

FEATURES OF THE GICON®-PBR TECHNOLOGY

- Ideal growth conditions using biomimetic design and integrated temperature control
- Suitable for indoor and outdoor use (depending on configuration)
- Optimal temperature control of the microalgae suspension in the temperature range of 10-35 °C, temporarily even at temperatures of 0-40 °C
- Multi-purpose character for variable production of a wide range of freshwater and marine algae
- Sensor equipment according to client requirements (pH, temperature, PhAR/ global radiation, optical density, O₂/CO₂ concentration, pressure, volume flow liquid/gaseous)
- CIP by pulsation and/or pigging

Learned from Nature –
Realised via strategic alliance

The core of the GICON®-PBR is the flexible silicone tubing system. It is the result of the successful cooperation between GICON® and Wacker Chemie AG.

WACKER

In 2011, GICON® founded the Biosolar Center in cooperation with Anhalt University of Applied Sciences in Köthen. The innovative research center team's objective is to develop internationally competitive solutions in the field of biosolar technology.



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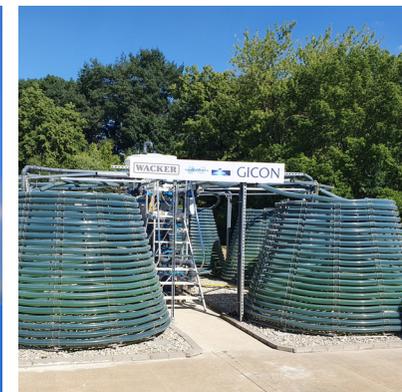
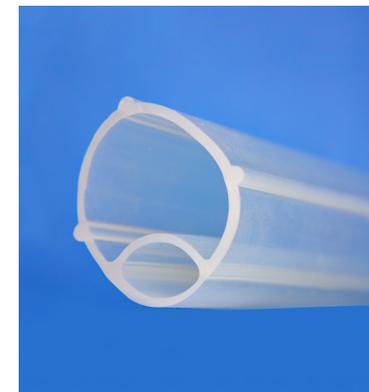
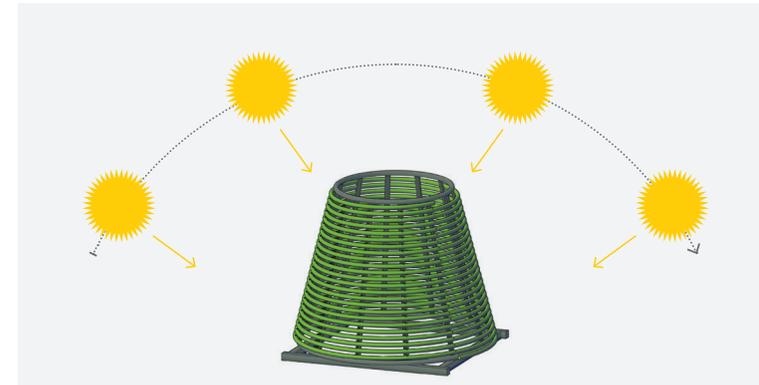
EUROPEAN ALGAE
BIOMASS ASSOCIATION
10 YEARS

Ein Unternehmen der
GICON®
Gruppe

GICON®-Grossmann Ingenieur Consult GmbH is part of the GICON® Group, a group of companies providing independently operating engineering services. The companies together employ about 500 people and draw on the expertise of several thousand projects at home and abroad.

as of 9/2022

GICON®
ENGINEERING THE FUTURE



GICON®-PHOTOBIOREACTOR GICON®-PBR

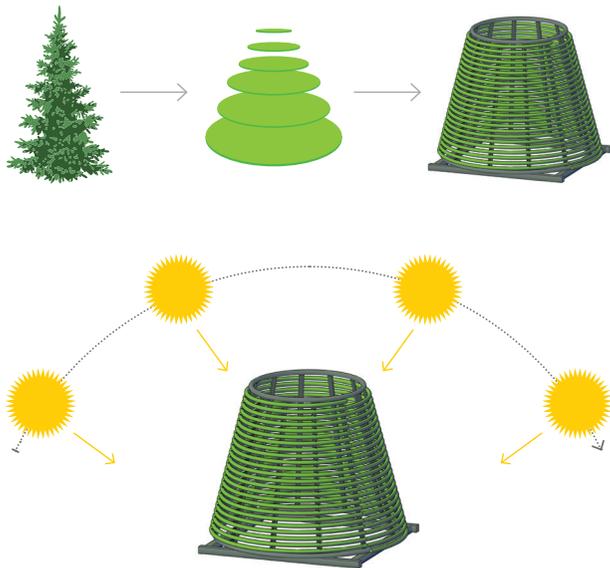
Innovative Technology for
the Cultivation of Microalgae

BIOMIMETIC DESIGN

A stable and resource-conserving production of microalgae biomass requires a cultivation system with a high degree of effectiveness and controllability. This is reliably provided by the flexible, double-wall tubing system of the GICON®-PBR.

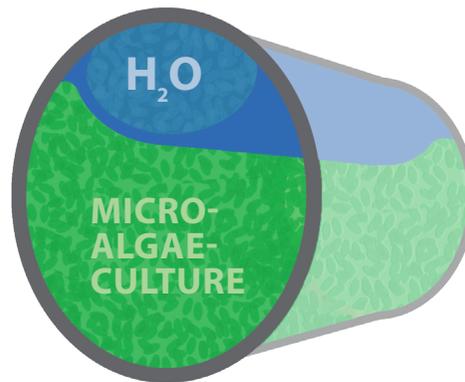
The biomimetic design is inspired by a pine tree. The customizable geometry ensures optimal light supply throughout the day at all geographical latitudes

- Structure angle: optimal for high & low light intensity and all geographic latitudes
- Height: optimized adaption to the desired production volume of the required biomass



DOUBLE-WALL TUBING SYSTEM

The core of the GICON® photobioreactor is the flexible silicone-based tubing system as a result of the successful cooperation between GICON® and Wacker Chemie AG. The highly transparent ELASTOSIL® silicone rubber and innovative double wall system provide a very convincing a solution for indoor and outdoor use.



- Unlimited tube length (extrusion process)
- No couplings required
- Extra long life
- Ideal light penetration in visible spectral range
- Durable under high UV-radiation
- Thermal resistance up to 150 °C
- High chemical resistance to high salt concentrations and relevant pH values
- Flame retardant, repairable and recyclable
- Food and feed contact suitability (FDA-approved)
- Simple mechanical cleaning technology, possible during production process (no downtime)

INNOVATIVE COOLING SYSTEM

The double-wall tubing system enables gentle and highly effective cooling to ensure ideal culture temperature.

Closed coolant circuit

- Resource-conserving water use

Integrated system

Results into the gentle and efficient removal of excess heat at the location of entry, thus ...

- ... No scaling of light entry surfaces
- ... No desalting of temperature control media

