

Maximum operational reliability



Powerful industrial gear units



Explosion protection according to ATEX directives

Agitator drives for biogas production

Case study: Precision agitators from PRG



DRIVESYSTEMS

Our Solution. Your Success.



Agitators

For Europe's largest biogas fermenter



Industrial gear units

Robust gear units from the MAXXDRIVE® series

Project requirements

In Friesoythe in Lower Saxony, a gigantic biomethane plant is being built. In 40 fermenters, each with a width and height of 24 metres, one million tons of dung and liquid manure from the region shall be processed per year. For this, the biomass – up to 9,500 m³ per container – must be continuously stirred. The agitators also have similarly spectacular dimensions: Special agitators with a diameter of five metres are attached to 22-metre-long agitator shafts; the agitator weighs 7.5 tons without the gear unit.

Therefore, great demands are placed on the drives of these huge devices. In addition to the high performance, this means maximum operational reliability for smooth 24/7 operation, 365 days a year. The greatest possible freedom from maintenance and a robust design are also required; after all, the agitators with the tanks are exposed to the weather 24 hours a day. In view of the flammable methane gas, the drives also need to be explosion-protected according to ATEX directives.



Customer profile

PRG Präzisions-Rührer GmbH is one of the world's leading suppliers of agitating technology. The company's agitators and agitating plants are used in industries such as cosmetics, chemicals, food, pharmaceuticals, biotechnology and biogas. The supplier from Warburg in North-Rhine Westphalia with around 150 employees is valued by its worldwide customers for the quality and reliability of its products.

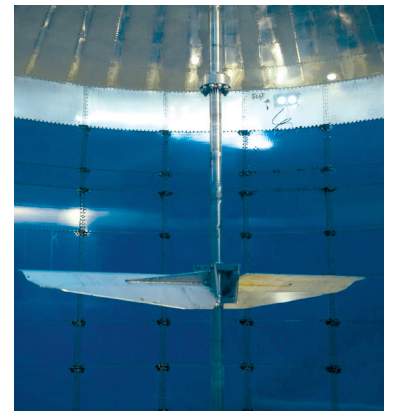


Application solution

For its agitators, PRG Präzisions-Rührer GmbH relies on industrial gear units from the MAXXDRIVE® series by NORD DRIVESYSTEMS. They are designed for maximum load capacity and operational reliability and provide output torques from 15 to 282 kNm. Even under extreme conditions – such as in the biomethane plant – they work reliably. Thanks to the torsionally rigid, one-piece UNICASE housing, they achieve a longer bearing life than gear casings manufactured from jointed parts.

Tailor-made and quiet running. Large low-friction roller bearings in the gear units ensure extremely high radial and axial load capacities and a long service life. High-precision axis alignment ensures quiet running. All agitator and mixing drives from NORD are tailor-made and adapted exactly to the respective re-

quirements of the customer application. To this end, NORD engineers are working closely with the PRG experts. Furthermore, the SAFOMI-IEC adapter (Sealless Adapter for Mixers) from NORD ensures greater operational reliability. It was specially developed for agitator drives and combines the functions of a standard IEC adapter with those of an oil expansion chamber. Therefore, there is no need for oil tanks and hoses or the radial shaft seal between the gear unit and the IEC cylinder, which is prone to leakage and wear. This results in a longer lifetime and less service work. With these optimisations NORD has succeeded in further increasing the drive unit's reliability and extending the maintenance intervals of the components. Consequently, it was possible to extend the first oil change to 20,000 operating hours – this corresponds to an operating time of two years.



Gigantic forces at work

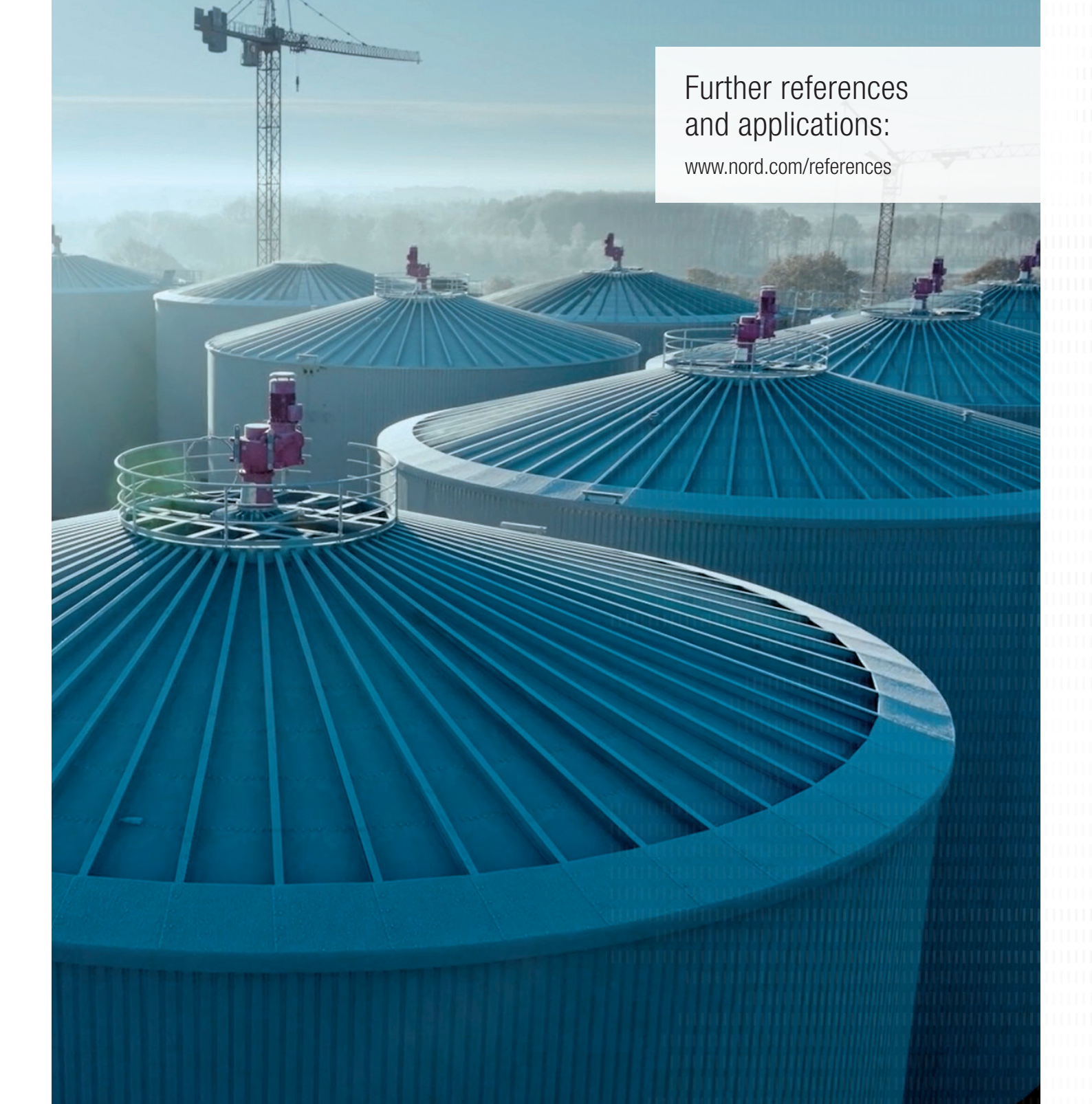
An agitator with a diameter of five metres is attached to a 22-metre-long agitator shaft



The project at a glance

MAXXDRIVE® industrial gear units are used for the powerful, totally reliable drive of the agitators in the methane gas plant.

- ▶ Output torques: 15 to 282 kNm
- ▶ Speed ratio range: 5.54:1 to 400:1
- ▶ Efficient power transmission, high tolerance for peak loads and impacts
- ▶ Torsionally rigid, one-piece UNICASE housing
- ▶ Durable and low maintenance
- ▶ Additionally: SAFOMI-IEC adapter for more operational reliability



Further references
and applications:

www.nord.com/references

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