



# CASE STUDIES

**HIMOINSA**  
A **YANMAR** COMPANY

# 4 MW of emergency power for Norway's Ålesund Hospital

HIMOINSA generator sets, supplied through Østerbø Maskin AS, the company's distributor in Norway, will be used to guarantee emergency power in the event of a grid outage at the hospital.



*Power Solutions*

Norway's healthcare system is one of the most advanced and least congested in Europe. Ålesund hospital, which provides healthcare coverage for a population of some 50,000 people, has installed three HIMOINSA HTW 1530 T5 generator sets to cover its emergency power requirements and to ensure a supply of critical power in the event of a grid outage.



## PROJECT SUMMARY

### HIMOINSA Installed equipment:

- 3 x HTW1530 T5 690V
- Low-speed and low-noise cooling fans
- 3 CC19 ATS panels with 2 AGC-150 pr panel
- 1 pcs AS40 centralized panel for genset controllers and MHI
- Fibre-optic communication system



## LOCATION AND OBJECTIVE



This hospital is located in the city of Ålesund, on Norway's west coast. As the city is built on a number of islands and subject to adverse weather conditions, the project's design and development have had to take these environmental requirements into consideration.

Ålesund hospital, at location Åsehaugen, was first opened in 1971 and already had a number of emergency generator sets, hence the objective was to replace them with new HIMOINSA models housed in a soundproofed room in order to reduce sound levels to the maximum.

## SOLUTION

Taking all these requirements into account, three HIMOINSA generators have been installed, **guaranteeing a total of 4MW** of power in what is a **mission critical project** designed to ensure operational continuity in all areas of the hospital in the event of a grid outage. One of the project's major challenges was to undertake the installation of the generator sets with the new 400V and 230V distribution systems in phases, ensuring that the hospital was fully operational at all times.

### Safety | Redundant Power System

The project has entailed the construction of a new external building, next to the hospital, in which the generator sets and the emergency switchboard have been installed.

In order to increase the **safety** and **efficiency** of the equipment, certain essential requirements were met, such as ensuring that the installation was a **redundant system** and that the **generators worked in parallel**, i.e., a **N + 1 design**, thereby guaranteeing that should one of them fail to start up, another generator will always be able to do so and to supply power to the healthcare complex.

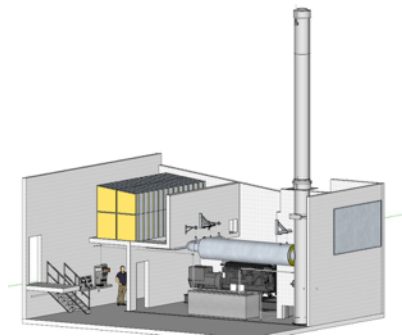
The new emergency genset building runs on a 690V system supplying the 400/230 transformers. A special system of transfer and control panels required by the client has been delivered. Along with the three generator sets' control unit, the main switchboard control system features a touch screen which is connected to the three transfer switches that feed six different connections of the hospital's installation, located in three different places.



Everything has been installed within a **redundant fibre-optic ring** for communicating and responding to the installation's different demands. "Redundant fibre communication between the control modules located in separate buildings was a project requirement **to ensure a reliable power supply under any circumstances**. We chose DEIF control units for the ATS, and HIMOINSA generator sets." says Ivar Areklett, Sales Engineer and Project Manager at Osterbo Maskin

## Ensuring low noise emissions

Given the need to comply with strict regulations in terms of noise levels and due to the fact that this facility is **very close to a residential area**, one of the requirements was that the **sound level should not exceed 69dB@ 1m** on the outside of the building. To achieve this level of sound attenuation, specific measures have been taken such as the installation of sound attenuation panels, based on the engine specifications, as well as three 14-metre-long chimneys, each of which is connected to a powerful silencer.



The sound attenuation solution was designed by Østerbø and has been verified by an external acoustician who has ensured that the proposed system **not only meets the requirements of the emissions regulations, but also** in terms of pressure loss, thus **ensuring that sufficient cooling capacity is available**.

The chimneys have been installed in one single piece and have been raised more than 30 metres above the ground, in order to make sure they were installed correctly before the construction of the roof of this new building was completed.



"Østerbø Maskin won this contract in strong competition with main suppliers of emergency power solutions in Norway. In a project of this size and with this level of complexity it is **absolutely crucial to have a strong and flexible supplier as HIMOINSA** backing us throughout the project. Looking at the final result, we have delivered a solution we are proud of. But most important is the **good feedback from our customer** that have received a plant built within the frames of their specifications. We are confident that the close coordination between everyone involved, even in these days of COVID-19 and in spite of all the constraints that this entails, has been invaluable in ensuring that we all pulled in the same direction to find the best possible solution." explains Ivar Areklett.

