



MAXXDRIVE® for mixing
and agitating processes
Industrial gear units



NORD DRIVESYSTEMS Group



Industrial gear units



Geared motors



Frequency inverters and motor starters

- ▶ Headquarters and technology centre in Bargteheide near Hamburg.
- ▶ Innovative drive solutions for more than 100 branches of industry.
- ▶ 7 production locations with cutting edge technology produce gear units, motors and drive electronics for complete drive systems from a single source.
- ▶ NORD has 51 subsidiaries in 36 countries and further sales partners in more than 50 countries, providing local stocks, assembly centres, technical support and customer service.
- ▶ More than 4,000 employees throughout the world create customised solutions.



Headquarters in Bargteheide



Gear unit production



Inverter production



Motor production



Production and assembly



Motor mounting

With its MAXXDRIVE® series, NORD DRIVESYSTEMS is the only manufacturer with a complete industrial gear unit system with a one-piece UNICASE housing for applications in mixing and agitating processes.

Characteristics / Performance

- ▶ Very high operational reliability through optimum sealing
- ▶ Compact, one-piece UNICASE housing with low weight and compact installation space
- ▶ High security against leaks, optionally TRUE DRYWELL
- ▶ Robust and rigid design for the very highest loads
- ▶ Short total axis spacing results in low bending torques and long operation times for the entire drive system
- ▶ Constructionally optimised IEC/NEMA adapter prevents impermissible vibrations
- ▶ Wide range of attachment options for simple and economical integration into mixing and agitation industry applications

Available sizes and speed ratios

- ▶ Standard series as helical or helical bevel gear units
- ▶ Vertical and horizontal installation positions
- ▶ Precisely matched to your application
- ▶ Economically and technically optimised solution



MAXXDRIVE® helical gear units

2-stage

Sizes: 11
Torque range [kNm]: 15 – 255
Speed ratio range: 5.6 – 28

3-stage

Sizes: 11
Torque range [kNm]: 15 – 280
Speed ratio range: 22.4 – 400

MAXXDRIVE® helical bevel gear units

3-stage

Sizes: 11
Torque range [kNm]: 15 – 255
Speed ratio range: 12.5 – 112

4-stage

Sizes: 11
Torque range [kNm]: 15 – 260
Speed ratio range: 80 – 450

MAXXDRIVE® for mixing and agitating processes



Explosion protected
NORD drive solutions

Drive systems for explosion hazard areas Zone 1, 2, 21 or 22

NORD DRIVESYSTEMS is a certified manufacturer of explosion protection solutions with many years of experience with explosion protected drive technology. Explosion protected drives from NORD DRIVESYSTEMS are used in many branches and sectors of industry. NORD supplies customised explosion protected drives, motors, frequency inverters and drive systems:

- ▶ EU-Directive 2014/34/EU
- ▶ Certified by the Physikalisch-Technische Bundesanstalt (PTB)
- ▶ Certified by DEKRA EXAM GmbH
- ▶ Certified by NANIO CCVE for EAC Ex

Systems based on top quality components are designed for the particular application according to specific customer requests.

Explosion protected motors

- ▶ According to Category 2G / 3G or 2D / 3D
- ▶ For Zone 1 / 2 (Gas) or 21 / 22 (Dust)
- ▶ According to EN 60079-7 or EN 60079-31
- ▶ Ignition protection type Ex eb or tc

Explosion protected gear units

- ▶ According to Category 2G / 3G or 2D / 3D
- ▶ For Zone 1 / 2 (Gas) or 21 / 22 (Dust)
- ▶ According to DIN ISO 80079-36 / -37
- ▶ Ignition protection type h

Agitator drive systems

NORD offers complete drive solutions for mixing and agitating processes consisting of an electric motor, frequency inverter, MAXXDRIVE® gear unit and accessories from a single source. Through the wide range of modular products and the great depth of production the drive system can be technically and commercially matched to customer requirements.

Standard motors / M7000, M7002



- ▶ High efficiency
- ▶ Compliant with international regulations and directives
- ▶ Extensive options possible
- ▶ Suitable for operation with frequency inverters
- ▶ High overload reserves

Sizes: 63 – 315
 Power: 0.12 – 200 kW
 Number of poles: 2, 4, 6, 8
 Protection class: IP55, optional IP66
 Temperature class: ISO F, optional ISO H
 Efficiency class: IE1, IE2, IE3, IE4, IE5+

MAXXDRIVE® industrial gear units / G1050



- ▶ All bearing points and sealing surfaces are machined in a single operation
- ▶ UNICASE housing, no joints subjected to torque
- ▶ High-precision axis alignment for quiet running
- ▶ Long life, low-maintenance
- ▶ Speed ratios from 5.54 to 400:1 with the same dimensions
- ▶ Helical and helical bevel gear units
- ▶ Compact design
- ▶ Modified bearing options for high radial and axial load capacity

Sizes: 11
 Torque: up to 282 kNm
 Speed ratio: 5.54 – 30,000:1

NORDAC FLEX frequency inverter / E3000



- ▶ Decentralised frequency inverter
- ▶ Speed control
- ▶ Motor or wall-mounting
- ▶ IP55 (optional IP66)
- ▶ Integrated PLC

Sizes: 4

Voltage: 1 ~ 110 – 120 V, 1 ~ 200 – 240 V

3 ~ 200 – 240 V, 3 ~ 380 – 500 V

Power: 0.25 – 22 kW

NORDAC PRO frequency inverter / E3000



- ▶ Frequency inverter for control cabinet installation
- ▶ Speed control
- ▶ Sensorless current vector control (ISD control)
- ▶ Integrated PLC

Sizes: 11

Voltage: 1 ~ 110 – 120 V, 1 ~ 200 – 240 V

3 ~ 200 – 240 V, 3 ~ 380 – 480 V

Power: 0.25 – 160 kW



MAXXDRIVE® for mixing and agitating processes

Drive systems for double agitators

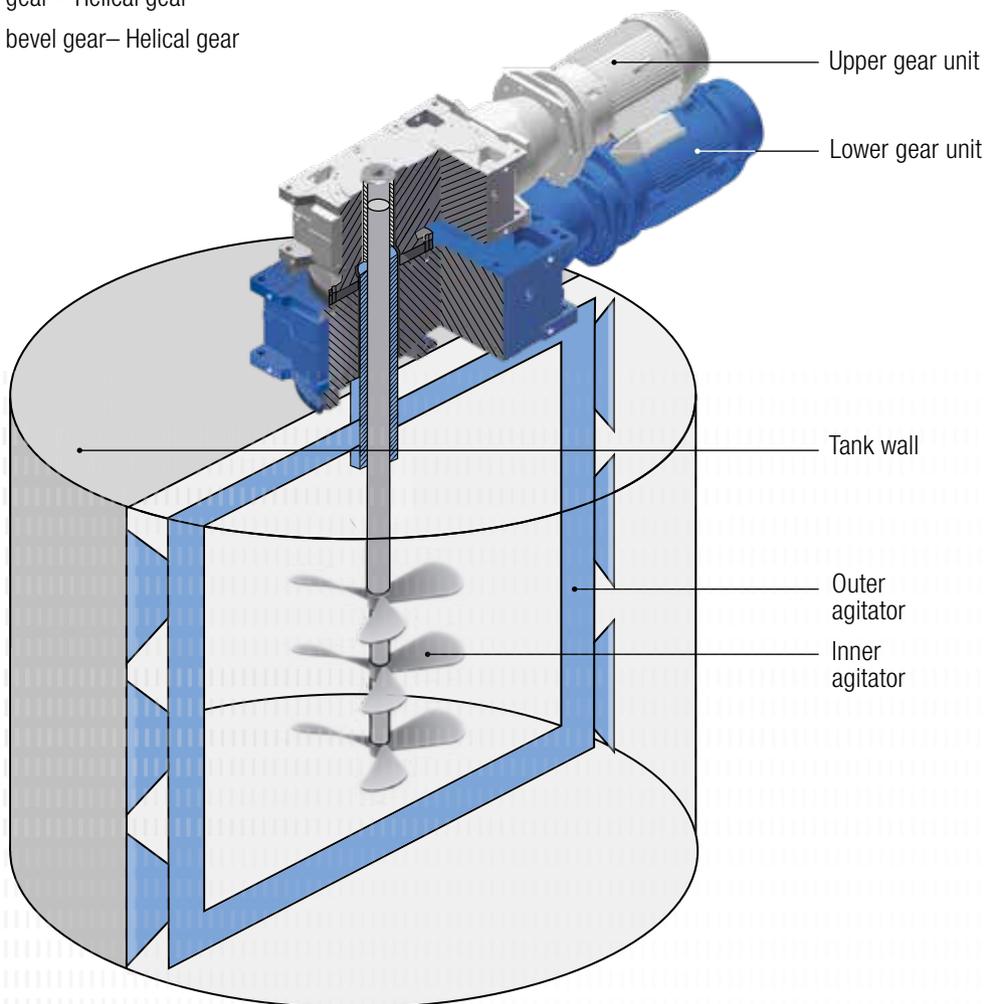
Coaxial drives are often used for agitators and mixers which require a double agitator due to the large size of the tank. Double agitators often consist of agitator blades which rotate in one direction in the middle of the tank and a scraper blade which rotates in the opposite direction. This removes material which is stuck to the wall of the tank and returns it to the agitation process.

Shaft-in-Shaft

For coaxial agitators, NORD offers the option of operating two shafts inside each other. The inner agitator is driven by the upper gear unit and the outer agitator by the bottom gear unit. The direction of rotation and the speed of the agitators are independent of each other.

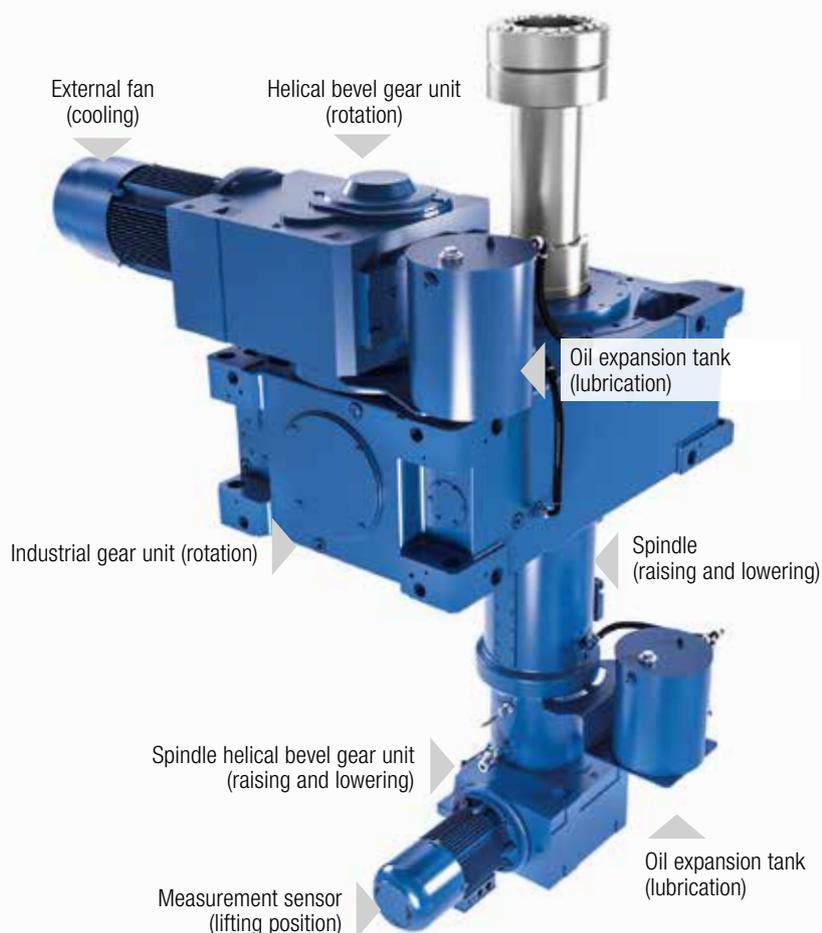
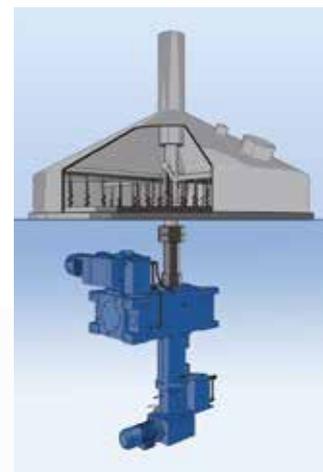
Drive combinations

- ▶ Helical bevel gear – Helical bevel gear
- ▶ Helical gear – Helical gear
- ▶ Helical bevel gear– Helical gear



Drive systems for lauter tuns

Lautering is an important part of the brewing process. A lauter tun is a vessel for separating the wort from the solid materials of the mash and functions like a large sieve. It normally has a slotted, perforated base which collects the used ground grains, while the wort can filter through the grain bed. The lauter tun drive rotates and lifts the racking machine inside the vessel. NORD also supplies customisable drive concepts for this special application.

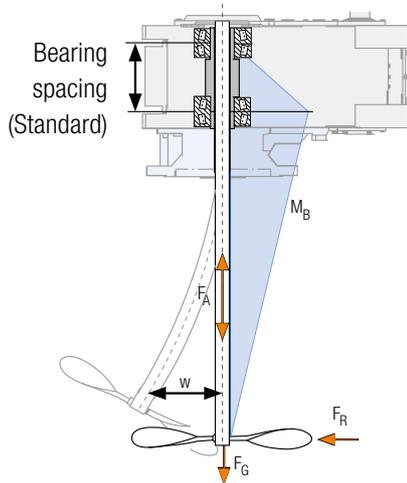


- ▶ Drive systems for lauter tuns from 2 m³ to 30 m³
- ▶ Standardised solutions for vat diameters up to 14 m
- ▶ Integrated lifting device
- ▶ Spindle lift or preparation for hydraulic lifting systems
- ▶ Complete drive unit from a single source
- ▶ Developed in cooperation with industry leaders
- ▶ Validated by long-term tests
- ▶ Application-specific design

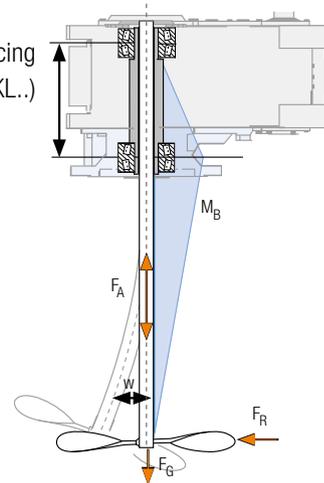


MAXXDRIVE® for mixing and agitating processes

Output shaft loads and bearings

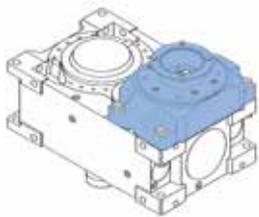


Extended bearing spacing
(Option: VL../KL..)

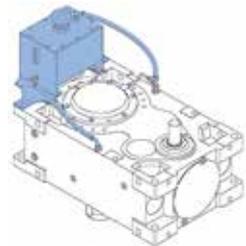


- ▶ Higher permissible:
 - ▶ Radial loads F_R
 - ▶ Axial loads F_A
- ▶ Longer bearing life
- ▶ Lower bending torque M_B
- ▶ Lower bearing load
- ▶ Less deflection w

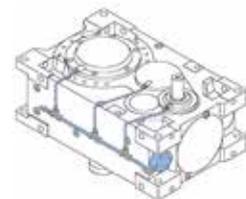
Lubrication options



Motor adapter (SAFOMI)



Oil tank (OT)



Pressurised oil lubrication (LC / LCX)

Output shaft options



Flang coupling



Hollow shaft with parallel key*



Hollow shaft with shrink disc*



Solid shaft with parallel key*

Cooling / heating options



Water-oil cooling system (CS1)



Air-oil cooling system (CS2)



Oil heater (OH)



Cooling coil (CC)



Radial fan (FAN)

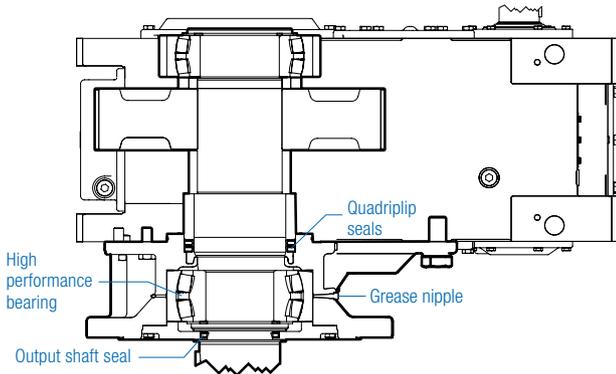


Axial fan (FAN)

*All output shafts are also available in special dimensions and as stainless steel (rust-proof) versions.

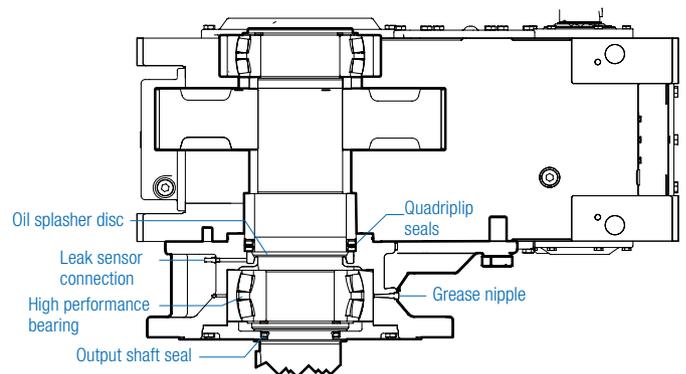
Bearing and sealing concepts for various requirements

- Versions with conical roller bearings for high axial loads (KL2, KL3, KL4, KL6)



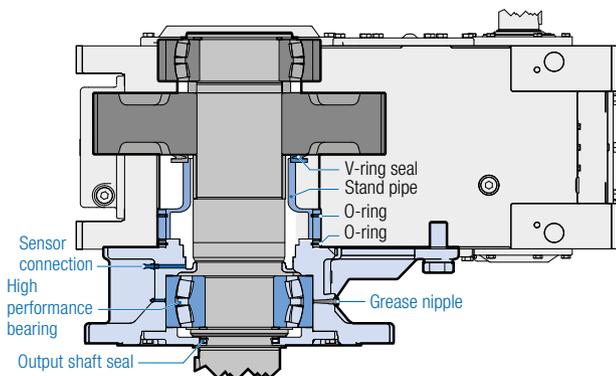
VL2 – extended bearing spacing

- For high loads



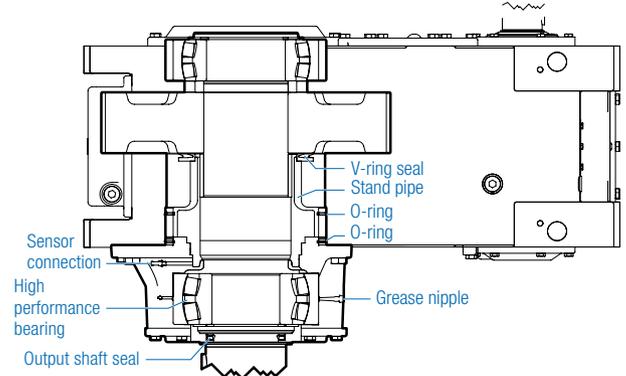
VL3 – as for VL2, with oil splasher disc (DRYWELL)

- Additional leakproofing through additional catchment spacer in the flange and visual leak indicator
- Optionally with sensor



VL4 – as for VL2, with stand pipe (TRUE DRYWELL)

- Maximum safety due to reduced oil level and stand pipe



VL6 – as for VL4, without output flange

- Maximum safety due to reduced oil level and stand pipe

MAXXDRIVE® for mixing and agitating processes

SAFOMI – Sealless Adapter for Mixers

The compact combination¹ of MAXXDRIVE® industrial gear units and sealless IEC/NEMA adapter (SAFOMI) is ideal for agitators. The SAFOMI-IEC/NEMA adapter includes an oil compensation volume, so attachments and wearing parts (e.g. oil tank, drive shaft sealing ring) are not necessary. This results in greater operational reliability and less maintenance.

Existing MAXXDRIVE® helical gear units with standard IEC/NEMA adapters can be easily converted for SAFOMI adapters.

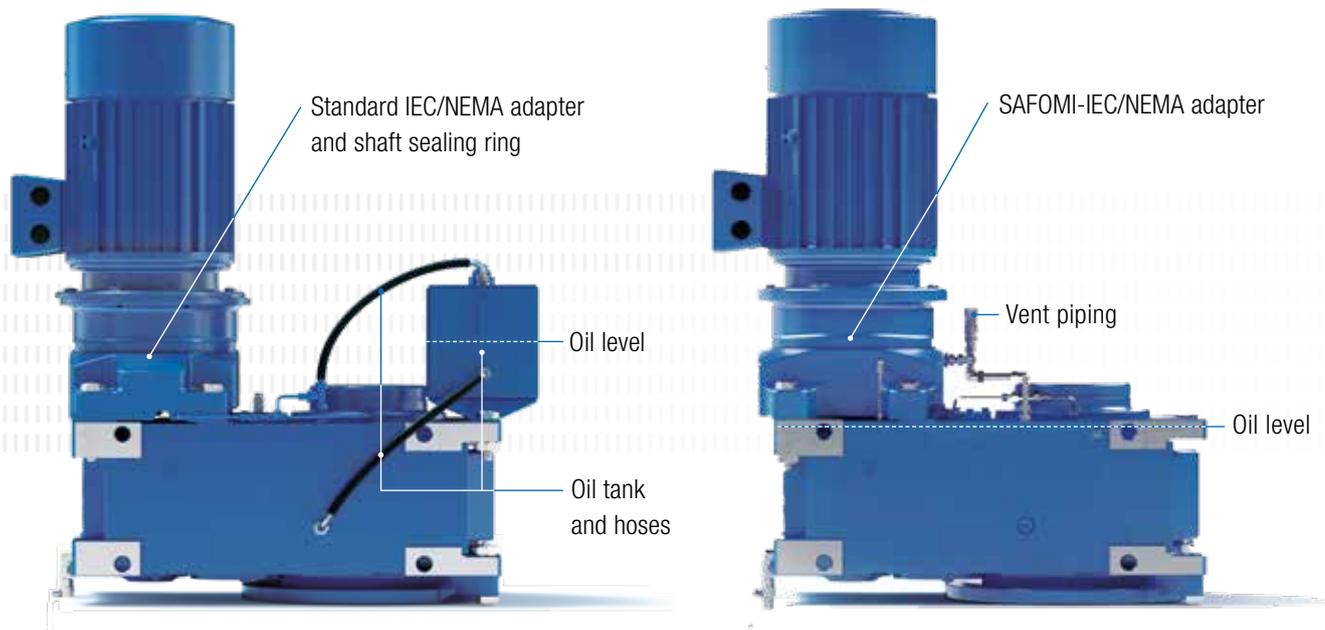
Fewer wearing parts

- ▶ No shaft sealing ring required between the gear unit and the IEC/NEMA cylinder
- ▶ Longer operating periods, less service required
- ▶ Less maintenance and greater reliability

Fewer attached components

- ▶ Reduced oil level, no additional oil tank necessary
- ▶ Less installation space thanks to fewer attachments

Version comparison



¹ This solution is available for MAXXDRIVE® sizes 7 – 11 helical gear units in installation orientation M5

Accessorie / Sensors

MAXXDRIVE® agitator drives are optionally well equipped for the future by the use of sensors which monitor the operating state of the drive. If required we can also modify our drive solution for customer-specific sensors.

Options



Geared motors for mixing and agitating processes

For smaller drive solutions and coaxial agitators in mixing and agitating processes NORD offers a comparable modular system with geared motors.

Helical geared motors / G1000



Power: 0.12 – 160 kW
Torque: 10 – 26,000 Nm

Parallel shaft geared motors / G1000



Power: 0.12 – 200 kW
Torque: 110 – 100,000 Nm

Bevel geared motors / G1000



Power: 0.12 – 200 kW
Torque: 180 – 50,000 Nm

Worm geared motors / G1000



Power: 0.12 – 15 kW
Torque: 30 – 2,800 Nm



Housing

- ▶ UNICASE housing, onepiece housing design
- ▶ Lower service and maintenance costs
- ▶ Optimised strength and rigidity
- ▶ Special high-precision housing production
- ▶ High-precision shaft bearings



Gearing

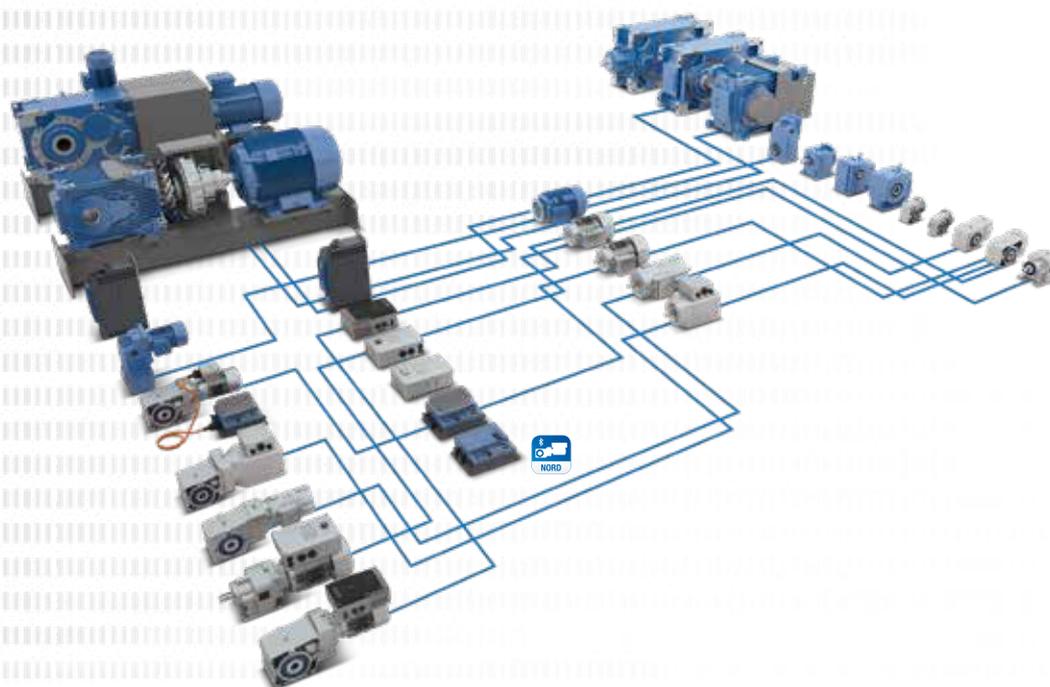
- ▶ Developed according to international standards
- ▶ Case-hardened and hard finished
- ▶ In-house quality production
- ▶ Noise-optimised bevel gears



Roller bearings

- ▶ High quality roller bearings from brand manufacturers
- ▶ Reduced friction roller bearings
- ▶ Long life roller bearings

The MAXXDRIIVE® series is the dependable member of the NORD product family for high torques. With an extensive range of modular products NORD provides many technically and commercially optimised drive solutions. Especially in the field of agitator drive systems, tailored solutions can be offered through the combination of the many standardised variants and options.



NORD DRIVESYSTEMS Product portfolio

- ▶ Complex drive systems from modular components
- ▶ Great depth of production
- ▶ High availability
- ▶ Global production network
- ▶ Short delivery times for stock components and spare parts
- ▶ Highest product quality at all locations
- ▶ ATEX version also available
- ▶ myNORD customer portal for online configuration, prices, delivery times and orders
- ▶ 24/7 dependable partner for engineering, production, installation and service

EN

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