

# LAKE-LYFTER

*Intermittent Water Convector*



**SO-EN CO.,LTD**



# ■ What is the LAKE-LYFTER?

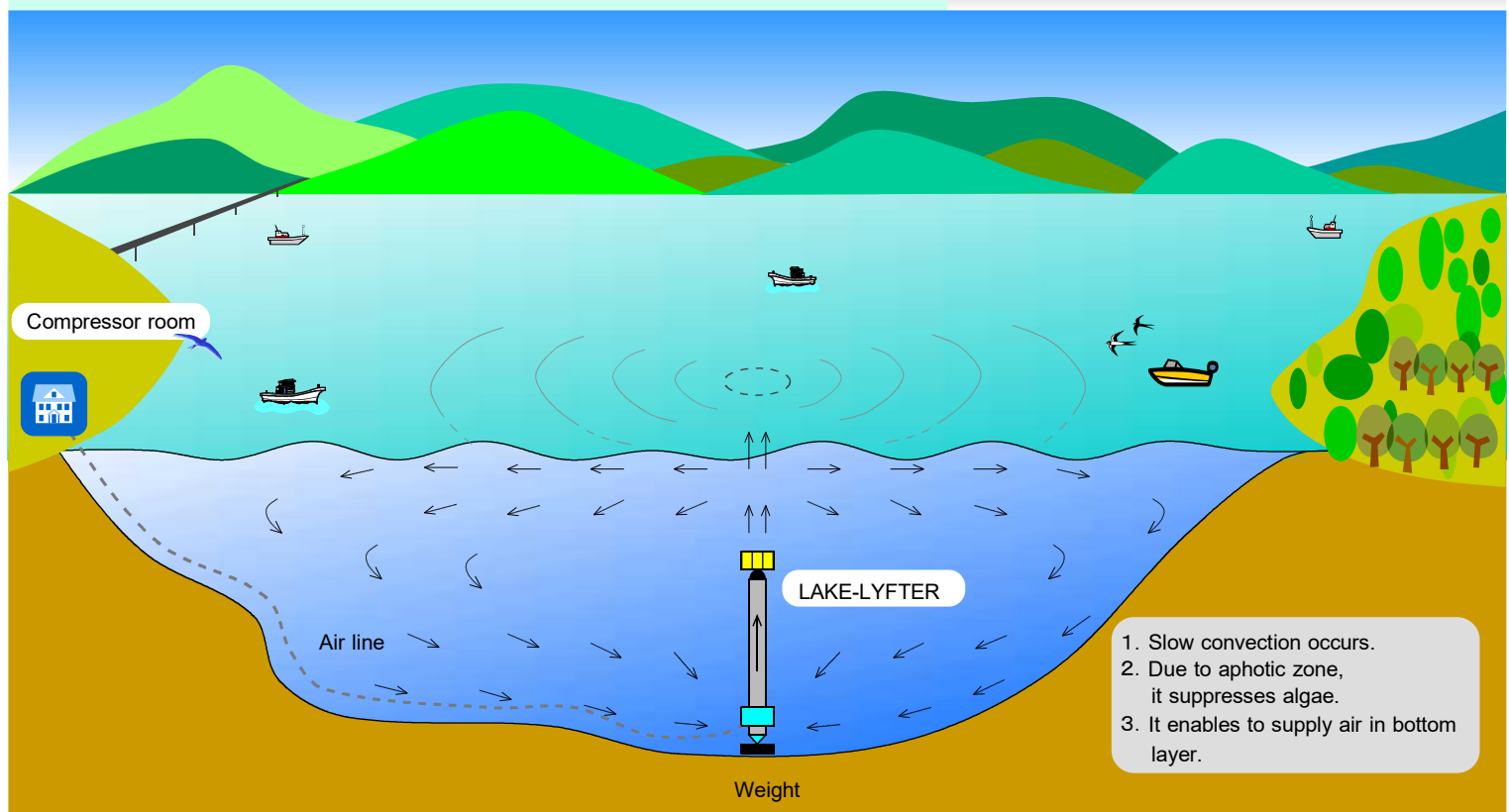
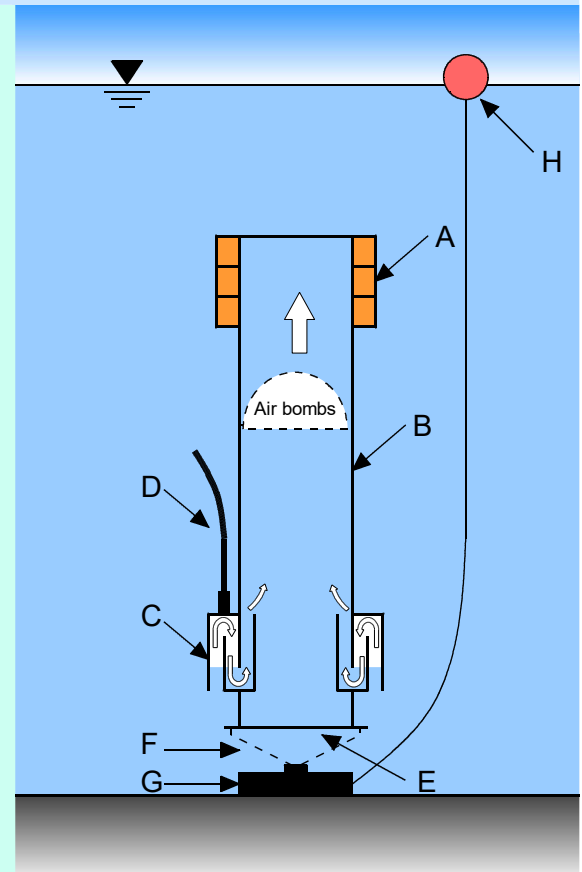
LAKE-LYFTER is a system developed for stagnant water areas for large-scale convection of water. It generates the movement of the bottom layer of the water to go up to improve the purification of water quality and help the natural purification capacity. The LAKE-LYFTER system mixes the bottom layer of the water and oxygen-rich surface water, aiming to purify the water areas even when the temperature is high and the upper and lower convection of the water is poor (during summer season where water temperature stratification is easily formed). It helps the normal activities of the Eco-system, has great effects to stop the abnormal growth of algae that will generate a nasty smell on reservoirs and ponds. In addition, it will also help to stir and mix chemical agents in the water thoroughly.

## ■ Mechanism - Principle

LAKE-LYFTER is a central system that is composed of self-standing float, air lifting cylinder, air supply tube, induction inlet, chain, weights and float. Each various part is made to be self-supporting in the water and they float. The LAKE-LYFTER uses the reverse siphon action to make air bombs. Air bombs that are accumulated in the air chamber within the air compressor that is installed on the ground. The air bombs will blow up in the inner chambers tube opening, as shown in the direction of the arrows. This is when the air-lift phenomenon happens. The bottom water that is absorbed from the induction inlet is pushed up. The bottom water released on the opening upper end of the lifting cylinder will then be mixed with the surrounding water while it goes up to the surface. Then it will be mixed with oxygen-rich surface water, thus it incorporates oxygen.

By performing this series of operations intermittently, massive convectional stirring is developed in whole water area, equalizes the water temperature of both the lower and upper layers of the water.

A : Self-standing float    B : Lifting cylinder    C : Air bombs induction inlet  
D : Air supply tube    E : Induction inlet    F : Chain  
G : Weight    H : Float



## ■ Features

1. A simple structure, easy to install and manage.
2. Significantly reduce the use of activated carbon and chemicals for water treatment.
3. Reliable and Energy-efficient design, full-time operation without an operator.
4. Safe because it uses the natural water purification process and will not affect the environment.

## ■ Applications

### ● Suppress the generation of algae

The biggest problem on the lakes is the abnormal occurrence of algae due to eutrophication. The occurrence of algae can cause disorders such as clogging on the filtration ponds and the musty odor, but with the circulation effect of the LAKE-LYFTER, the abnormal growth of algae can be suppressed.

### ● Water quality improvement of the bottom layer water

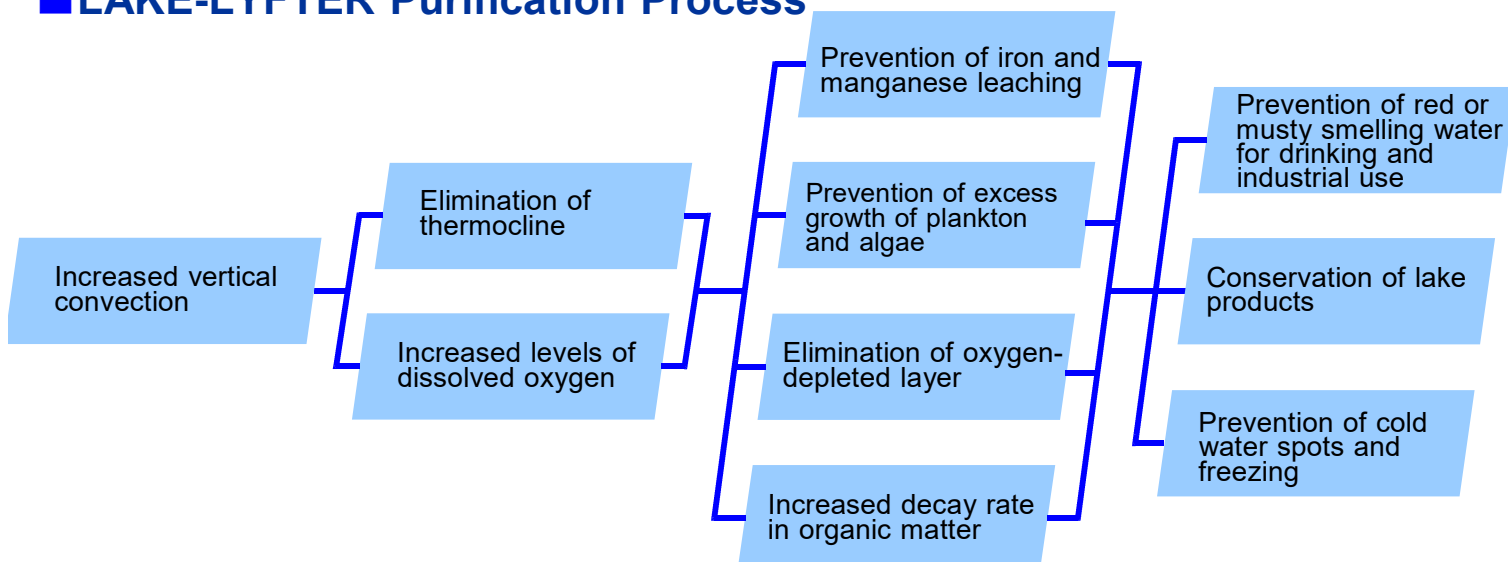
The circulation action of the LAKE-LYFTER can remove the lack of oxygen state of the bottom layers of the water. Therefore, iron and manganese will begin to melt and suppress the release of ammonia and hydrogen sulfide.

### ● Freezing Prevention

In cold climates during winter, when the water freezes, the convection action will prevent freezing and prevents damage to the water intake tower.



## ■ LAKE-LYFTER Purification Process

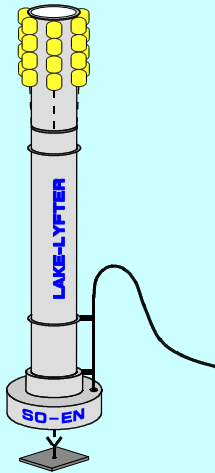
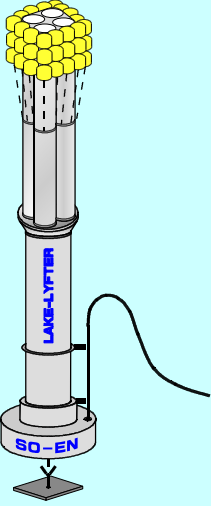
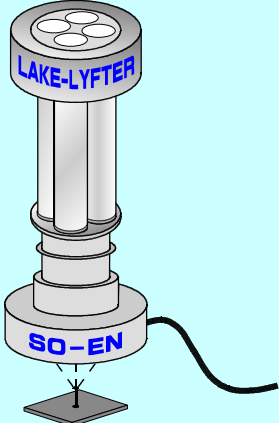


## ■Specification

Model	Type	Caliber×Cylinder×Length (m) (N) (m)	Water depth (m)	Water Volume (× 10 <sup>4</sup> m <sup>3</sup> )	Compressor (kw)
LP-10-0100	Shallow-water	0.1 × 4 × 1	2~3	0.5~1.5	0.2
LP-15-0200	Shallow-water	0.15 × 4 × 2	4~5	1.5~2.5	1.5
LS-30-0300	Standard	0.3 × 1 × 3	6	5~ 10	2.2
LS-40-0400	Standard	0.4 × 1 × 4	8	15~ 25	3.7
LS-50-0500	Standard	0.5 × 1 × 5	10	30~ 50	5.5
LS-50-0750	Standard	0.5 × 1 × 7.5	15	40~ 75	5.5
LS-50-1000	Standard	0.5 × 1 × 10	20	50~100	7.5
LS-50-1500	Standard	0.5 × 1 × 15	30	100~150	7.5
LB-50-0600	Large-capacity	0.5 × 4 × 6	10	300~400	11
LB-50-1000	Large-capacity	0.5 × 4 × 10	20	400~500	22
LB-50-1500	Large-capacity	0.5 × 4 × 15	30	500~600	22

\* Depending on the installation conditions (water depth, water volume, site conditions, etc.), we can be designed and manufactured separately as custom-made products.

## ■Type

		
Standard Type	Large-capacity Type	Shallow-water Type

- Installing the LAKE-LYFTER in lakes is effective to prevent the lack of oxygen in the bottom layer and suppress the growth of algae, it has been successfully installed in ponds lakes, and dams in Japan. It has achieved good results especially on large-scale lakes for water supply source.
- There is also POND CLEAN for smaller scale ponds with water depth of less than 1. 5m.
- Installing LAKE-LYFTER in seawater areas will improve water quality and sediment, will prevent red tide and activate cultural farm.
- As for blue-green algae countermeasures, it will be more effective when combined with CarbonFiber(product name:MiraCarbon)
- We can suggest the suitable installation with the various conditions of the lakes, ponds, dams and etc, such as the shape, depth, water quality, type, conditions and etc.

<p>Cat.NO.EL001 2019.10</p>	<p>■ Manufacture and Seller</p> <p><b>SO-EN CO.,LTD</b></p> <p><b>so-en</b> think earth</p> <p>1665-1 Shinbo-machi Takasaki Gunma JAPAN  TEL+81-27-352-4857 FAX+81-27-352-4875  URL <a href="https://so-en.net/index-e.html">https://so-en.net/index-e.html</a>  e-mail: <a href="mailto:soen.net@gmail.com">soen.net@gmail.com</a></p>
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