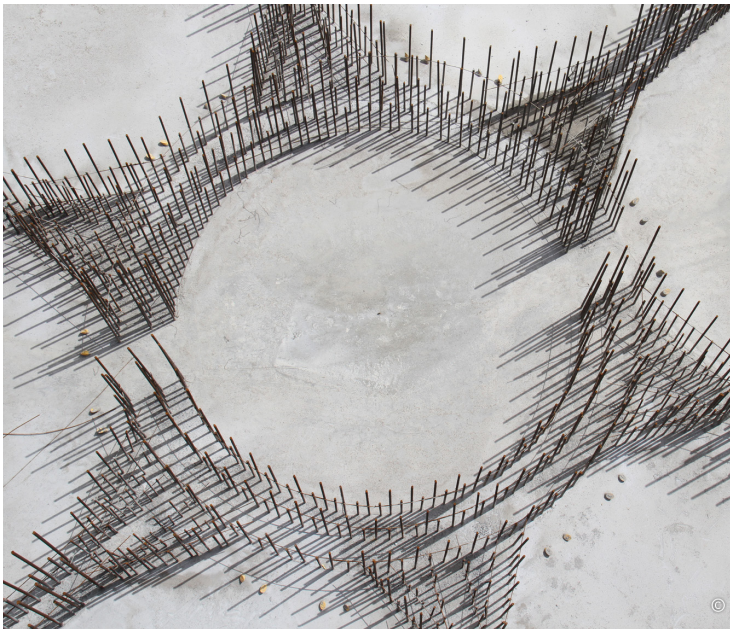
SIKA AT WORK

KÅREHAMN OFFSHORE WIND FARM, BALTIC SEA, SWEDEN

OFFSHORE & MARINE CONSTRUCTION
RENEWABLE ENERGY

BUILDING TRUST

KÅREHAMN OFFSHORE WIND FARM, BALTIC SEA, SWEDEN



PROJECT DESCRIPTION

The Kårehamn Offshore Wind Farm is located in the Swedish part of the Baltic Sea, 7 km offshore from the coastal town of Kårehamn. E.ON Climate & Renewables invested €120 million in the construction and operation of the 48 MW wind park. The 16 wind turbines of 3 MW each produce enough electricity to power 28,000 homes and reduce CO_2 output by 100,000 tons per year.

Project name:	Kårehamn 48 MW Offshore Wind Farm
Location:	Swedish part of the Baltic Sea, off the coast of Öland, Sweden
Year:	2013
Application:	Gravity foundation
Product:	SikaGrout®-9500

PROJECT REQUIREMENTS

Due to the seabed's soil conditions, pile foundations were not feasible. Instead, gravity-based foundations were specially designed, utilizing crushed iron ore and quarry stone as ballast. With water depths ranging from 8 to 21 meters, each foundation was tailored to its specific location within the wind farm. Turbine installation began in early 2013, when temperatures in the Baltic Sea could drop to -15°C, creating challenging working conditions. These extreme conditions placed significant demands on construction materials, particularly the grout used.

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SIKA SOLUTIONS

As the turbines were installed onto the gravity based foundations in early spring of 2013, the grout material that links the two elements to the foundations requires early and rapid strength build-up. SikaGrout®-9500 was therefore chosen since this material may be installed in temperatures as low as 0°C without the need for extra installation precautions like tenting and heating. The choice of SikaGrout®-9500 allowed the grouting contractor to install the material in harsh and cold conditions, ensuring an on-time project completion.

CUSTOMER BENEFITS

- The use of SikaGrout®-9500 enabled the applicator to execute the grouting works in very difficult conditions.
- Rapid hardening of the SikaGrout®-9500, even at cold temperatures, allowed the EPCI contractor to securely install the wind turbines in a short period.
- Deadlines for the wind turbine installation and first electricity production were achieved.

PROJECT PARTICIPANTS

Main contractor:	E.ON Climate & Renewables
Installation:	Jan De Nul

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QUICK FACTS

Amount of material used:	48 tons
Number of turbines:	16 Vestas, V112-3.0 MW
Windfarm total capacity:	48 MW
Homes equivalent:	28,000
Turbine tip height:	136 meters
Rotor blade diameter:	112 meters
Distance from shore:	7 km
Foundation type:	Gravity based foundation
Size of foundation:	up to 1,950 tons with maximum height of 24.5 m and a diameter at its base of 18 m
Typical water depth:	8 - 21 m

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