Complete Drive Solutions from a Single Source
Gear Units, Motors, and Variable Frequency Drives
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!
NORD allows you to customize gear units with a wide range of standard options. Most custom options either do not impact our delivery or do so very minimally.

Standard:
- Autovent breather
- QUADRILIP™ sealing
- High-quality gearing
- High strength gear case

Optional:
- Customer-specific shaft designs
- Stainless steel output shafts and bores
- Long-term storage options
- High/low temperature sealing solutions
- Backstops
- Housing modifications
- Oil level and oil temperature monitoring
- Extensive lubrication options, including synthetic, food grade, and low temp.

World-Class Service and Support

NORD’s customer-first approach means we take extra care to support our customers throughout the entire buying process and beyond. We also offer services such as myNORD online tools and live phone support from 7:00 a.m. to 7:00 p.m. Central Time.

In the rare case of a breakdown, NORD also provides a 24/7/365 emergency hotline for expedited replacement products and parts. At NORD, we do everything possible to keep you moving!
NORD DRIVESYSTEMS
Complete Drive Solutions from a Single Source

Reliable gear units with a one-piece UNICASE housing.
- High power density
- Long service life
- High axial and radial load capacity

Powerful motors with up to IE5+ efficiency keep drive systems in motion in all operating situations.
- Designed in compliance with international standards
- High overload capacity
- Energy-efficient

Intelligent drive electronics provide the exact control options you need.
- Scalable functions
- Wide power range
- Integrated PLC at no extra cost
Specialized drive solution can be created using the modular NORD system consisting of a gear unit, motor, and drive electronics. Each of the variants combine the highest product quality, short planning and assembly times, short lead times, and a good price/performance ratio.

Extensive communication options enable access to drives from all levels to enable a wide variety of setting options.
- Compatible with common industrial Ethernet and fieldbus networks
- Quick, simple commissioning with a handheld keypad, NORDCON software, or bluetooth adapter and NORDCON mobile app

Power disconnects and control switches are located directly on the drives and enable direct starting and stopping as well as fast mode switching.
- AC line switch
- Selector switch for local or remote control
- Start/Stop and Forward/Reverse switch
- Energy-efficient

All interfaces are designed for ease of use for easy configuration and installation.
- Simple Plug-and-Play with all common connection plugs
- Plug-in supply cable and motor output
- Plug-in sensors and encoders
- Pre-assembled cables
NORD DRIVESYSTEMS
Complete Drive Solutions from a Single Source

In the early 1980’s, NORD DRIVESYSTEMS developed the revolutionary UNICASE housing - an enclosed, single-piece housing that is produced from a single piece of material.

- Housing block integrates all bearing points
- High output torques
- High axial and radial load capacity
- Ultimate reliability
- Long service life
- Quiet operation

DuoDrive

- Integrated gear unit and motor
- Extremely high system efficiency
- Compact, space saving design
- High power density

Sizes: 1
- Power: 0.5 – 2 HP
- Torque: Up to 700 lb-in
- Ratio: 3.24:1 – 16.2:1

UNICASE Helical Gear Units

- Foot or flange mounted
- Long life, low maintenance
- Closely stepped ratios
- Cast-iron UNICASE housing

Size: 11
- Power: 0.16 – 200 HP
- Torque: Up to 205,000 lb-in
- Ratio: 2.76:1 – 14,340.31:1

UNICASE Parallel Shaft Gear Units

- Foot, flange, or shaft mounted
- Hollow or solid shaft
- Compact design
- Cast-iron or aluminum UNICASE housing

Sizes: 15
- Power: 0.16 – 200 HP
- Torque: Up to 680,000 lb-in
- Ratio: 4.03:1 – 15,685.03:1

UNICASE Bevel Gear Units

- Foot, flange, or shaft mounted
- Hollow or solid shaft
- Cast-iron UNICASE housing
- Closely-stepped ratios

Sizes: 11
- Power: 0.16 – 200 HP
- Torque: Up to 442,500 lb-in
- Ratio: 8.04:1 – 13,432.68:1
### NORDBLOC.1® Helical Gear Units

- Foot or flange-mounted
- Die-cast iron or aluminum housing
- UNICASE housing
- Available in single, double, or triple reduction

<table>
<thead>
<tr>
<th>Size: 16</th>
<th>Power: 0.16 – 60 HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque: Up to 29,205 lb-in</td>
<td></td>
</tr>
<tr>
<td>Ratio: 1.07:1 – 456.77:1</td>
<td></td>
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</tbody>
</table>

### NORDBLOC.1® 2-Stage Bevel Gear Units

- Foot, flange, or shaft mounted
- Hollow or solid shaft
- Aluminum housing
- Compact design

<table>
<thead>
<tr>
<th>Sizes: 6</th>
<th>Power: 0.16 – 10 HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque: Up to 5,800 lb-in</td>
<td></td>
</tr>
<tr>
<td>Ratio: 3.03:1 – 70:1</td>
<td></td>
</tr>
</tbody>
</table>

### UNICASE Worm Gear Units

- Foot, flange, or shaft mounted
- Hollow or solid shaft
- Cast-iron or aluminum UNICASE housing
- Closely-stepped ratios

<table>
<thead>
<tr>
<th>Size: 6</th>
<th>Power: 0.16 – 20 HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque: Up to 27,350 lb-in</td>
<td></td>
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<tr>
<td>Ratio: 4.40:1 – 7,095.12:1</td>
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</tbody>
</table>

### FLEXBLOC® Worm Gear Units

- Modular aluminum housing
- Universal mounting design
- Life-long lubrication
- NEMA or IEC input versions

<table>
<thead>
<tr>
<th>Sizes: 5</th>
<th>Power: 0.16 – 5.0 HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque: Up to 4,683 lb-in</td>
<td></td>
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<tr>
<td>Ratio: 5.00:1 – 3,000.00:1</td>
<td></td>
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</tbody>
</table>

### UNIVERSAL SMI Worm Gear Units

- Smooth surface aluminum housing
- Universal mounting design
- Life-long lubrication
- NEMA, IEC, or direct motor mount options

<table>
<thead>
<tr>
<th>Size: 5</th>
<th>Power: 0.16 – 5.0 HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque: Up to 4,683 lb-in</td>
<td></td>
</tr>
<tr>
<td>Ratio: 5.00:1 – 3,000.00:1</td>
<td></td>
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</tbody>
</table>
Complete Drive Solutions from a Single Source

Screw Conveyor Package

- Direct coupled input design
- Closely stepped ratios
- Standard CEMA mounting
- Compact and cost-effective

Sizes: 11
Power: 0.16 – 60 HP
Torque: Up to 53,100 lb-in
Ratio: 4.32:1 – 4,246.38:1

Overhead Conveyors

- High overhung load capacity
- QUADRILIP™ sealing system
- Low maintenance, long service life
- Industry standard mounting and shaft designs

Size: 3
Power: 0.33 – 60 HP
Torque: Up to 75,225 lb-in
Ratio: 8.10:1 – 3,735.92:1

Flexible Input Options
There are many available input options for our smallest gear boxes all the way to our powerful MAXXDRIVE units.

- NEMA
- IEC
- Integral gearmotors
- Solid input shafts
- Servo adapters
- Custom inputs

Cut-Pinions
NORD offers precisely machined, single-piece pinions that do not require a separate gear to be pressed into the input shaft. This provides a number of benefits, including:

- High gear ratios per stage
- Smaller ratio steps
- More ratio options in each case size
- Various inputs available
  - NEMA adapters
  - IEC adapters
  - W-inputs
Surface Protection

The paint systems used by NORD DRIVESYSTEMS® are resistant to chemicals and have been tested for their resistance to all common substances which could have a negative affect on the environment. Once fully dry, NORD® paints are food-safe and fulfill the NSF/ANSI 51-2009e test criteria. No further top coats are required. NORD®’s protective properties extend beyond paint coatings and surface treatments for its products. All NORD® motors and speed reducers are constructed to provide a high degree of protection against wet and severe conditions. A variety of standard and optional features are available to help your NORD® gear unit endure the harshest environmental conditions year after year.

Solvent Reduction

![Diagram of solvent reduction comparison]

<table>
<thead>
<tr>
<th>Standard Conventional System</th>
<th>MANKIEWICZ System high-solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>40% solids</td>
<td>up to 80% solids</td>
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</table>

Process Optimization

![Diagram of process optimization comparison]

<table>
<thead>
<tr>
<th>Standard Conventional System</th>
<th>MANKIEWICZ System high-solid</th>
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<tr>
<td>4.0 hours</td>
<td>2.0 hours</td>
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</tbody>
</table>

GRIPMAXX™

A keyless bushing system for shaft-mounting drives that can accommodate a wide range of solid shaft sizes while ensuring high-capacity, zero-backlash fit. Eliminates assembly and disassembly challenges by offering generous clearances for easy installation and removal of the gearbox.

- Extensive bore flexibility*
- No special shaft tolerances: utilize readily available cold-finished shaft stock*
- Simplified install and removal
- Bushings are corrosion resistant
- Optimally designed for shaft mounted or torque arm mounted units
- Available with UNICASE helical bevels, two-stage bevels, UNICASE parallel shaft, and UNICASE helical worm units

*Shrink disc keyless bore offering available for non-stock bore sizes. Assembly tolerances require more precision than shafts connected with GRIPMAXX bushing kit.
NORD DRIVESYSTEMS
Complete Drive Solutions from a Single Source

Torque up to 2,495,900 lb-in
NORD DRIVESYSTEMS is the only manufacturer which produces modular industrial gear units with an output torque of up to 2,495,900 lb-in in a one-piece UNICASE housing.

MAXXDRIVE® Industrial Gear Units

- All bearing points and sealing-surfaces are machined in a single operation
- No separating joints in the housing, therefore no sealing surfaces are subject to torque
- High-precision axis alignment for quiet operation
- Long life, low maintenance
- Gear ratio range 5.60 to 400:1 with the same footprint dimensions
- Parallel axis and right-angled gear units

Size: 11
Power: 2.5 – 8,075 HP
Torque: 132,800– 2,495,900 lb-in
Ratio: 5.60:1 – 30,000:1

Industrial Gear Unit Modules
Highly-configurable components allow NORD to provide a wide variety of system variants as well as great flexibility and short planning and assembly times without the need for costly custom components. This modular concept also enables drive solutions to be individually tailored to your requirements with short delivery times, even for large gear units.
With their symmetrical design, MAXXDRIVE® XT industrial gear units can be mounted in various installation orientations. Very high thermal limit powers are achieved through a strongly ribbed design in combination with an optimized axial fan and air guide covers.
NORD DRIVESYSTEMS develops its own motors and supplies them to all major markets throughout the world.

Our own developments ensure a high level of independence from external suppliers and therefore provides our customers with the decisive advantage of short and highly dependable delivery times.

<table>
<thead>
<tr>
<th>Energy-Saving Motors</th>
<th>Two-Speed Motors</th>
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<tbody>
<tr>
<td><img src="image1.png" alt="Image of Energy-Saving Motor" /></td>
<td><img src="image2.png" alt="Image of Two-Speed Motor" /></td>
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<table>
<thead>
<tr>
<th>Single-Phase Motors</th>
<th>Smooth Motors</th>
</tr>
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<tbody>
<tr>
<td><img src="image3.png" alt="Image of Single-Phase Motor" /></td>
<td><img src="image4.png" alt="Image of Smooth Motor" /></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Explosion-Protected Motors</th>
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<tbody>
<tr>
<td><img src="image5.png" alt="Image of Explosion-Protected Motor" /></td>
<td><img src="image6.png" alt="Image of Explosion-Protected Motor" /></td>
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<tr>
<th>IE5+ Synchronous Motors</th>
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<tbody>
<tr>
<td><img src="image7.png" alt="Image of IE5+ Synchronous Motor" /></td>
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</table>

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

*Division II motors also available.
Intelligent drives from NORD DRIVESYSTEMS play an important role in highly networked systems to advance the so-called fourth industrial revolution which is based on extensive exchange of information on all levels to increase efficiency and prevent costly downtime.

"NORD 4.0 READY!" means that NORD drives are networked, autonomous, and scalable. The key to this are NORD’s variable frequency drives with their powerful processors, comprehensive equipment, interfaces, and functions. They not only monitor the VFD and motor conditions, but also the driven load. The integrated PLC processes data from sensors and actuators and if necessary, initiates a control sequence to communicate high quality drive and application data to the control center and other networked components.

For example, intelligent sequence controls can enable the drive unit to locally determine what actions are required. The drive units can also coordinate with each other: “Attention, I am sending a package in your direction. Start your conveyor belt.” A follower drive can synchronize to a master for a particular task and then return to normal operation. Hundreds of typical functions are saved as unique parameter sets and can be easily adopted.

As a result, the variable frequency drive can coordinate both simple and complex applications independently from the plant control system, and can respond to changes to the process or remedy many process faults without external intervention.
NORD DRIVESYSTEMS manufactures variable frequency drives and motor starters for precise control of drive systems. VFD solutions are available for conventional control cabinet installations as well as for decentralized, fully-integrated gear units.

**SK 135E NORDAC® START  Motor Starters**

- 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: 0.16 – 4 HP or up to 10 HP

**SK 180E NORDAC® BASE Variable Frequency Drives**

- 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: 0.33 – 3 HP

**SK 200E NORDAC® FLEX Variable Frequency Drives**

- Integrated motor brake control
- 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: 0.33 – 30 HP

**SK 250E NORDAC® LINK Field Distributors**

- Variable frequency drive or motor starter
- PLC functionality for drive-integrated functions
- All connections in plug-in version for easy commissioning and maintenance

Sizes: 2

Voltage: 3~ 380 – 500 V
Power: VFD 0.75 – 10 HP; Motor starter 0.16 – 4 HP
NORDAC® *ON/ON+* Variable Frequency Drives

- Wall or motor mounted
- Ethernet communication
- Compact design
- Plug-and-Play solution

Sizes: 3
Voltage: 3~ 400V
Power: 0.25 – 1 HP

SK 500E NORDAC® PRO Variable Frequency Drives

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

Size: 11
Voltage: 1~ 110 – 120 V, 1~ 200 – 240 V, 3~ 200 – 240 V, 3~ 380 – 480 V
Power: 0.33 – 200 HP

SK 500P NORDAC® PRO Variable Frequency Drives

- Precise current vector control with high overload reserves for operating asynchronous and synchronous motors
- Universal interface for real-time Ethernet
- Integrated PLC for drive-related functions even in the basic device

Size: 3
Voltage: 1~ 200 – 240 V, 3~ 380 – 480 V
Power: 0.33 – 7.5 HP

NORDAC® ACCESS BT

- Stand-alone parameter memory
- Bluetooth interface for VFDs and NORDCON APP
- Data transfer to PC via USB
- Can be plugged in or disconnected during operation

NORDCON® APP

- Dashboard-based visualization for drive monitoring and fault diagnosis
- Parameterization with Help-function and rapid access to parameters
- Individually configurable oscilloscope function for drive analysis
- Backup and recovery function for simple handling of drive parameters

The NORDCON APP and NORDAC ACCESS BT – a mobile commissioning and service solution for all NORD drives.
IE5+ Synchronous Motors
The use of IE5+ synchronous motors minimizes overall costs during service life, achieves considerably greater efficiency, and provides a faster return on investment (ROI). The graphs below outline the efficiency of IE5+ motors compared to IE4 and IE3 at low speeds and partial loads.

NORDAC LINK Field Distribution System (SK 250E)

IE4 Synchronous Motor

IE3 Asynchronous Motor

- Highly efficient 2-stage bevel gear unit
- IE5+ permanent magnet synchronous motor
- Power plug connector
- Signal plug connector
- Incremental coder
- Pre-assembled cable
- Highly overload capacity
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 spreading of corrosion, even if damaged
- No flaking
- Corrosion resistant, prevents contact corrosion
- Alternative to stainless steel
- Complies with 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
- Special shaft sealing rings
- Food grade oil

Sealed Surface Conversion System

nsd tupH for extreme requirements

- Food and beverage industry
- Dairies
- Pharmaceutical industry
- Water and sewage plants
- Car washes
- Offshore and coastal areas
- Chemical cleaning (wash-down, wide pH range)

Tests performed on surface-treated aluminum 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 Gear Units
  (2 & 3 Stage up to Size 6
  Single Stage up to Size 7)

- CLINCHERTM
  0182.1 - 1382.1

- NORDBLOC.1®
  2-stage Bevel
  Gear Units

- UNIVERSAL SMI
  Worm Gear Units

- Smooth body motors
  (IE3, IE4, & IE5+)

- SK 180E
  Frequency inverters

- SK 135E
  Motor starters
Condition Monitoring for Predictive Maintenance

In condition monitoring, operating and status data are regularly or continuously recorded in order to optimize the reliability and efficiency of the plant and machinery. Important information for predictive maintenance can be derived from the data analysis.

The objective is to maintain machines and plants proactively, to reduce downtimes and to increase the efficiency of the entire plant.

- System vibration sensor
- Temperature sensor
- Oil change
- Drive parameters
- Integrated PLC
- Beacon signal
- Local data management
- Local dashboard
- Higher level PLC

- NORD qualified sensors
- Connection of customized sensors (analog/digital)
- PT1000-based motor temperature sensor
- Ambient or system temperature
- Determination of the optimal time for oil change on the basis of the virtual oil temperature
- The algorithm is executed in the internal PLC
- Readout of drive system parameters
- Basis for virtual sensors
- Pre-processing of drive-specific parameters and sensors
- Evaluation of drive conditions
- Local display of drive conditions
- Scalable display
- Processing of drive data for drive and system analysis
- Condition monitoring
- Display of drive and system data
- Processing of condition monitoring information by the customer
- Combination of the collected condition monitoring data with the process data
Drive-based approach

Information from condition monitoring can be transferred to predictive maintenance.

- Sensorless determination of the optimal oil change time based on virtual oil temperature
- Pre-processing of drive data in the integrated PLC
- Provision of data to the customer via all common interfaces

Temperature curve of the oil in the gear unit

- Gear unit parameters and specific operational parameters make it possible to precisely calculate the oil change time.
- The NORD solution is based on the fact that the oil temperature is a key factor for oil aging in gear units.
- No physical temperature sensor, as the virtual sensor continuously calculates the present oil temperature.
- The NORD VFD is used as an evaluation unit: the algorithm is executed in the internal PLC.

NORD DRIVESYSTEMS modular service concept

With its modular service concept, NORD DRIVESYSTEMS provides solutions for maintaining availability and conserving the value of drive technology. It provides various services in the form of compact modules, which range from assistance in commissioning, specific maintenance packages, and from on-site analysis to estimate repair costs. In addition, there are modernization or optimization measures. Lastly, operators gain the ability to qualify their employees with various training sessions.

NORD service modules

- Installation and commissioning
- Periodic maintenance and status monitoring
- Repair, maintenance, or replacement
- Spare parts logistics
- Product instruction and training
- Individual contracts
- 24/7/365 emergency service
- Modernization and extension
Ordering is Easy With myNORD Online Tools!

- Obtain drawing files direct from quote configuration
- Effortlessly select & configure customized drive solutions
- Create quotes with account-specific net pricing
- Order-specific documentation
- 24/7/365 order tracking
- Select and order spare parts

Register now at myNORD.com!