



# Aquaculture with KAESER equipment

**Reliable as the tides**

Compressed air and blower solutions  
for aquaculture applications

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Whether onshore or out at sea, fish farm operators are dependent on a reliable compressed air supply. As a compressed air systems provider, KAESER KOMPRESSOREN recognised the particular requirements of aquaculture early on, and has accordingly adapted its product range of compressors, blowers and air treatment components for the needs of this special area of application. Thanks to the high efficiency and quality levels of these Made in Germany compressed air systems, maximum availability is guaranteed around the clock – at low running costs. This makes them ideal for the stringent demands of aquaculture customers. For a large number of fish farms, both onshore and offshore, operation without KAESER blowers and compressors is now unimaginable. On the contrary, they play an essential role in the diverse processes of modern fish farming. In addition to the standard range of blowers, compressors and treatment components, KAESER also offers a special product line specifically tailored to the challenging conditions of aquaculture.

## Global service network

Fish farms tend to be located in remote regions of the world. KAESER is more than equal to this challenge: whether in the far north of Norway, southern Chile, the eastern provinces of Canada, or the Shetland / Faroe Islands, KAESER offers a strong global network of branch offices and partners. This worldwide service network guarantees that highly qualified service technicians are with you at short notice, whenever they are needed. What is more, aquaculture specialists are also available, who understand the particular applications and requirements of these customers in detail and can therefore provide the best project support possible.

## Remote monitoring for increased security

KAESER blowers and compressors can be equipped with the integrated SIGMA CONTROL 2 controller, which enables the compressed air supply to be connected to a control centre for full system control or remote monitoring. If no central control system is available, there is the option of connecting the compressed air system to KAESER's



own remote monitoring system. This allows any problems occurring to be identified early by means of the machine data. Should a malfunction occur contrary to expectations, the collated data contribute to an improved first-time fix rate. The machine data provide information regarding possible fault sources; as a result, the right spare parts are immediately available whenever they are needed. This not only increases “uptime” for the compressed air supply – a crucial point in the aquaculture industry, since remote farms are difficult to reach and the journeys to them often long – but also saves considerable sums of money.

## Trust in technology

In addition to high-quality products, KAESER's comprehensive, first-rate service network is another reason why the most renowned aquaculture companies put their trust in KAESER when it comes to cutting-edge compressed air generation technology.





# APPLICATIONS



## Bubble curtains

When a jellyfish or algae bloom threat is reported, a compressor is activated which produces a ring of air bubbles. The rising bubbles and water turbulence create a 'curtain', preventing algae or jellyfish from entering the pen. The ocean current drives the threat alongside the bubble curtain until it passes the farm.



## Feed barges

Feed barges are essential for the efficient operation of modern offshore fish farms. Some are capable of carrying up to 850 tonnes of feed. Innovative and efficient rotary blower technologies from KAESER generate the airflow required to deliver the feed into the farming pens. Feed barges may also be equipped with a rotary screw air compressor for Sea Pen Aeration (SPA) systems, bubble curtains or airlift systems to remove morts from the pens.

## Applications in aquaculture

# Low-pressure air and compressed air is used in a variety of different aquaculture applications



## Recirculating Aquaculture Systems (RAS)

RAS facilities use compressed air in various applications, such as biofilter aeration and CO<sub>2</sub> stripping. The biofilter is one of the most important components of any RAS, as it ensures consistently high water quality. As with CO<sub>2</sub> stripping, biofiltration requires aeration 24/7, 365 days a year. KAESER blowers are especially well suited to a 24/7 operation, ensuring process security whilst saving considerable amounts of energy.



## Airlift systems

Dead fish are vectors for diseases and infections, causing further mortality if not removed effectively and efficiently. The most reliable and efficient means of prevention is removing the morts via an airlift system. Here, a conical device supplied with compressed air is placed at the deepest point of an aquaculture pen. A rotary screw compressor provides the air required to retrieve and transfer the remains and waste through tubing onto a support vessel.



## Sea Pen Aeration (SPA)

Two major problems of sea pen farming are algae blooms and oxygen deficiency. Sea Pen Aeration (SPA) systems can solve both problems at the same time. A compressor is used to blow air into a diffuser ring, which generates an artificial upwelling within the pen that lifts cool, oxygen-rich water from the depths into the sea pen. The rising water flows outward at the surface. Thus, toxic microalgae that threaten the fish population can be kept out of the pens.



## Fish processing

Once the fish stock is harvested, it must be processed quickly and efficiently. Fish processing systems are pneumatic applications. Accurate automated conveying, sorting, gutting and processing systems operated by compressed air and vacuum increase processing efficiency.

Specialised aquaculture products and solutions

## Durable, reliable, energy-efficient aquaculture products for onshore & offshore applications

KAESER compressed air systems are developed and constructed in accordance with the highest standards of German engineering. Designed for continuous operation (24/7), they are produced with the highest possible operational security and energy efficiency in mind. Thanks to its broad range of compressors, blowers and air treatment components, KAESER always has the right product available for any compressed air requirement in the aquaculture industry.

### Focus on sustainability

KAESER has its focus firmly on sustainability at all times, which is one reason why the company developed the highly efficient screw compressor with unique SIGMA PROFILE. This made it possible to produce significantly more energy-efficient compressed air than was possible with comparable rotary screw compressors – a philosophy to which KAESER has remained true to this day. Our products enable a reduction in the CO<sub>2</sub> footprint of your aquaculture products, whilst at the same time achieving significant operating cost savings. Not only this, but even further savings are possible due to the intelligent use of exhaust heat; recovered heat is well suited to use in other fish farming or processing applications.



### Rotary screw compressors...

...deliver a reliable and efficient supply of quality compressed air. They are the preferred choice for users requiring constant pressure over prolonged periods. In aquaculture applications, they are preferably used to supply PSA oxygen generators with compressed air, to form bubble curtains against algae or jellyfish incursion, or to create artificial upwelling in order to lift cool water from deeper layers up to the surface. Thereby mitigate harmful algae blooms.



### MOBILAIR portable compressors

Compressed air whenever you need it, wherever you need it – even under the toughest offshore conditions: specially designed and modified, powerful MOBILAIR portable compressors with advanced, fuel-efficient engines and heavy-duty construction are available in a wide range of models and configurations (incl. e-power). Simple, intuitive operation and optimal maintenance accessibility prevent unnecessary downtime. Many models are also available with special enhancements for aquaculture.



### Blowers and exhausters

Low-maintenance, highly reliable KAESER blowers deliver air quietly and efficiently for multiple aquaculture applications. These include the pneumatic conveying of bulk loads on barges and feed vessels, 24/7 aeration of bio-filters and the removal of CO<sub>2</sub> in land-based aquaculture facilities. Two innovative KAESER design concepts help to meet your specific requirements: OMEGA rotary lobe blowers and SIGMA rotary screw blowers.



### Specialist air treatment

Refrigeration dryers and compressed air filters ensure dry, clean, quality compressed to ISO standards by removing potentially harmful contaminants from the supply and combatting the enemies of compressed air applications: water, oil and dust. Dryers, filters and specialist air treatment equipment provide effective, reliable protection against condensate damage or contaminants affecting systems, processes and productivity.



### Made in Germany

The reliability, durability and energy efficiency of KAESER products have not come about by chance, but are the result of rigorous development and precision manufacturing. Every air end and blower block is meticulously built in accordance with KAESER's renowned quality standards by highly skilled workers at the company's factories in Coburg and Gera, located in central Germany.

More compressed air for less energy

# The world is our home

As one of the world's largest manufacturers of compressors, blowers and compressed air systems, KAESER KOMPRESSOREN is represented throughout the world by a comprehensive network of wholly owned subsidiaries and authorised distribution partners in over 140 countries.

By offering innovative, efficient and reliable products and services, KAESER KOMPRESSOREN's experienced consultants and engineers work in close partnership with customers to enhance their competitive edge and to develop progressive system concepts that continuously push the boundaries of performance and technology. Moreover, decades of knowledge and expertise from this industry-leading systems provider are made available to each and every customer via the KAESER group's advanced global IT network.

These advantages, coupled with KAESER's worldwide service organisation, ensure that every product operates at the peak of its performance at all times, providing optimal efficiency and maximum availability.



## KAESER KOMPRESSOREN SE

P.O. Box 2143 – 96410 Coburg – GERMANY – Tel +49 9561 640-0 – Fax +49 9561 640-130  
E-mail: [productinfo@kaeser.com](mailto:productinfo@kaeser.com) – [www.kaeser.com](http://www.kaeser.com)