Liquid Oxygen for land-based and sea-based Fish Farms

Aquaculture is one of the fastest-growing sectors in global food production, driven by the increasing demand for high-quality protein sources. Oxygen plays a fundamental role in modern fish farming by supporting fish health (reduction in mortality rate), optimizing growth rates, and enhancing the overall efficiency and sustainability of farming operations.

The Stirling StirLOX system provides an on-site uninterrupted autonomous production and supply of liquid oxygen (standard 93-95%, higher purity available on request). There are different setups available:

- Oxygen generators provide a continuous supply of oxygen gas to the fish. The StirLOX system fills liquid oxygen into a buffer tank, that will be evaporated in case of power cuts, emergencies, maintenance or peak demand (Table 1)
- When using LOX pods, the StirLOX system ensures a continuous production and supply of liquid oxygen to the buffer tank. The pods can be filled from this tank for transporting to the marine-based aquaculture cages (Table 2)
- Combinations of the above setups are available

These setups provide lower cost of ownership, eliminate reliance on external LOX suppliers, and give full control over your oxygen-dependent aquaculture operations.

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Advantages of a liquid oxygen plant

STIRLING CRYOGENICS

1. Cost savings

- Low operational cost of O_2 per kg: down to 0,85 kW per kg

2. Turnkey system

- Easy to install and operate
- Containerized solutions available
- Customized solutions available upon request

3. Autonomous ownership of LOX system

- No strict contract with bulk suppliers
- No intermediate price changes
- No transport costs
- No certificate costs
- No equipment rental costs

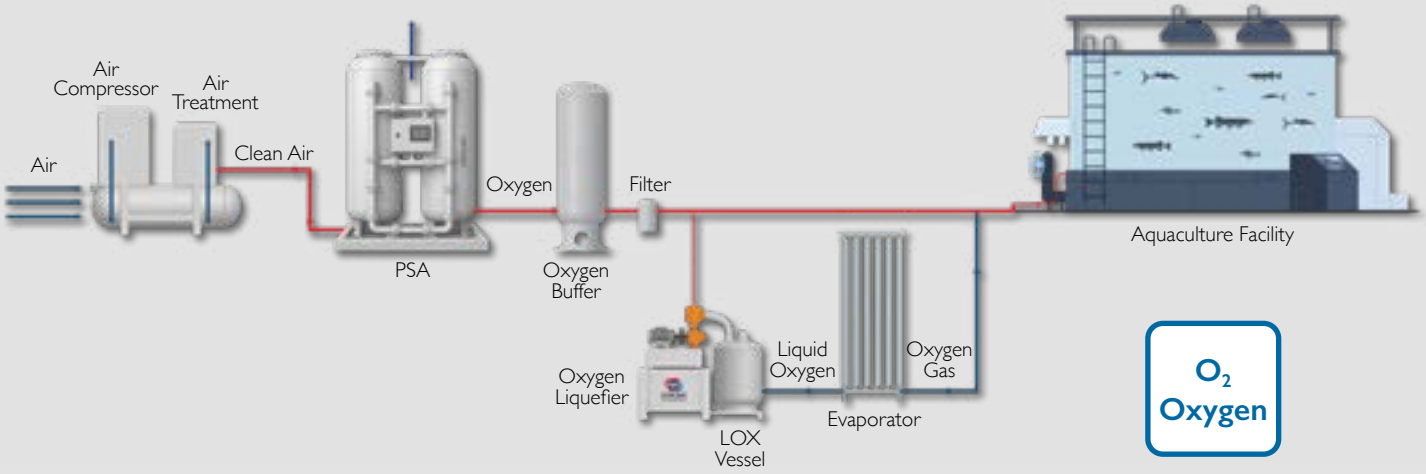

Table 1

Back-up indication		24 hour buffer of O_2			48 hour buffer of O_2		
Consumption of O_2 95%		Up to 150 kg/h	Up to 300 kg/h	Up to 500 kg/h	Up to 150 kg/h	Up to 300 kg/h	Up to 500 kg/h
Required tank size in liter		3.600	7.200	11.900	7.200	14.300	23.800
Pressure bar(g)		5	5	5	5	5	5
Filling time in days	StirLOX-1	9,8	19,6	32,5	19,6	39	65
	StirLOX-4	2,5	4,9	8,1	4,9	9,7	16,2

Table 2

LOX output @ 5 bar(g)	L/h	kg/h	L/wk	kg/wk
StirLOX-1	15	15,4	2.520	2.587
StirLOX-4	61	61,7	10.248	10.365
StirLOX-8	122	123,4	20.496	20.731
StirLOX-12	183	185,1	30.744	31.096

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