



## SOLVOX<sup>®</sup> dropin. New, easy-to-deploy, highly efficient solution for oxygenation of sea cages.



**Challenge** Fish farming in sea cages often requires either a continuous or short-term supply of supplementary oxygen. Typical short-term applications include sea lice treatment.

Sea lice can compromise the health of fish, causing lesions and infections. To tackle this problem, fish farmers apply sea lice treatment if the sea lice concentration rises above a certain threshold. In closed sea cages, this treatment is applied once the cages have been fully surrounded in foil. However, this foil cuts off the oxygen supply so a supplementary oxygen supply is needed. This is typically achieved using a series of perforated hoses, which have to be dragged along the cage floor. This is generally a time-consuming, tedious process and does not always offer optimum oxygen distribution results. Many fish farmers would thus welcome a solution that simplifies deployment and increases distribution efficiency.

**Solution** Linde developed SOLVOX<sup>®</sup> dropin precisely to meet the need for oxygenation in sea cages. This innovative, patent-pending oxygenation solution comprises an electric pump plus a patented oxygen dissolver and distribution system featuring a venturi nozzle. Using a small crane, SOLVOX dropin is easily lowered into the water to the desired depth. It works by sucking water into the lower part of the dropped-in unit and mixing it with oxygen. The oxygenated water is then distributed throughout the cage through four nozzles situated at the top of SOLVOX dropin. The microbubbles created by SOLVOX dropin have a low rising velocity. This extends the bubble residence time in the water. Combined with the large surface-to-volume ratio, this increases the oxygen dissolution efficiency – even at low pressures.

**Benefits** SOLVOX dropin is designed for easy handling and operation, making it ideal for sea lice treatment in closed sea cages. Thanks to its compact, lightweight design, it can be easily operated by hand. It eliminates the hassle involved in dragging perforated hoses across the cage floor, also increasing oxygenation efficiency thanks to its innovative dissolver and distribution system.

### Highlights at a glance

- Compact design for ease of handling
- Reduced resource and installation requirements
- Time savings with simple drop-in deployment
- Optimized oxygenation with improved residence and distribution of microbubbles
- Calmer behavior to be observed among fish during sea lice treatment

### Technical data

- Power: 2.2 kW/h per SOLVOX® dropin unit
- Capacity: Up to 50 kg/h of oxygen
- Height: 145 cm
- Weight: 50 kg

### Applications and references

Due to its flexible, compact design, SOLVOX dropin is suited to a wide range of continuous and short-term oxygenation applications – as the following reference cases illustrate:

- Sea lice treatment: Marine Harvest Norway, Region West
- Holding cages: Marine Harvest Eggesbønes (slaughterhouse)
- Continuous oxygenation in semi-enclosed cages: Sigerfjord Fish
- Continuous oxygenation in open sea cages: Huon Tasmania, Australia

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