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ATEX version



Offshore painting



Geared motors  
with shrink disc

EN

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## Drive solutions for bulk material plants

Case study: Lachenmeier Monsum A/S







**Bulk material handling industry**  
Logistics facilities for grain, oil seeds and feedstuff



**Geared motors**  
Parallel shaft, bevel and worm gear units

**Application video**



### Project requirements

In summer of 2019, the Danish company Fredericia Shipping put into operation a new grain terminal for export purposes with a storage capacity of 40,000 tons in the port of Fredericia. The terminal will receive the grain from either directly the fields or from the many inland terminals in Denmark via truck. The grain will be cleaned, dried and immediately stored. Afterwards, it will be conveyed and loaded onto ships.

**Well-equipped for export purposes.** The facility can receive up to 10 truck loads per hour. That is approximately 300 tons. For loading ships, up to 600 tons per hour can be taken from the silos. This requires a powerful and reliable conveyor system. The longest horizontal conveyor in the system covers a distance of 130 metres. The other conveyors are about 60 metres long. For vertical

grain conveying, for loading the silos and dryers from above, a 45 metre high bucket elevator is used.

#### The right partner for the project.

Fredericia Shipping had discussed the project with several suppliers and finally agreed that the solution from Lachenmeier Monsun A/S was the most attractive one with regard to design, functionality and costs. The company specialises in planning and construction of logistics facilities for bulk materials like grain, oil seeds and feedstuff, and preferentially relies on drive technology from NORD DRIVESYSTEMS. In the selection process, the NORD gear units convinced in economical and also in technical terms.

### Application solution

An important part of the system is the more than 40 geared motors of different designs and sizes that have been delivered by NORD GEAR DANMARK A/S. They drive the conveyor belts and bucket elevators for grain transportation and make the system's high handling volume possible.

#### The right gear unit for any application.

The NORD drives are used as main chain drive units for horizontal and vertical conveying – but also in controls for gates, valves and ventilators. The installed gear unit types depend on position and installation space at the installation site: Parallel shaft gear units are used in chain conveyors, bucket elevators and dryers. They are inexpensive and can be used almost universally. Helical bevel gear units are mainly used in case of space issues because they are more compact than other gear

unit types. Worm gear units are used for smaller applications on filters and for ship loading.

#### Safe drives indoors and outdoors.

For explosion hazard areas, NORD offers special ATEX drives. Within a grain terminal flammable dust can be a concern in indoor areas. Normally, all indoor geared motors belong to the categories ATEX zone 22 or ATEX zone 21. For outdoor drives, Lachenmeier Monsun have chosen corrosion-resistant offshore grade painting. Thanks to the surface coating, humidity, rain, salt, dust and dirt cannot damage the drives in the sea port.



#### Optimum operation

*"The NORD drives are energy-efficient, low-maintenance and robust to ensure reliable grain conveying at all times."*



### Customer profile

Fredericia Shipping was founded in 1973 by Niels Jørgen Andersen and is a versatile terminal operator today. Apart from the headquarters in the port of Fredericia, there are facilities in many other Danish port cities. Klaus G. Andersen has been the owner and managing director of the company and the Fredericia Bulk Terminals for 25 years. The investment in the silo system from Lachenmeier Monsun is due to the increased demand for export capacities for grain.

**Image:** The capacity of the grain terminal built by Lachenmeier Monsun A/S and put into operation in summer of 2019 is 40,000 tons.



### The project at a glance

To keep the energy consumption as low as possible, to simplify maintenance and service, and to ensure safe operation in case of a power cut or other failures, the NORD drives offer the following advantages or features:

- ▶ Energy efficiency class IE3, except for the ATEX version
- ▶ Shrink disc version for simple disassembly
- ▶ Optional backstop for bucket elevators: The motor cannot reverse and the grain load will run in reverse