



**MAXXDRIVE®** for mixing  
and agitating processes  
Industrial gear units

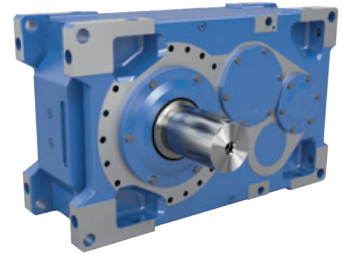


# Complete Drive Solutions from a Single Source



## NORD Delivers

NORD offers full-featured drive solutions that can tackle the toughest requirements. All components are carefully selected and precisely configured to meet your exact specifications. In the rare case that standard components won't meet your needs, our in-house engineering team will work with you to design custom components or a complete customized system.



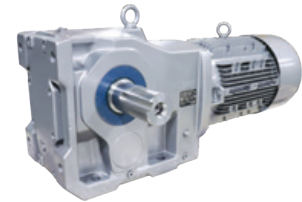
## Reduce Lead Times and Decrease Inventory

- ▶ 25% of orders ship same day or next day with NO expedite fees
- ▶ 47% of orders ship within 5 working days
- ▶ 81% of orders ship in 2-3 weeks



## Global Product Designs, Standards, and Support

- ▶ Innovative product range (one-stop shop)
- ▶ Global connected presence
- ▶ Mechanical and electrical application engineers ready to assist you
- ▶ Online resources



## Increase Efficiency and Reduce Operation Costs

- ▶ First-class customer service and support, plus myNORD online tools
- ▶ Product flexibility through standard components and customizations
- ▶ Program personalization, such as weekly shipment schedules and custom nameplates
- ▶ Partner with a company that is easy to do business with and wants to see you succeed!



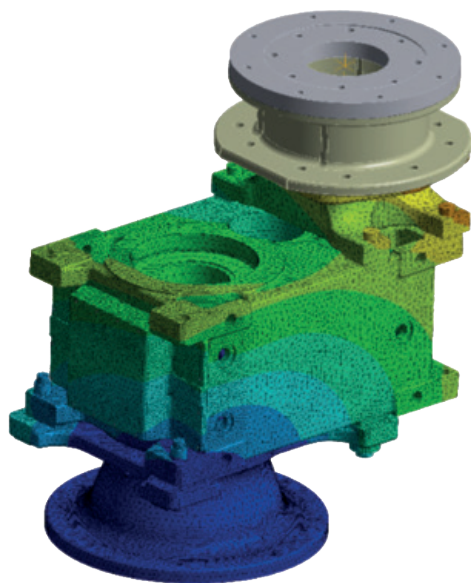
With its MAXXDRIVE® series, NORD DRIVESYSTEMS is the only manufacturer with a complete industrial gear unit system with a one-piece UNICASE™ housing for mixing and agitating applications.

### Characteristics / Performance

- ▶ Very high operational reliability through optimum sealing
- ▶ Compact, one-piece UNICASE™ housing with low weight and compact installation space
- ▶ High leak resistance, optional TRUE DRYWELL
- ▶ Robust and rigid design for the highest loads
- ▶ Short shaft center distance resulting in reduced bending moment and improved operational performance
- ▶ Optimized IEC/NEMA adapters reducing undesired vibration
- ▶ Wide range of modular 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 optimized solution



### MAXXDRIVE® Helical Gear Units

2-stage

Sizes: 11  
Torque range [lb-in]: 132,761 – 2,256,940  
Speed ratio range: 5.6 – 28

3-stage

Sizes: 11  
Torque range [lb-in]: 132,761 – 2,478,209  
Speed ratio range: 22.4 – 400

### MAXXDRIVE® Helical Bevel Gear Units

3-stage

Sizes: 11  
Torque range [lb-in]: 132,761 – 2,256,940  
Speed ratio range: 12.5 – 112

4-stage

Sizes: 11  
Torque range [lb-in]: 132,761 – 2,301,194  
Speed ratio range: 80 – 450



# MAXXDRIVE® for Mixing and Agitating Processes



## NORD Explosion Protected 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 customized explosion protected drives, motors, variable frequency drives 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

### Hazardous locations

- ▶ Class I, Division 2  
Groups A, B, C, D
- ▶ Class II, Division 2  
Groups F and G  
Temp Code T3B

### 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. NORD can also source reputable 3rd party motors to deliver full drive packages.

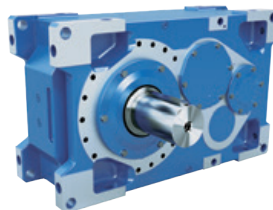
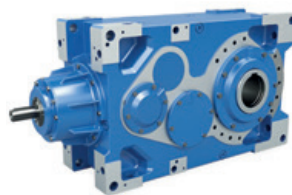
### Standard Motors



- ▶ Extensive options possible
- ▶ ISO F according to class B temperature rise (ISO H optional)
- ▶ Suited for VFD duty
- ▶ High overload capacity

Sizes: 63 – 315  
 Power: 0.16 – 200 HP  
 Number of poles: 2, 4, 6, 8  
 Protection class: IP55, optional IP66  
 Temperature class: ISO F, optional ISO H  
 Efficiency class: IE1, IE3, IE4, IE5+

### MAXXDRIVE® Industrial Gear Units



- ▶ All bearings and sealing surfaces are machined in a single process (promoting quieter operation and a long service life)
- ▶ No separating joints in the housing, no sealing surfaces subject to torque
- ▶ High-precision axis alignment
- ▶ Low maintenance
- ▶ Gear ratio range 5.54 to 400:1 with the same foot dimensions
- ▶ Parallel shaft and right-angle

Sizes: 11  
 Torque: 130,000 – 2,495,900 lb-in  
 Speed ratio: 5.54 – 1,600:1\*

\*with combination gearbox

## NORDAC® FLEX Variable Frequency Drive



- ▶ Decentralized VFD
- ▶ 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: 0.33 – 30 HP

## NORDAC® PRO Variable Frequency Drive



- ▶ VFD 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: 0.33 – 200 HP



# MAXXDRIVE® for Mixing and Agitating Processes

## Drive systems for stack mixers and counter rotating drives

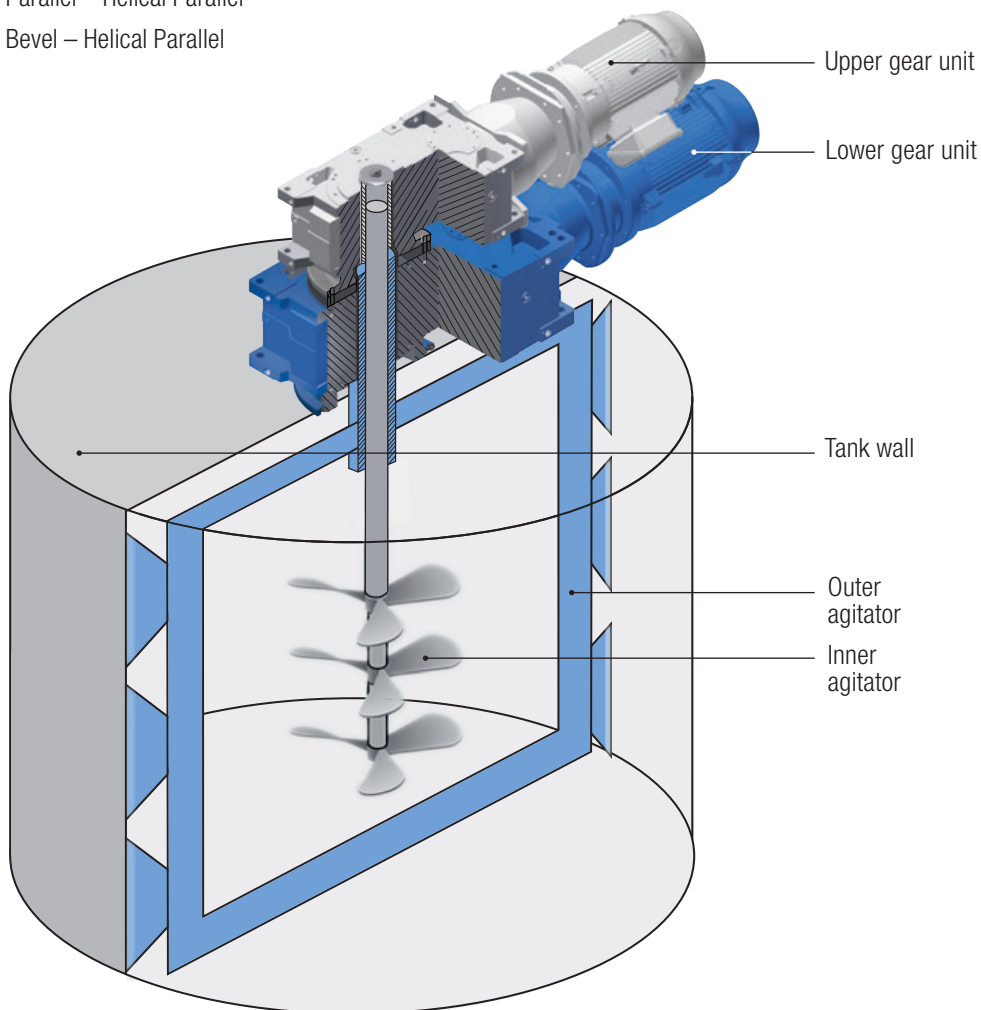
Coaxial drives are often used for counter rotating drives and stack mixers that require a double agitator due to the large size of the tank. Counter rotating drives often consist of agitator blades which rotate in one direction in the middle of the tank and a scraper blade which rotates in the opposite 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.

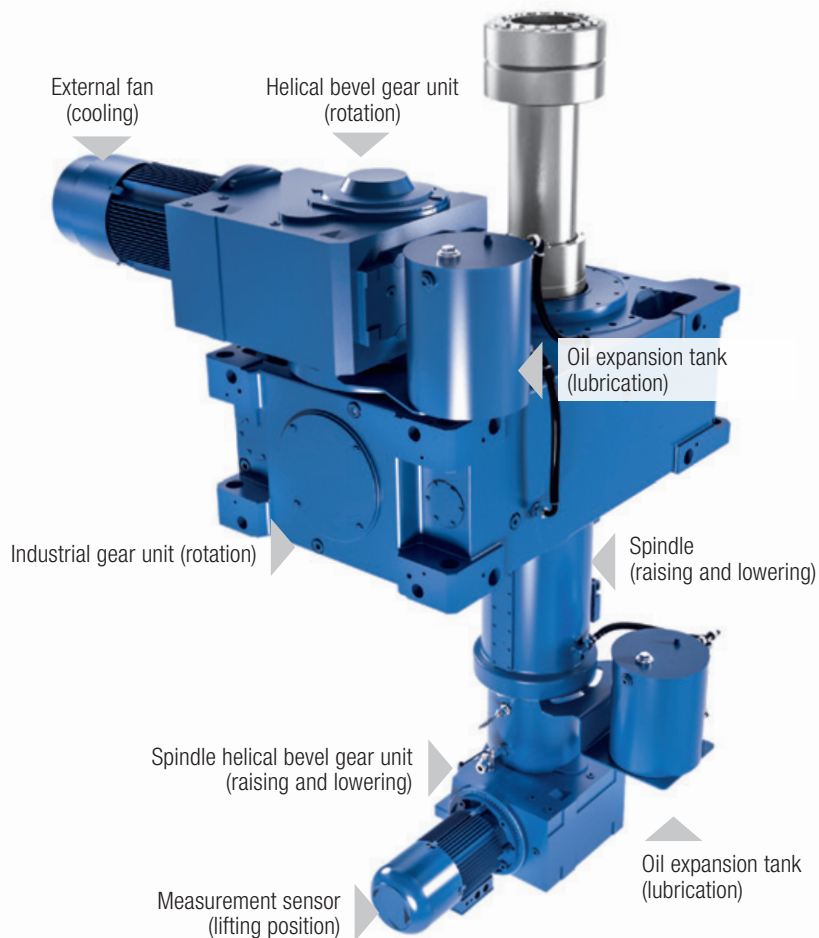
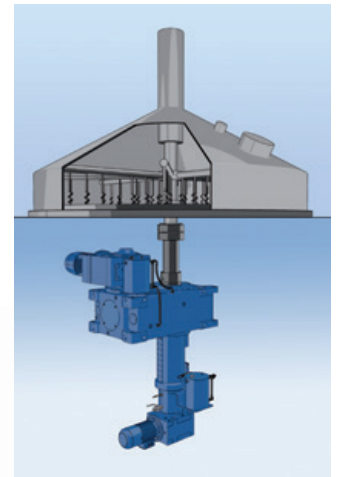
## Drive combinations

- ▶ Helical Bevel – Helical Bevel
- ▶ Helical Parallel – Helical Parallel
- ▶ Helical Bevel – Helical Parallel



## 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 customizable drive concepts for this special application.



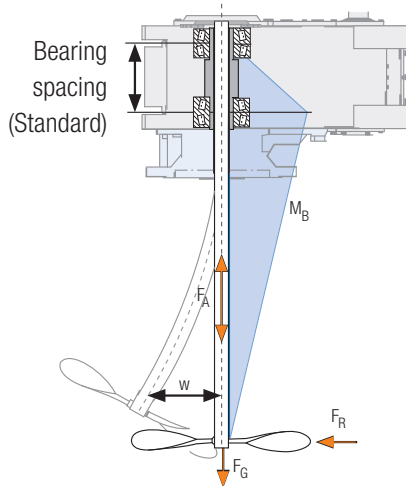
- ▶ Drive systems for lauter tuns from 2 m<sup>3</sup> to 30 m<sup>3</sup>
- ▶ Standardized solutions for vat diameters up to 14 m
- ▶ Integrated lifting device
- ▶ Spindle lift or preparation for hydraulic lifting systems
- ▶ Complete drive unit from a single source
- ▶ Developed in cooperation with industry leaders
- ▶ Validated by long-term tests
- ▶ Application-specific design



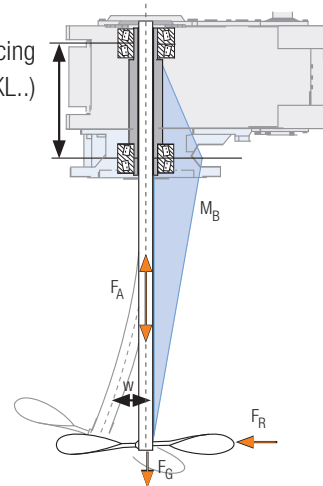


# MAXXDRIVE® for Mixing and Agitating Processes

## Output shaft loads and bearings

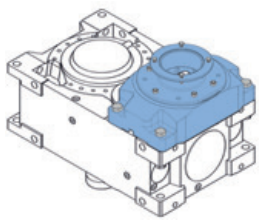


Extended bearing spacing  
(Option: VL../KL..)

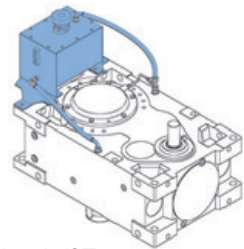


- ▶ Higher permissible:
  - ▶ Radial loads  $F_R$
  - ▶ Axial loads  $F_A$
- ▶ Longer bearing life
- ▶ Lower bending torque  $M_B$
- ▶ Lower bearing load
- ▶ Less deflection  $w$

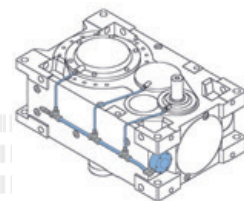
## Lubrication options



Motor adapter (SAFOMI)

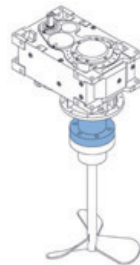


Oil tank (OT)



Pressurised oil lubrication (LC / LCX)

## Output shaft options



Flange 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)



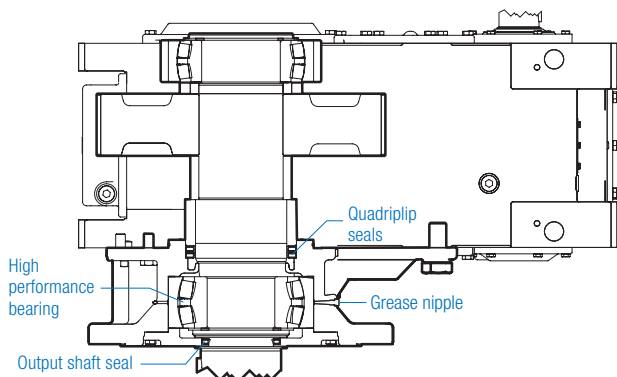
Axial fan (FAN)

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



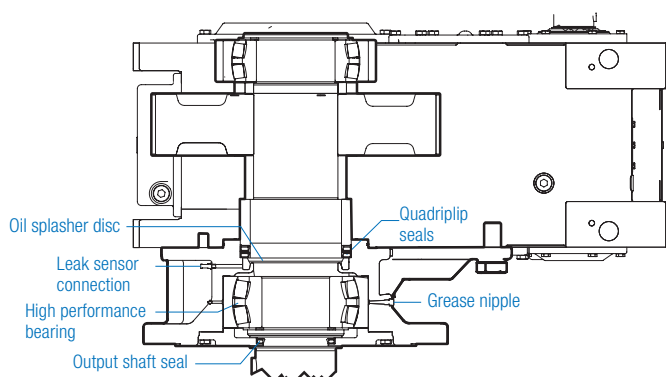
## Bearing and sealing options for various requirements

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



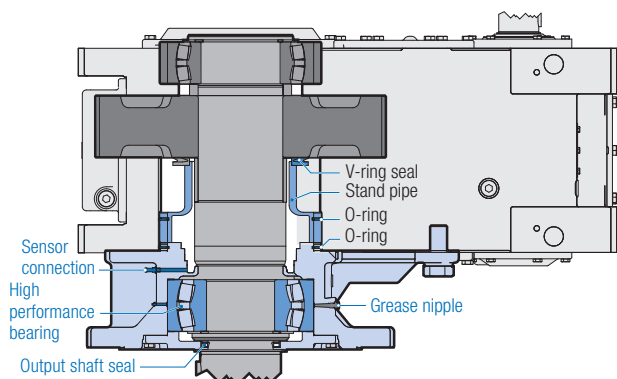
VL2 – extended bearing spacing

- ▶ For high loads



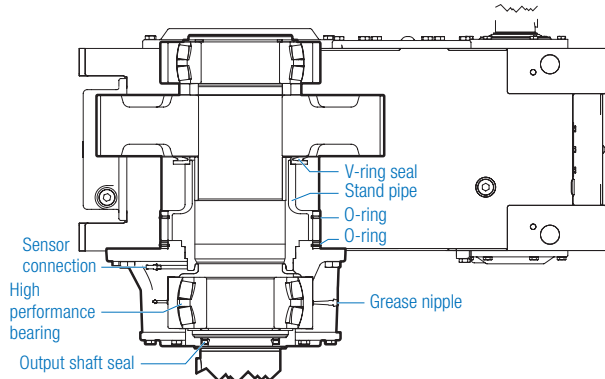
VL3 – as for VL2, with oil splasher disc (DRYWELL)

- ▶ 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 combination<sup>1</sup> 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.

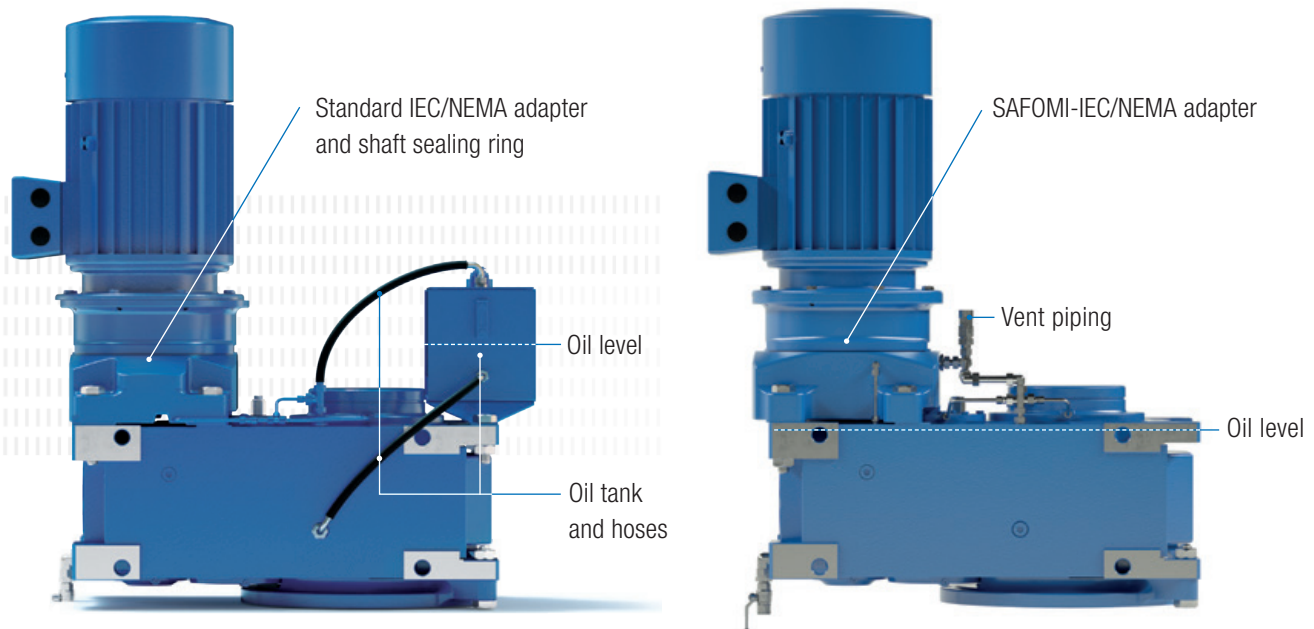
### Fewer wearing parts

- ▶ 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



<sup>1</sup> This solution is available for MAXXDRIVE® sizes 7 – 11 Helical Gear Units in installation orientation M5

## Accessories / 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 Inline Gear Units



Power: 0.16 – 200 HP  
Torque: up to 230,000 lb-in

### Clincher Parallel Shaft Units



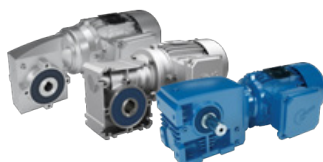
Power: 0.16 – 250 HP  
Torque: up to 680,200 lb-in

### Helical Bevel Gear Units

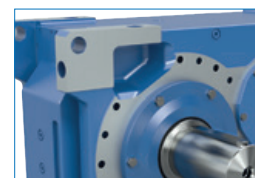


Power: 0.16 – 250 HP  
Torque: up to 442,500 lb-in

### Worm Gear Units



Power: 0.16 – 20 HP  
Torque: 433 – 27,346 lb-in



## Housing

- ▶ UNICASE™ housing, one-piece housing design
- ▶ Lower service and maintenance costs
- ▶ Optimized 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-optimized bevel gears



## Roller bearings

- ▶ High-quality roller bearings from top manufacturers provide long life and low friction

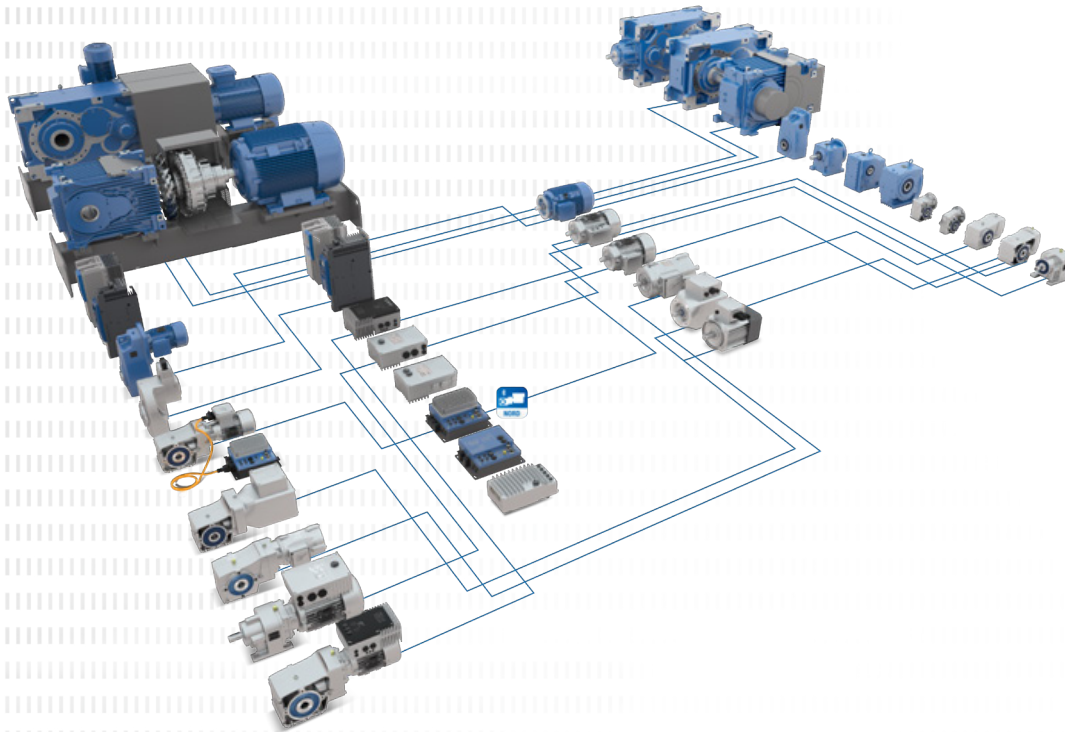


NORD DRIVESYSTEMS

# MAXXDRIVE® Industrial Gear Units



The modular system design of NORD DRIVESYSTEMS empowers users to create customized solutions to their exact requirements. From gear units to motors to drive electronics, each of the variants combines the highest product quality, short lead times, rapid delivery, and a strong price-to-performance ratio.



## NORD DRIVESYSTEMS Product Portfolio

- ▶ Complex drive systems from modular components
- ▶ High availability, global production network
- ▶ Short delivery times for stock components and spare parts
- ▶ Highest product quality at all locations
- ▶ ATEX versions available
- ▶ myNORD customer portal for online configuration, pricing, quoting & ordering
- ▶ 24/7 dependable partner for engineering, production, installation and service

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