

Innovation is the key to success



Van Oord is a leading global contractor in dredging, offshore oil and gas and offshore wind, and is celebrating its 150th anniversary this year. The company has a long and varied history in marine engineering, an industry that has its origins in the Netherlands. Over the past 150 years Van Oord, a family-owned business, has grown into one of the largest marine engineering companies in the world.



Windpark Gemini

The origins of Dutch marine engineering lie in the Netherlands' unique location on the North Sea and its centuries-long battle against the water. Van Oord's work is rooted in that battle. The history of the company is intertwined with the country's biggest marine engineering projects, including the Nieuwe Waterweg Canal, the Delta Works, and the Port of Rotterdam's Maasvlakte II



Maasvlakte II project

expansion. These were projects that fuelled economic growth and kept the Dutch population safe from flooding.

Since the late nineteenth century, the company has also applied its expertise abroad. Van Oord extended the port of Surabaya, constructed the Palm Islands in Dubai, dredged the Suez Canal, and installed the Gemini offshore wind park. They have gained a great deal of knowledge and experience over the years, and the company has grown to become one of the biggest marine engineering companies in the world. With its origins in a small country, Van Oord has matured into a world player that's taking on ever-larger maritime projects, both in scale and in scope.

Landmark projects

Many of Van Oord's projects have become true landmarks. At present, one of the big themes is the energy transition. Supplying the increasing world population with energy is a huge challenge. Accelerating the transition to more sustainable energy is necessary so as to meet demand and to become less dependent on fossil fuels. Wind energy has an increasing share in the supply of power in Europe and offshore wind, in particular, is developing rapidly. In August 2016 Van Oord proudly completed installation of one of the largest offshore wind projects in the world, namely Gemini. With its 150 turbines, the Gemini Wind Park supplies 600 megawatts of sustainable energy to 785,000 households in the Netherlands.

Van Oord has been active in offshore wind for over a decade now and furnishes all-round solutions, often as turnkey projects including engineering, procurement, and construction so as to assume full responsibility for entire projects on behalf of its clients. The company focuses on Balance

of Plant contracts (BOP, meaning all the supporting components and auxiliary systems other than the wind turbines themselves) and on Transport and Installation (T&I) projects. Today, it is one of the two world leaders in offshore wind contracting and have been involved in the construction of about 35 offshore wind farms, totalling more than 6 GW. That means they have been involved in over half of the total installed capacity in Europe.

In order to be successful in this industry, Van Oord owns and operates specialised offshore wind equipment. Offshore installation vessel Aeolus, which was designed in-house, is purpose built to transport and install foundations and wind turbines. The heavy lift installation vessel Svanen is the largest crane vessel in the world, with a lifting capacity of 8000 tonnes. The Nexus, the first cable-laying vessel, is equipped with a deck layout that was designed and developed in-house to anticipate future market requirements for challenging cable installation work. In May of this year Bravenes joined the fleet, a subsea rock installation vessel used for the installation of scour protection along with a new cable trencher, the Dig-It.

Innovation is the key

'Within Van Oord, our tagline is Marine ingenuity. We create innovative solutions that are valuable to our clients, our partners and other stakeholders. Marine ingenuity means, among others, creative thinking and distinguishing ourselves from others. As a global marine contractor, we are operating in a competitive world. In order to survive in this competitive world for us innovation is the key to success. Currently we are involved in various innovative projects,' says Wouter Dirks, Manager Innovation and R&D.

For example, the Borssele V project: to connect the monopile and transition piece, the innovative ‘slip joint’ technology will be applied. This technology, developed in collaboration with Van Oord, has two major advantages: it is maintenance-free and it reduces installation time, potentially resulting in major cost savings. Revolutionary eco-designs used for scour protection will have a positive effect on the marine environment. Part of that innovation is the use of scour protection in creating reef systems, including oyster reefs, which promotes diversification of the North Sea environment.

There’ll also be innovations at the Deutsche Bucht Offshore Wind Farm, where Van Oord will install a total of 33 wind turbines, 31 on monopiles and two on Mono Buckets. The Mono Bucket foundation consists of a single steel cylinder known as a ‘suction bucket’, on which a shaft is mounted. The suction bucket structure becomes firmly embedded in the sea floor by its own weight and vacuum pressure, eliminating the need for pile-driving and consequently for noise mitigation measures such as big bubble curtains. The new structure benefits the environment because it causes less disruption to local porpoise populations and can be completely decommissioned at the end of its lifetime.

A great example of external innovative concepts that Van Oord supports is the Blue Hammer. Together with partners, they provide financial support for this innovative pile driver, which will significantly reduce the underwater noise level and potentially



Subsea rock installation vessel Bravenes

reduce fatigue damage during installation of the pile. This was invented by the Dutch technology company Fistuca BV.

Van Oord Innovation Challenge

‘The Van Oord Innovation Challenge is all about the future. During our anniversary year, we’re not only contemplating our long history in marine engineering; we’re also looking forward, with a strong focus on innovation and sustainability’ states Sander Dekker, Manager Sustainability. The Van Oord Innovation Challenge is a quest for new partnerships with start-up entrepreneurs who, like the company, have prioritised the transition to sustainable energy. It is also a way to identify promising innovations that can give the company new insights beyond

their own area of expertise. ‘From the more than 100 applications 8 start-ups have been selected to join our Challenge. They will receive professional support for setting up a mature business case. End of 2018 the winner will be announced and we look forward to a long-lasting partnership this start-up,’ concludes Sander Dekker.

Care for the environment

The company plays an active role in caring for the planet now and in the future by guarding the environment. They strive to minimise the potential negative impact of their work on the marine environment. Van Oord continuously encourages its smart engineers to develop more sustainable work methods and innovations.

One of the recent environmental projects is a unique project to restore natural underwater features around wind farms: ‘the Rich North Sea’. A pilot project at Eneco’s Luchterduinen wind farm that will investigate how nature conservation and sustainable energy generation can reinforce one another. The demonstration project will provide know-how and possibly a blueprint for underwater nature restoration at all offshore wind farms, so that this can soon become standard when constructing new wind projects.

Van Oord knows that adding value is one of the keys to its long-term success. The past has shown that this added value is the source of the substantial contributions we make to our world. Contributions that ensure sustainable development and growth. This process never ends. The company is ready and able to take on future challenges. Van Oord can not only proudly look back on 150 years of Marine ingenuity but is also ready for the next 150 years!



Van Oord’s new cable trencher, the Dig-It

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