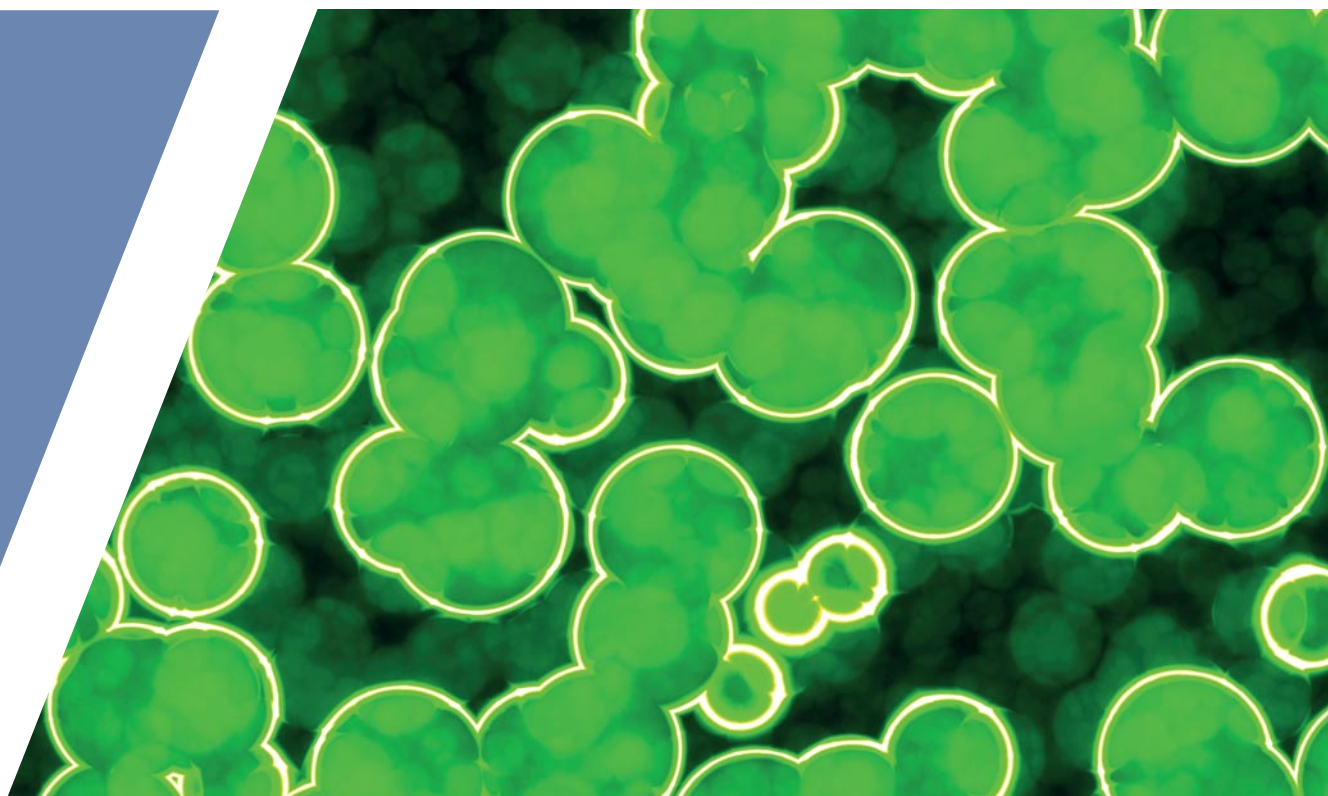




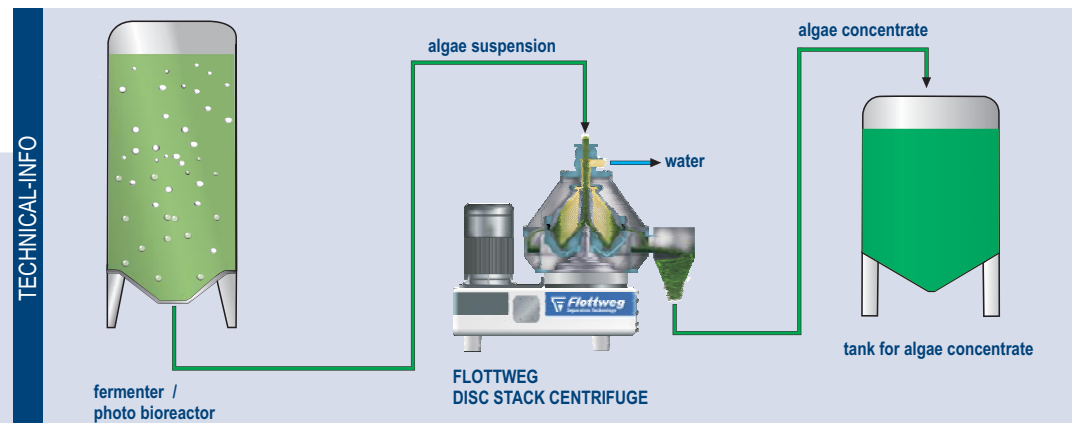
FLOTTWEG CENTRIFUGES For Efficient Algae Harvesting



EFFICIENT ALGAE HARVESTING

Via Centrifugal Separation

Currently, algae are increasingly being used as raw materials for cosmetics, food products, and biofuels. Algae grow in cultivation ponds or photobioreactors before they are harvested. Harvesting is defined as the separation of algae from a growing medium. Techniques for harvesting algae include settling or flotation, centrifugation, and filtration. In any case, it is the harvesting method which is crucial to the efficiency of the entire process in terms of investments as well as operation costs. The key items are high cake dryness in the separated algae and low specific energy demand during the process.



Algae harvesting using the disc stack centrifuge

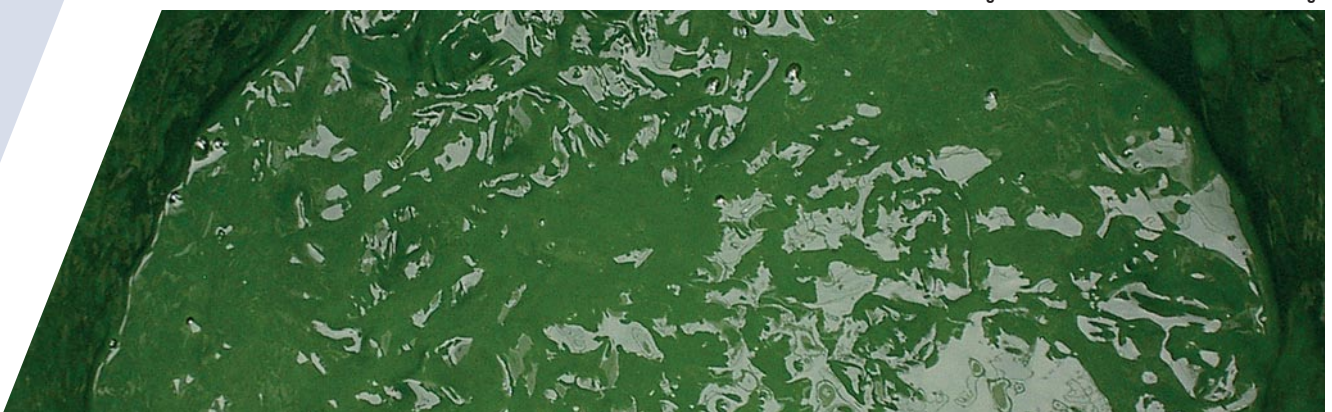
SINGLE-STAGE HARVESTING USING DISC STACK CENTRIFUGES

The algae suspension is fed directly into the centrifuge. Inside the centrifuge the suspension is separated into a mostly clear water phase and an algae concentrate. The algae concentrate is discharged periodically and has a fluid / creamy consistency. Since the whole suspension has to be put into rotation to create a centrifugal force up to 10,000 g's, the specific energy demand is relatively high. Therefore, this process is suitable especially for small and middle-sized facilities.



FLOTTWEG disc stack centrifuge

Algae concentrate after the disc stack centrifuge



NEW ENALGY PROCESS WITH THE FLOTTWEG SEDICANTER®

The Solution for Industrial Scale



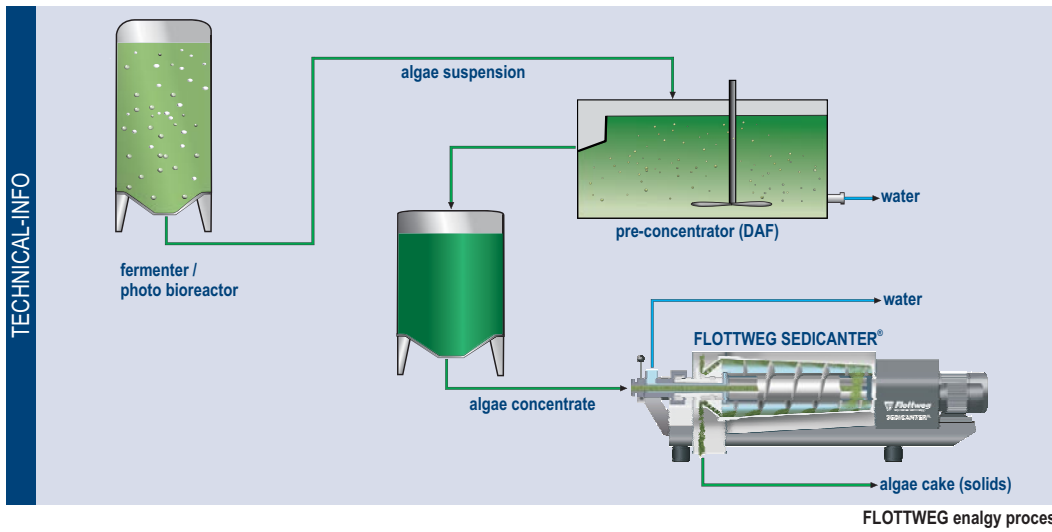
THE FLOTTWEG APPROACH: TWO-STAGE HARVESTING VIA THE ENALGY PROCESS

The FLOTTWEG enalgy process is a two-stage process consisting of pre-concentration via static settler, filtration, flocculation or dissolved air floatation (DAF) and the bulk harvesting using the FLOTTWEG SEDICANTER® in order to dewater the algae concentrate. In contrast to the single stage process only a small part of the algae suspension is separated by centrifugation thus reducing the energy demand drastically. While the pre-concentrator provides a clear water phase, the FLOTTWEG SEDICANTER® dewateres the algae concentrate to obtain a solids cake with 22 – 25 % dry substance.

QUALITY “MADE IN GERMANY”



FLOTTWEG is ISO 9001 certified and manufactures its products in compliance with all the latest technical standards.



Your advantages

- up to 25 % less investment costs*
- up to 60 % less operational costs (energy, water, etc.)*
- high cake dryness – therefore lower costs during further treatment.

* (based on 120 m³/h flow rate out of the reactor)



Algae cake after the SEDICANTER®





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