

Intelligent Drivesystems, Worldwide Services

# GEARED MOTORS AND FREQUENCY INVERTERS

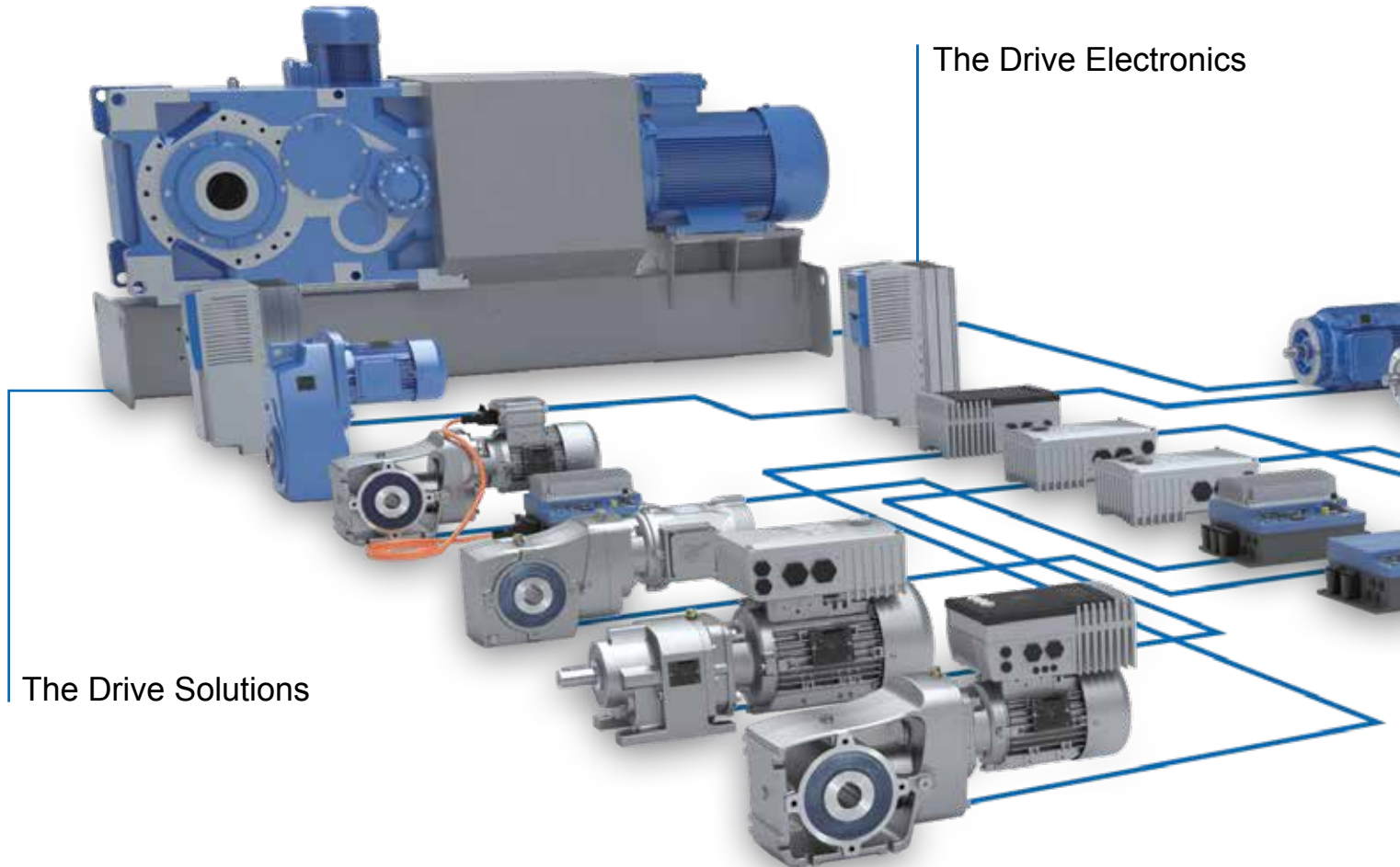


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**COMPLETE  
DRIVE SYSTEMS  
FROM A SINGLE SOURCE**

**NORD<sup>®</sup>**  
**DRIVESYSTEMS**

# COMPLETE DRIVE SOLUTIONS FROM A SINGLE SOURCE



The Drive Electronics

The Drive Solutions



Reliable gear unit with one-piece UNICASE housing can cater for any load.

- 2-stage, high efficiency bevel gear design
- High power density
- Long service life



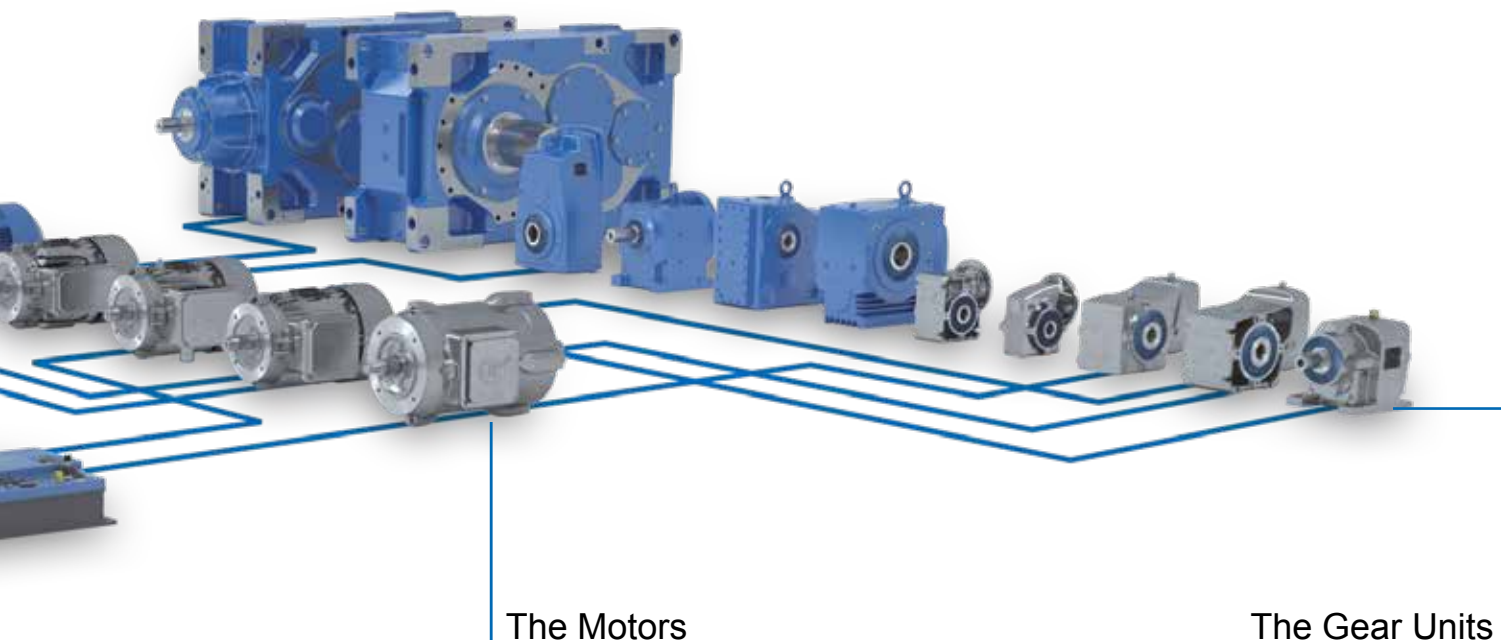
Powerful motors up to IE4 keep the drive systems moving in any operating situation.

- Designed in compliance with international standards
- High overload capacity
- Energy-efficient



Intelligent drive electronics provide exactly the control facilities you need.

- Scalable functions
- Full field bus connection facilities
- Wide power range
- PLC integrated at no extra cost



From the three components - gearbox, motor and drive electronics - the NORD product package provides an optimal and individual drive solution. Each of the variants combines: the highest product quality, short planning and assembly times, high delivery availability, and a good price/performance ratio.



Extensive communication options enable access to the drive units from all levels, providing a wide range of adjustments.

- All common bus systems
- Quick and simple commissioning with plug-in control box or using NORDCON software
- Convenient handheld console for local operation
- Optionally with intralogistics options



Switches and buttons are located directly on the drive units and enable direct starting, stopping or mode changes.

- Mains switch
- Selector switch for local or remote control
- Start/Stop and Forward/Reverse switch
- Energy-efficient



All interfaces designed for ease of operation. The drives can be easily configured and installed.

- Simple Plug-and-Play with all common quick connection plugs
- Plug-in supply cable and motor output
- Plug-in sensors and encoders
- Pre-assembled cables
- PLC integrated at no extra cost



# NORD DRIVESYSTEMS

## GEARED MOTORS

As early as 1981 NORD DRIVESYSTEMS developed the revolutionary UNICASE construction. A closed housing manufactured from a single block combines all the elements of the gear unit.

- Single housing which integrates all bearings
- Complete machining in one step
- High output torques
- High axial and radial loads
- High reliability
- Long service life
- Quiet running

### UNICASE Helical gear units (Catalogue G1000)



- ✓ Foot- or flange-mounted
- ✓ Long life, low maintenance
- ✓ Optimum sealing
- ✓ UNICASE housing

Sizes	11
Power	0.12 – 160 kW
Torque	10 – 26,000 Nm
Ratio	1.35:1 – 14,340.31:1

### NORDBLOC.1® 1- and 2-stage helical gear units (Catalogue G1000)



- ✓ Foot- or flange-mounted
- ✓ Die-cast aluminium housing
- ✓ UNICASE housing
- ✓ Industry standard dimensions

Sizes	13
Power	0.12 – 37 kW
Torque	30 – 3,300 Nm
Ratio	1.07:1 – 456.77:1

### UNICASE Parallel shaft gear units (Catalogue G1000)



- ✓ Foot-, flange- or hollow shaft-mounted
- ✓ Hollow or solid shaft
- ✓ Compact design
- ✓ UNICASE cast-iron or aluminium housing

Sizes	15
Power	0.12 – 200 kW
Torque	110 – 100,000 Nm
Ratio	4.03:1 – 6,616.79:1

### UNICASE Bevel gear units (Catalogue G1000)



- ✓ Foot-, flange- or hollow shaft-mounted
- ✓ Hollow or solid shaft
- ✓ UNICASE cast-iron housing

Sizes	11
Power	0.12 – 200 kW
Torque	180 – 50,000 Nm
Ratio	8.04:1 – 13,432.68:1

## NORDBLOC.1® 2-stage bevel gear units (Catalogue G1014)



- ✓ Foot-, flange- or hollow shaft-mounted
- ✓ Hollow or solid shaft
- ✓ UNICASE aluminium housing

Sizes	6
Power	0.12 – 9.2 kW
Torque	50 – 660 Nm
Ratio	3.03:1 – 70:1

## UNICASE Helical worm gear units (Catalogue G1000)



- ✓ Foot-, flange- or hollow shaft-mounted
- ✓ Hollow or solid shaft
- ✓ UNICASE cast-iron housing

Sizes	6
Power	0.12 – 15 kW
Torque	94 – 3,058 Nm
Ratio	4.40:1 – 7,095.12:1

## UNIVERSAL SI worm gear units (Catalogue G1035)



- ✓ Modular
- ✓ Universal attachment
- ✓ Life-long lubrication
- ✓ IEC versions

Sizes	5
Power	0.12 – 4.0 kW
Torque	21 – 427 Nm
Ratio	5.00:1 – 3,000.00:1

## UNIVERSAL SMI worm gear units (Catalogue G1035)



- ✓ Modular
- ✓ Universal attachment
- ✓ Life-long lubrication
- ✓ IEC versions

Sizes	5
Power	0.12 – 4.0 kW
Torque	21 – 427 Nm
Ratio	5.00:1 – 3,000.00:1

# NORD DRIVESYSTEMS

## MAXXDRIVE™ INDUSTRIAL GEAR UNITS

**Up to  
260,000 Nm**

NORD DRIVESYSTEMS is the only manufacturer which produces modular industrial gear units with an output torque of up to 260,000 Nm in a one-piece Unibase housing.

### MAXXDRIVE™ Industrial gear units (Catalogue G1050)

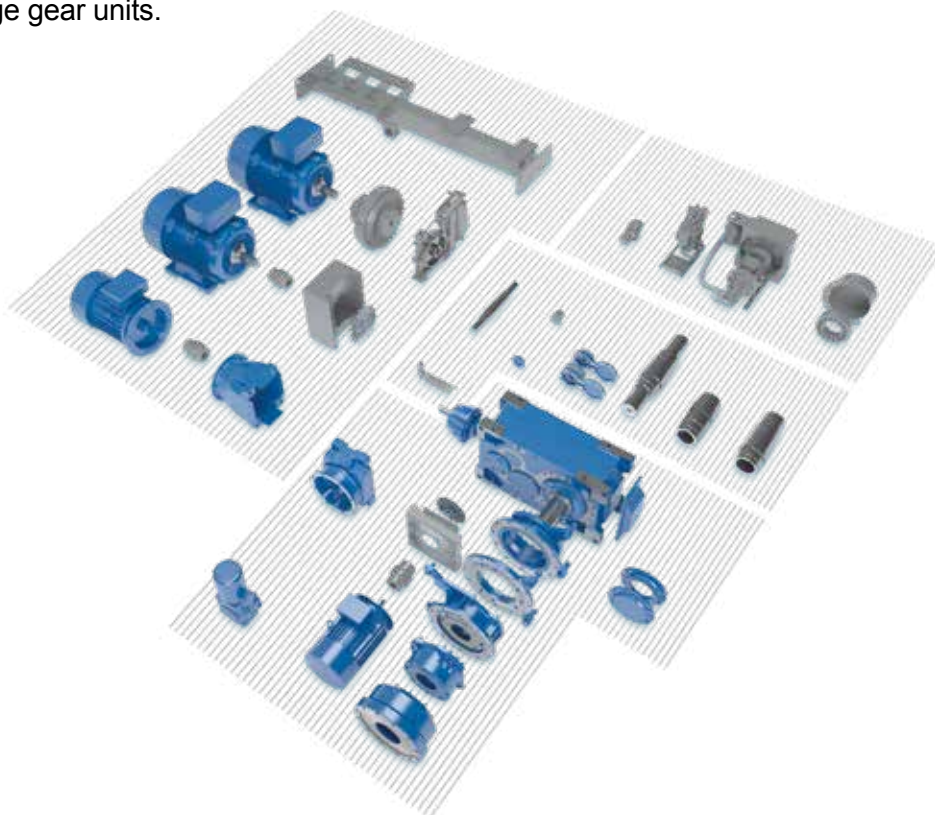


- ✓ All bearing points and sealing surfaces are machined in a single operation
- ✓ No separating joints in the housing, no sealing surfaces subject to torque
- ✓ High-precision axis alignment for quiet running
- ✓ Long life, low maintenance
- ✓ Gear ratio range 5.54 to 400:1 with the same foot dimensions
- ✓ Parallel axis and right-angled gear units

Sizes	11
Power	1.5 – 4,000 kW
Torque	15,000 – 260,000 Nm
Ratio	5.60:1 – 30,000:1

### Modular Industrial Gear Units







The optimally matched individual components form the basis for a wide range of versions, great flexibility and short planning and installation times. This enables the drive solutions to be individually tailored to the customer's requirements with short delivery times, even for large gear units.



# NORD DRIVESYSTEMS

## SYNCHRONOUS AND ASYNCHRONOUS MOTORS



<b>Energy-saving motors</b> (Catalogue M7000 und M7002)	<b>Switchable pole motors</b> (Catalogue M7000)
	
<b>Single phase motors</b> (Catalogue M7000)	<b>Smooth motors</b> (Catalogue M7010)
	
<b>Explosion protected motors gas atmosperes</b> (Catalogue M7003)	<b>Explosion protected motors dust atmosperes</b> (Catalogue M7000)
	

NORD DRIVESYSTEMS develops its own motors and supplies them to all major markets throughout the world.

This ensures a high level of independence from external suppliers and therefore provides our customers with the decisive advantage of short and highly dependable delivery times.



In combination with motor and motor control system in accordance with Ecodesign directive EN50598



### International energy efficiency standards

- EU: IE1 – IE4 as per IEC 60034-30
- US: ee labeling as per EISA 2007 (Dept. of Energy)
- CA: CSA energy verified as per EER 2010
- CN: CEL as per GB 18613
- KR: KEL as per REELS 2010
- BR: Alto Rendimento as per Decreto nº 4.508
- AU: MEPS as per AS/NZS 1359.5



# NORD DRIVESYSTEMS

## FREQUENCY INVERTERS AND MOTOR STARTERS



We have the drive units for intelligent processes: Networked – Autonomous – Scalable.

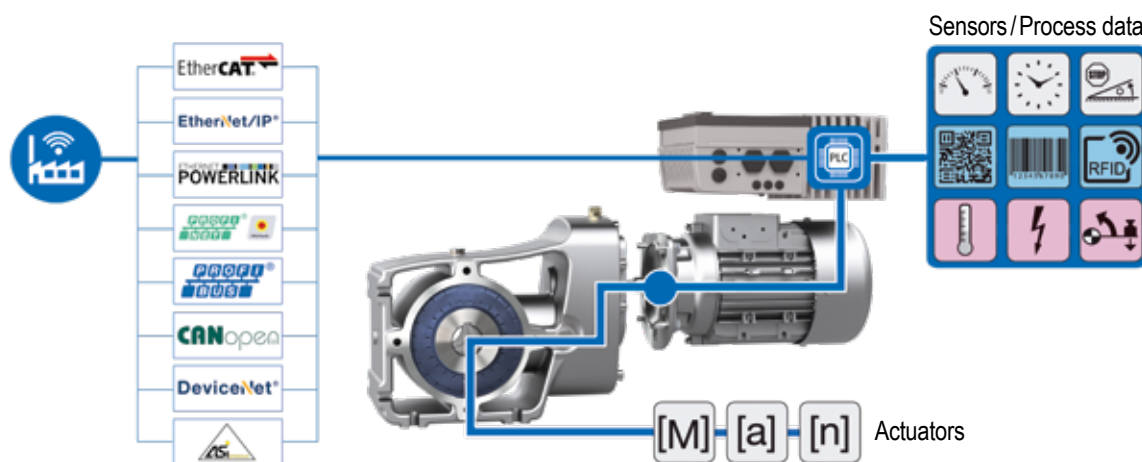
Intelligent drive units from NORD DRIVESYSTEMS now play an important role in highly networked systems, in order to advance the so-called fourth industrial revolution, which focuses on the extensive exchange of information at all levels.

### NORD DRIVESYSTEMS – INDUSTRY 4.0 READY!

“NORD 4.0 READY!” means that NORD drive units are networked, autonomous and scalable. The key to this are our frequency inverters with their powerful processors and comprehensive equipment with interfaces and functions. Frequency inverters not only monitor themselves and the motor, but also their effect on the load situation within the plant segments and beyond.

The integrated PLC processes the data from the sensors and actuators and if necessary initiates a sequence control and communicates high quality drive and application data to the control centre and other networked components. For example, intelligent sequence controls can enable the drive unit to decide independently on a branch position and act accordingly. However, the drive units can also communicate with each other: “Attention, I am directing a package toward you; start your conveyor belt.” A slave drive can then synchronise to a master for a certain task and then return to normal operation. Hundreds of typical functions and parameters are saved and can be simply adopted.

In this way, the frequency inverter can coordinate both simple and complex applications independently from the plant control system and if necessary can respond to changes to the process or remedy many process faults independently without external intervention.



### NORDAC PRO frequency inverter SK 500E (Flyer F3050)



- ✓ Stand-alone operation
- ✓ 4 parameter sets
- ✓ 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



### NORDAC START motor starter SK 135E (Flyer F3015)



- ✓ Integrated electronic brake rectifier
- ✓ Consistent parameter structure
- ✓ Reversing starter with soft start function

Sizes	2
Voltage	3~ 200 – 240 V 3~ 380 – 500 V
Power	0.12 – 3 kW or up to 7.5 kW

### NORDAC BASE frequency inverter SK 180E (Flyer F3018)



- ✓ Stand-alone operation
- ✓ 4 parameter sets
- ✓ Sensorless current vector control (ISD control)
- ✓ Integrated PLC

Sizes	2
Voltage	1~ 110 – 120 V 1~ 200 – 240 V 3~ 200 – 240 V 3~ 380 – 500 V
Power	0.25 – 2.2 kW

### NORDAC FLEX frequency inverter SK 200E (Flyer F3020)



- ✓ Energy-saving function
- ✓ Integrated POSICON positioning control
- ✓ 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 LINK field distribution system SK 250E (Flyer F3025)



- ✓ Frequency inverter or motor starter
- ✓ All connections in plug-in version for easy commissioning and maintenance
- ✓ PLC functionality for drive-integrated functions

Sizes	2
Voltage	3~ 380 – 500 V
Power	Frequency inverter 0.75 – 7.5 kW Motor starter 0.12 – 3 kW

NORD DRIVESYSTEMS produces frequency inverters and motor starters for the necessary power electronics. Inverter solutions are available for traditional installation in the control cabinet as well as for decentralised and fully-integrated drive units.

# THE ALTERNATIVE TO STAINLESS STEEL

## nsd tupH SURFACE TREATMENT



**NORD geared motors with nsd tupH are the optimal choice for use in challenging environmental conditions:**

- Easy to clean surfaces
- Resistant to acids and alkalis (wide pH range)
- No blistering, even if damaged
- No flaking
- Corrosion resistant, prevents contact corrosion
- Alternative to stainless steel
- Conforms to FDA Title 21 CFR 175.300
- Free from chromates

**The complete solution for extreme conditions:**

- Surface-treated housing components
- DIN and standard components made from stainless steel
- Wash-down housing (gear unit and motor)
- Stainless steel shafts

### Sealed Surface Conversion System

- Special shaft sealing rings
- Food-compatible oil

**nsd tupH for extreme requirements:**

- Food & beverage industry
- Dairies
- Pharmaceutical industry
- Water and sewage plants
- Car wash equipment
- Offshore and coastal areas
- Cleaning with chemicals (Wash-down, wide pH range)

**Tests performed on surface-treated aluminium housing components:**

- ASTM D714 Blister formation
- ASTM D610-08 Corrosion
- ASTM D1654-08 Scratching
- ASTM B117-09 Salt spray test
- ASTM D3170 Gravelometer test
- DIN EN ISO 9227 Salt spray mist test
- DIN EN ISO 2409 Cross-cut test

**Products available with nsd tupH:**



**NORDBLOC.1®**  
Helical bevel gear units (up to size 6)



**NORDBLOC.1®**  
2-stage bevel gear units



**UNIVERSAL**  
SMI Worm gear units



**Smooth motors**



**Frequency inverter**  
SK 180E



**Motor starter**  
SK 135E



NORD smooth motor  
with nsd tupH



**Headquarters and technology centre**  
in Bargteheide, near  
Hamburg

## Mechanical products

Gear units



## Electrical products

Motors



## Electronic products

Frequency inverters, motor starters  
and field distributors



**Innovative drive solutions**  
for more than  
100 branches of  
industry



Gear unit production



Motor production



Inverter production

**7 production locations with cutting-edge technology**  
produce gear units,  
motors, inverters etc. for  
complete drive systems  
from a single source.



The map shown above is for information only and does not claim to be created for or applicable to any legal purpose. For this reason, we do not assume any liability for legality, correctness and completeness.

**Subsidiaries and sales partners in 98 countries on 5 continents**  
provide local stocks,  
assembly centres,  
technical support and  
customer service



**More than 3,900 employees throughout the world**  
create customised  
solutions.



## **NORD DRIVESYSTEMS Group**

**Headquarters and Technology Centre**  
in Bargteheide, near Hamburg

**Innovative drive solutions**  
for more than 100 branches of industry

**Mechanical products**  
parallel shaft, helical gear, bevel gear and worm gear units

**Electrical products**  
IE2/IE3/IE4 motors

**Electronic products**  
centralised and decentralised frequency inverters,  
motor starters and field distribution systems

**7 state-of-the-art production plants**  
for all drive components

**Subsidiaries and sales partners**  
**in 98 countries on 5 continents**  
provide local stocks, assembly, production,  
technical support and customer service.

**More than 3,900 employees throughout the world**  
create customer oriented solutions.

**[www.nord.com/locator](http://www.nord.com/locator)**

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**Member of the NORD DRIVESYSTEMS Group**

