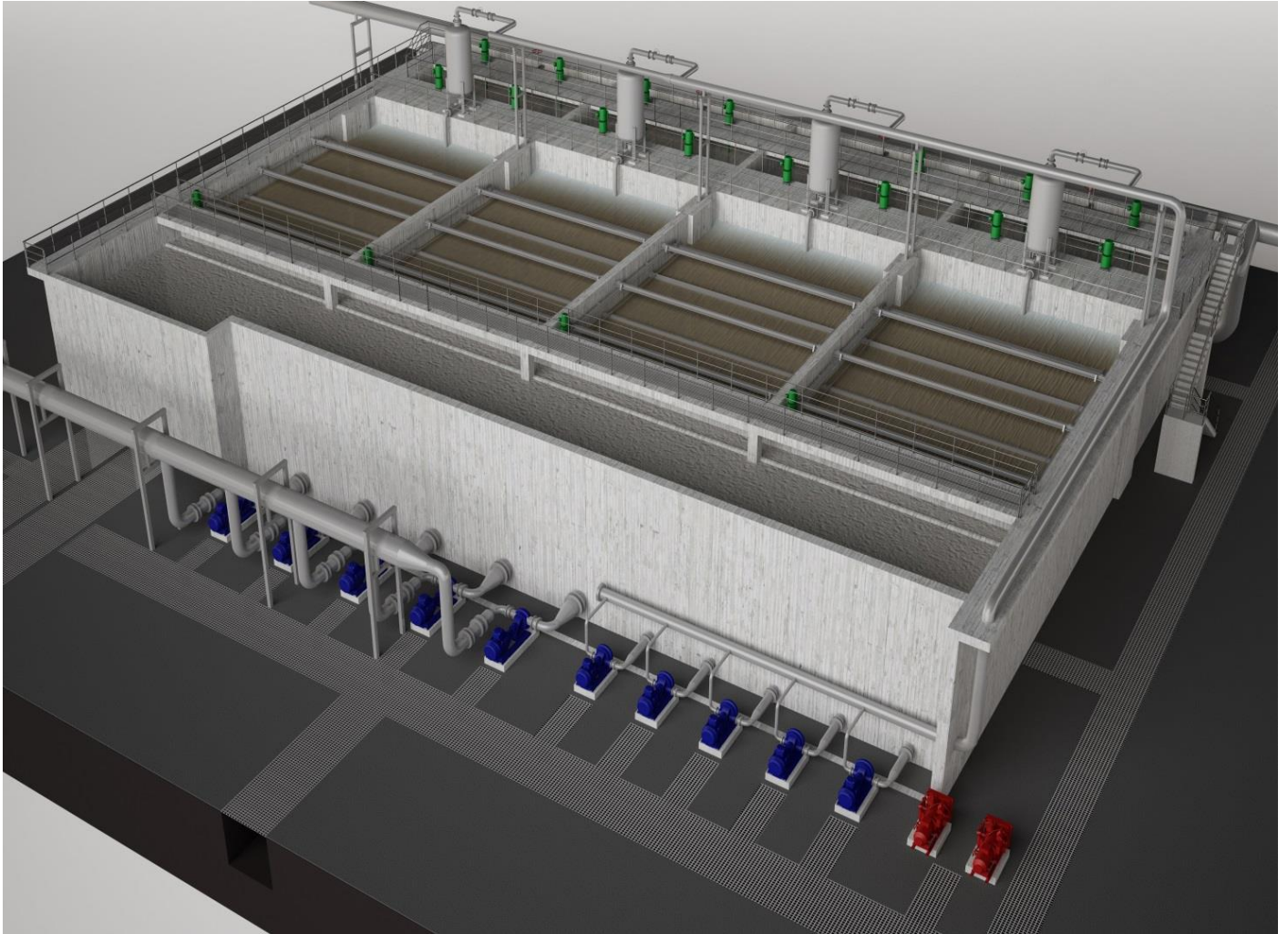


# PROBIG®

## DAF Pre-Treatment System



High efficient and reliable sea, river, waste water pre-treatment solution for Munisipal and Industrial plants to remove organics, algae, oil, soluble metals and particles.

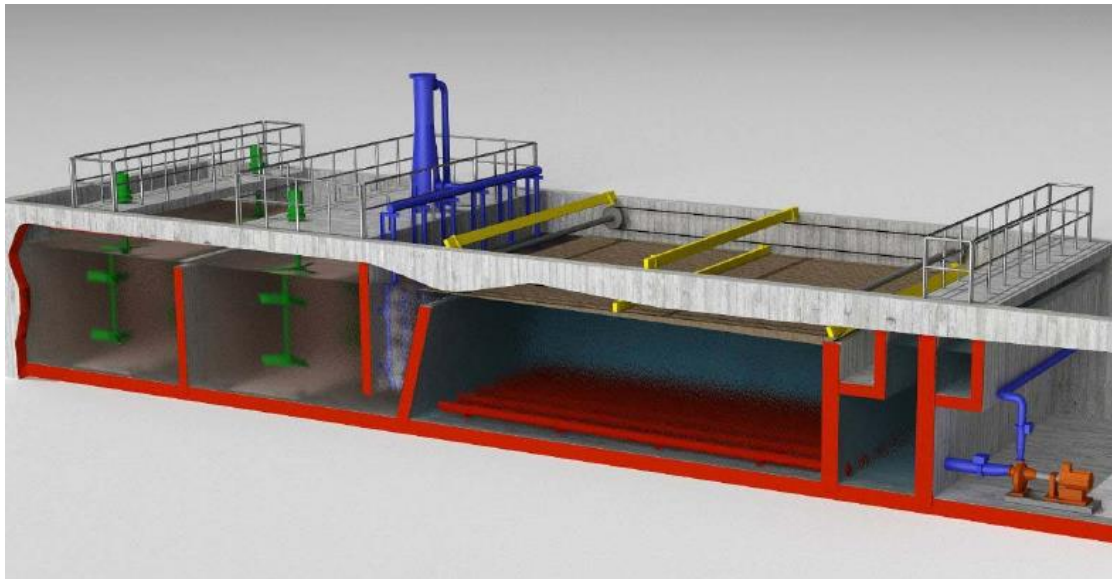


## Technology and concept

The design and engineering for DAF plant is made from KWI®. We use their UNICELL BF technology. The DAF-scrapers, totally made in non-metallic, are supplied from PROBIG. In the large majority of the applications, our technology includes three stages of the water treatment process:

- Mechanical pre-treatment via course and fine screens
- Coagulation/flocculation or simply flocculation
- Clarification by dissolved air flotation

Our technology is used in multiple cells in order to provide continuous operation of the plant. Thus, each single cell can be isolated individually for maintenance without overloading significantly the other cells.



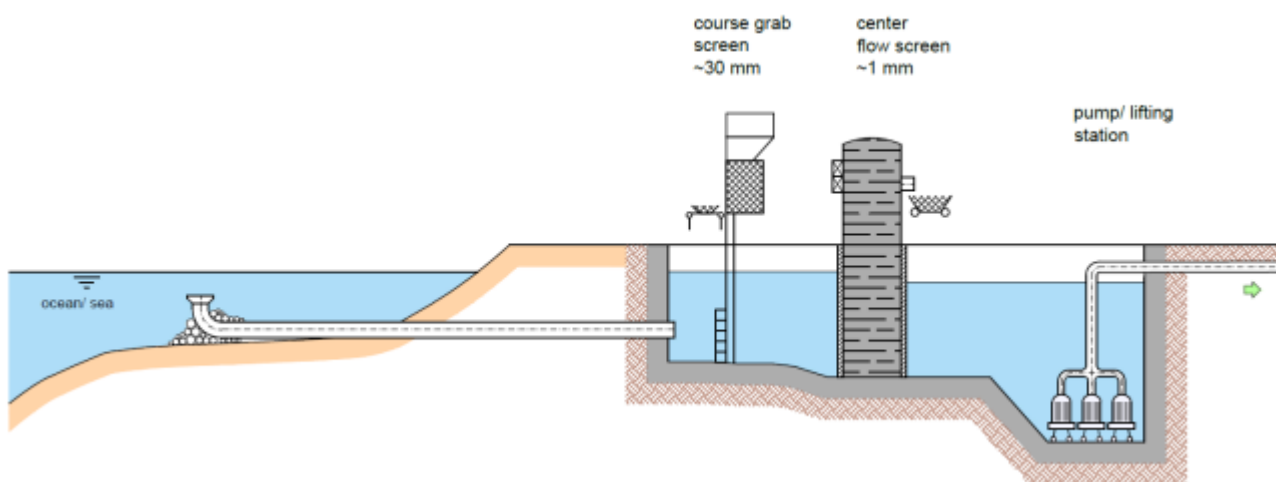
## Main applications

Our technology is suitable for the clarification of large fresh, sea or waste water flows, including coagulation and flocculation process.

- Drinking water production from fresh or sea water is a typical application. During the warm season these waters might contain a significant amount of algae and organic substances that is particularly difficult to separate by sedimentation. Dissolved air flotation technology gives excellent clarification efficiency before the granular media filtration step.
- Drinking water production from borehole water might also require a first clarification step before sand filtration to prevent occasional increase in the turbidity and extend the operation cycle of the sand filters.
- Tertiary treatment for hard COD and phosphorus removal.

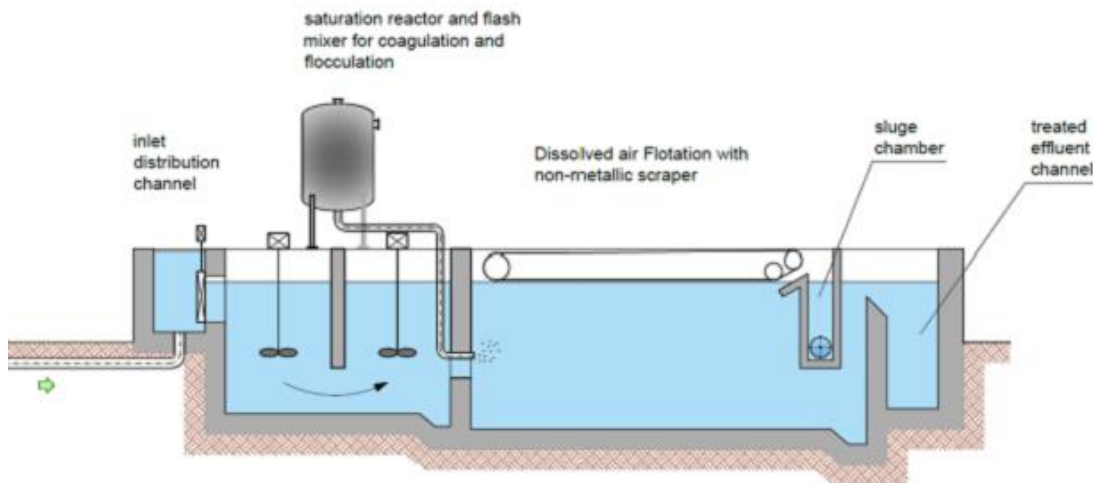
## Effective and reliable treatment

The seawater pre-treatment system is a combination of different water treatment process steps. The entire solution is specially designed for seawater treatment and consists of following stages:



Mechanical pre-treatment via coarse and fine screen technology in order to remove easily separable particles, solids and organic parts from the liquid

stream itself. The sea water will be filtered in two stages with a coarse screen followed by a center flow fine screen.



- KSP® Chemolution technology is used upstream: the chemical pre-conditioning or pre-treatment of the flotation plant renders turns colloidal dissolved and undissolved substances and constituents ingredients of water into a soluble separable form.
- DAF - Dissolved Air Flotation is a separation process, mostly in which micro-bubbles are generated and fed into the waste water, known as recycling flow process. The waste water substances and the waste load flocs created before using flocculation aids agents are displaced separated by the micro-bubbles and thereby made to rise to the surface and float. The flotation floatate sludge formed from by the floating solids is separated securely on the surface and removed from the water using a chain scraper system totally made in plastic.





## Benefits and advantages

- The UNICELL BF is perfectly adapted to multiple concrete tanks construction
- Minimum space requirement because of associated flocculation and flotation tanks
- Minimum interconnecting pipes and instrumentation
- Accepts high and variable SS concentration in the raw water in providing reliable clarification by flotation
- Excellent solution for algae and 'red tides' or other light organic material removal
- The floated sludge produced has a high concentration of approx. 3% independent of the amount of suspended solids. Thus it does not need thickening and can be sent directly to de-watering



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**SYSTEM CERTIFIED**

ISO 9001:2008	No.06341/0-1
ISO 14001:2004	No.01214/0-1
BS OHSAS 18001:2007	No.00405/0-1

