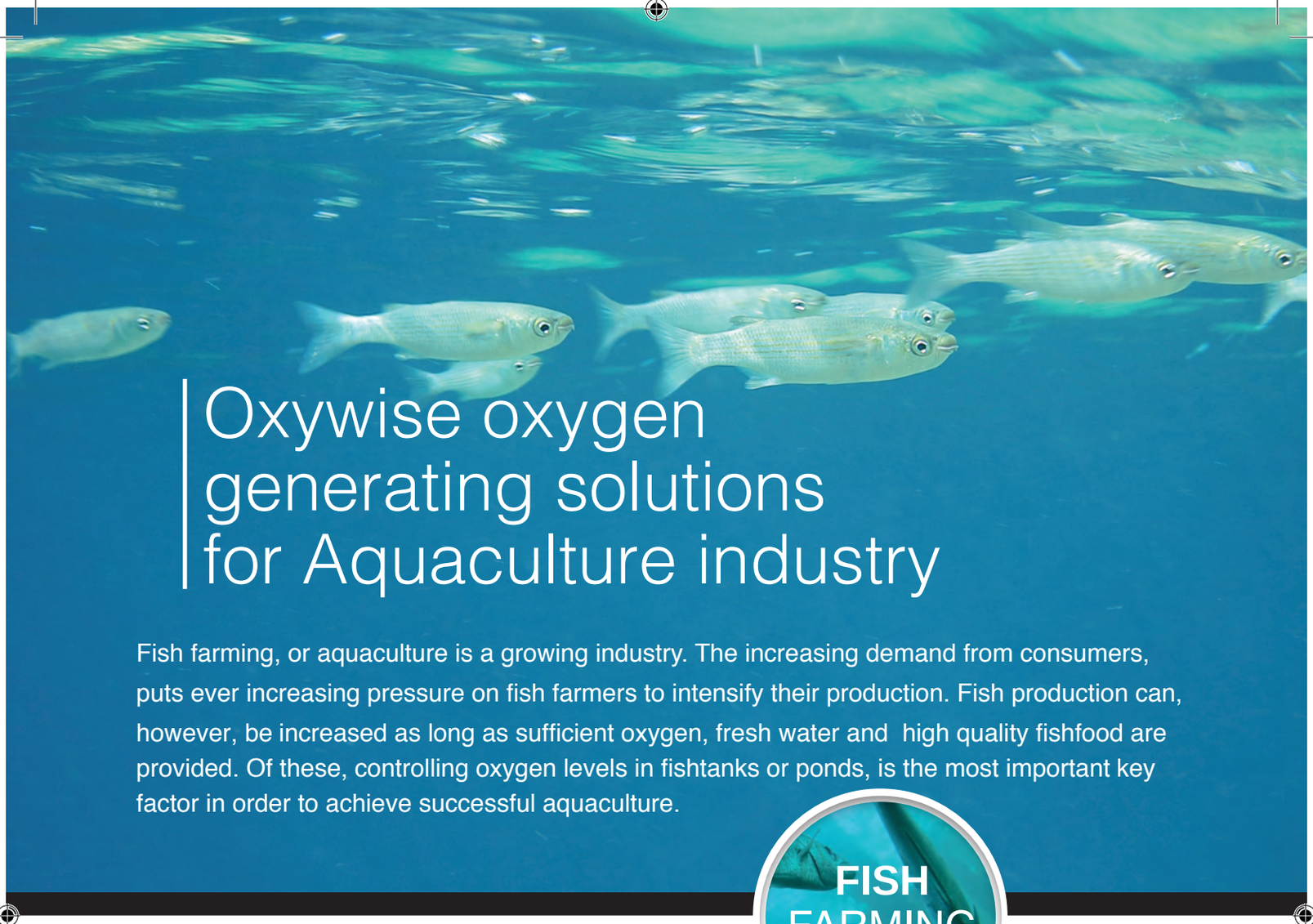
OXYGEN GENERATING SOLUTIONS FOR AQUACULTURE INDUSTRY

OxyWISE



Oxywise oxygen generating solutions for Aquaculture industry

Fish farming, or aquaculture is a growing industry. The increasing demand from consumers, puts ever increasing pressure on fish farmers to intensify their production. Fish production can, however, be increased as long as sufficient oxygen, fresh water and high quality fishfood are provided. Of these, controlling oxygen levels in fishtanks or ponds, is the most important key factor in order to achieve successful aquaculture.

Our Oxygen Generator based on pressure swing adsorption technology is safe, reliable and easy to operate. Generators are typically used for fish hatcheries and ponds.

Key factors about aquaculture and oxygen:

- Feeding fish consume up to 3X more than inactive fish, it is therefore important to have a versatile and efficient supply of oxygen.
- Much higher stocking densities are possible ≥ 100 kg/m3 is possible (depending on species) = higher output on the same area and volume of water. Much more efficient than systems based on atmospheric air.
- Better use of feed = less costs.
- Higher growth rate of the fish = increased turnover.
- Oxygen cones are easy to operate and the transfer of oxygen to the water is easy to adjust.
- Save money by operating your fishtanks with correct levels of oxygen to meet the fish demands, at any given time. Ideally, at least 70 % saturation must be maintained at the outlet of the fishtank.
- Feed gas can also be provided to an existing Ozone generator for disinfection purposes.
- In many countries there are regulations for the minimum oxygen concentration at the outlet from the fishfarm. By using pure oxygen, these levels can easily be maintained.

BREATHE EASIER WITH OXYWISE

OXYWISE OXYGEN GENERATORS

Oxywise Oxygen generators produce high quality oxygen from compressed air by Pressure Swing Adsorption (PSA) method. Our generators represent a reliable and cost effective alternative.

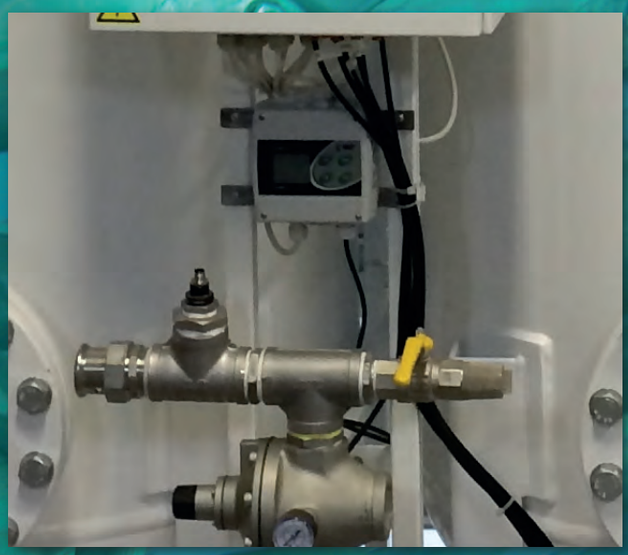
Product range:
Capacity range: 1.6 Nm3/h - 200 Nm3/h
Purity: 90% - 95%
Temperature range: 0°C to 50°C
Standard outlet pressure: 4barG

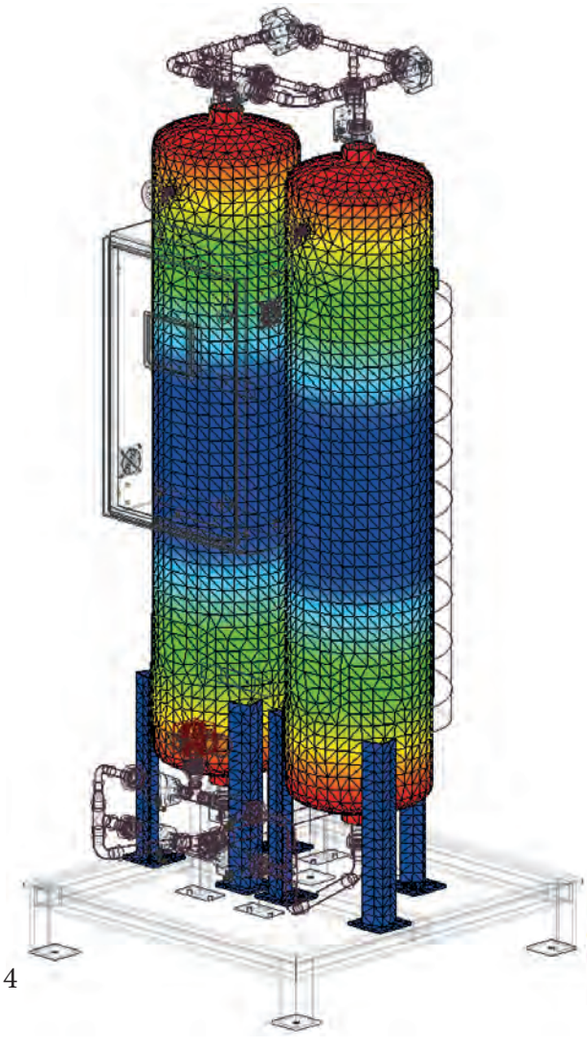
Key Features:
- On-site oxygen generation
- Fully automated, SIEMENS control and touch-screen
- Built in oxygen analyzer
- Reliable – built for uninterrupted operation
- Designed for dynamic load
- Stainless Steel piping
- Optional dew point sensor and SMS alarm

THE MOLECULAR SIEVE PROTECTION

The inlet air dew point sensor protects the generator from water contamination. If the refrigeration dryer stops working either by operator‘s mistake or a malfunction, the dew point sensor sends an alarm signal to the control system. The control systems stops the generator and avoids the contamination of the molecular sieve, until the air dewpoint comes back to the normal values. The control system informs user about the alarm both on the touchscreen and through the digital output signal!

This is a very good optional feature; It helps detect the dryer problem at the beginning and saves a lot of money on molecular sieve change.





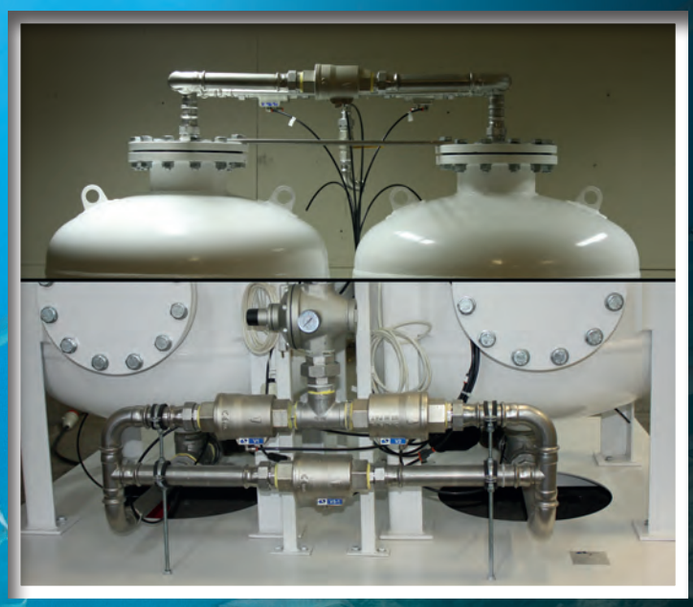
EQUIPMENT **DESIGNED FOR DYNAMIC LOAD**

The PSA generator operates in cycles; the generator‘s pressure vessels pressurize up to maximum pressure (6-10bar) and depressurize to 0 in less than 5 minutes. This pressure fluctuation creates tension that must be considered while designing these vessels.

Oxywise uses only vessels designed for dynamic load. The vessel is guaranteed to last 2 million pressure cycles, where standard vessels can be used only for static load. After 2 million cycles, the pressure vessel needs to undergo an inspection.

STAINLESS STEEL PIPING

The robust design will last bumps or challenging transport. Valves are easy to access and can be disconnected individually for maintenance.



CONTROL SYSTEM

CONTROL SYSTEM

Oxywise uses a SIEMENS based control system. The brand is famous worldwide for its quality and support. Standard has a 4“ color display or 6“ color display for larger units. Wifi screen, remote control by Teleservice, control through internet, SMS alarm & control and other optional features are supplied on request.

SkyWISE

HOW IT WORKS

Scope of supply:

1. Air compressor
2. Cyclone filter with automatic drain
3. Refrigeration dryer
4. Prefilter, particle filter
5. Air tank
6. Oxygen generator
7. Oxygen buffer tank
8. Dust filter
9. Sterile filter (optional)
10. HP compressor (optional)
11. Cylinder ramp/ bundle (optional)

Process Description

Oxygen Generator consists of two columns filled with molecular sieve (Zeolite).
Treated compressed air enters the active column and flows up through the Zeolite. Nitrogen and the other gases are being adsorbed while the oxygen passes through. The active column is pressurized. When pressure is released, the column becomes in active and completely regenerates. In order to secure steady flow two columns are used, one is active while the other is inactive. At the end of cycle they switch roles.

OXYGEN GAS DISTRIBUTION PANELS

Fish need accurate oxygen levels in the water for optimal growth. The Oxygen distribution panel controls pneumatic valves that regulate the amount of oxygen based on information sent from the control system. Solenoid valves are avoided for maximum safety.

The design of the panel is adapted for individual requirements. In case of power failure the oxygen flow can be set manually. The pneumatic valves are opened by compressed air, so a connection to the air source is required.

OXYWISE OXYGEN CONES

An oxygencone for each tank

Our oxygen cones are used for mixing oxygen in the water. Their shape makes the saturation efficiency very high, up to 95%. Water and oxygen enter at the top of the cone at relatively high speed. The stream of water pushes the oxygen bubbles down until they completely dissolve.

Technical data
Water flow: 30 to 140 m3/h
Pressure version: 2 or 4 bar

Oxygenenrichment at inlet to fishfarm

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