



# Drive Solutions for the Bakery Industry

Complete drive solutions from a single source

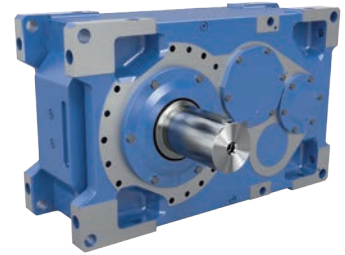


# Complete Drive Solutions from a Single Source



## NORD Delivers

NORD offers first-class customer service and support along with 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

- ▶ Fastest lead times in the industry with NO expedite fees
- ▶ Over 20,000,000 standard configurations to reduce or eliminate the need for custom components
- ▶ Modular drives, motors, and electronic controls minimize inventory of replacement units and parts



## Global Product Designs, Standards, and Support

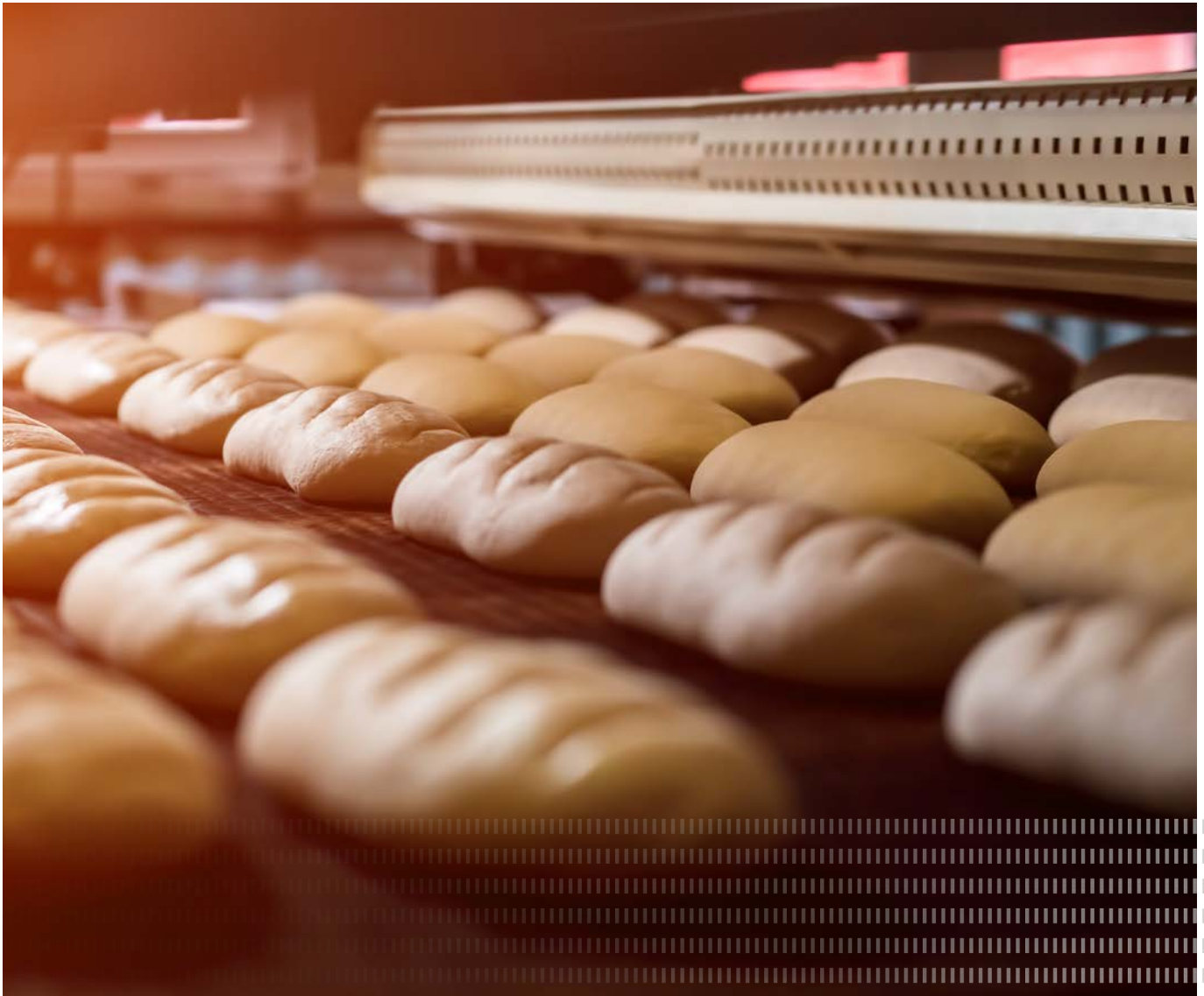
- ▶ Innovative, industry-standard products to support a wide range of applications
- ▶ Global sales and support network
- ▶ Dedicated mechanical and electrical application engineers ready to assist you
- ▶ Online resources available to you any time
- ▶ 24/7/365 emergency breakdown service



## Increase Efficiency and Reduce Operation Costs

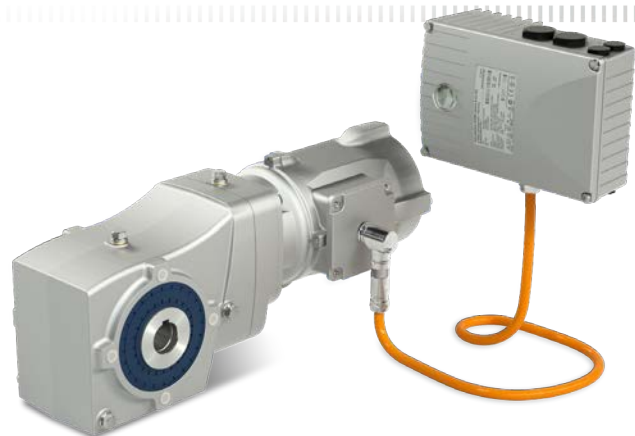
- ▶ myNORD online tools for fast selection, configuration, ordering, and tracking of your drive units
- ▶ Drive systems that are perfectly matched to your application for optimum performance and energy efficiency
- ▶ Program personalization, such as weekly shipment schedules and custom nameplates
- ▶ Partner with a company that is easy to do business with and wants to see you succeed!





### Integrated Solutions for the Special Requirements of the Bakery Industry

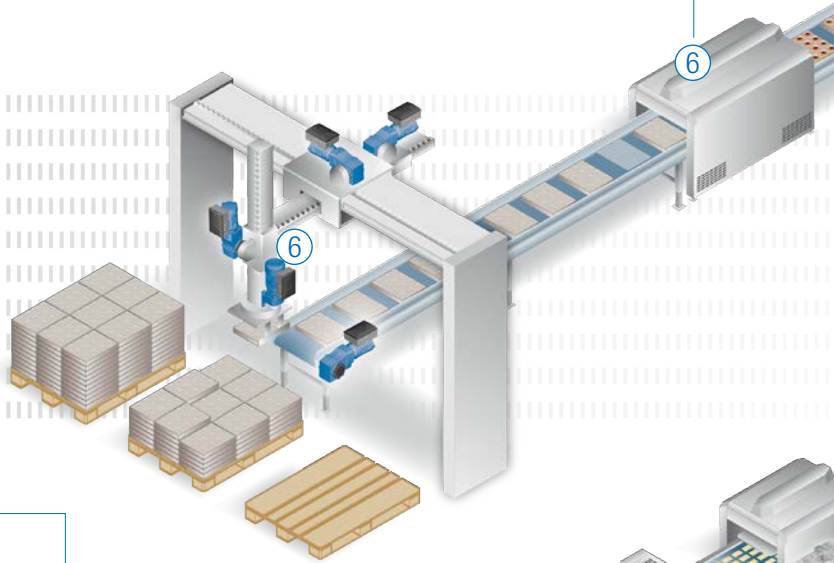
- ▶ Simple commissioning
- ▶ Easy maintenance and safe, reliable operation
- ▶ Lower total cost of ownership
- ▶ Modular design
- ▶ Energy savings
- ▶ Project and product support
- ▶ Global NORD sales and support network



# Drive Solutions for the Bakery Industry

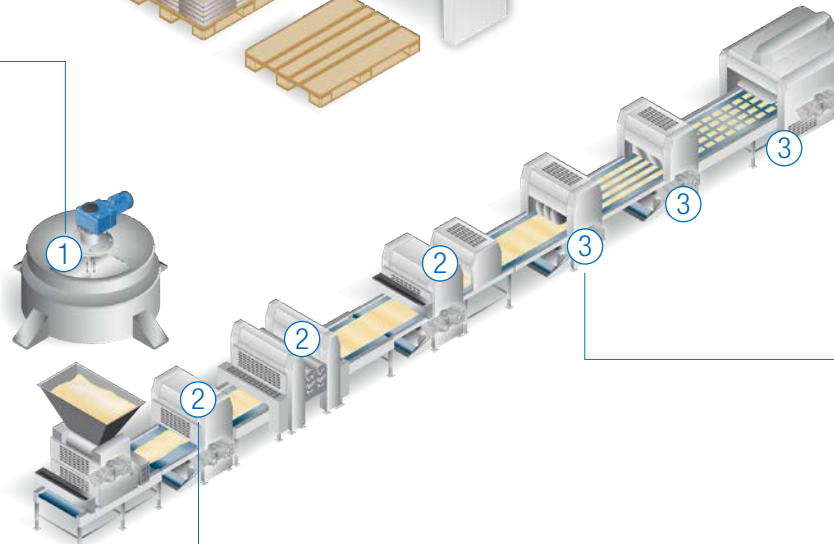
## 6 Labeling, Tagging, Packaging, and Palletizing

Drives from NORD enable precise and dynamic movement with low backlash, resulting in significantly shorter cycle times.



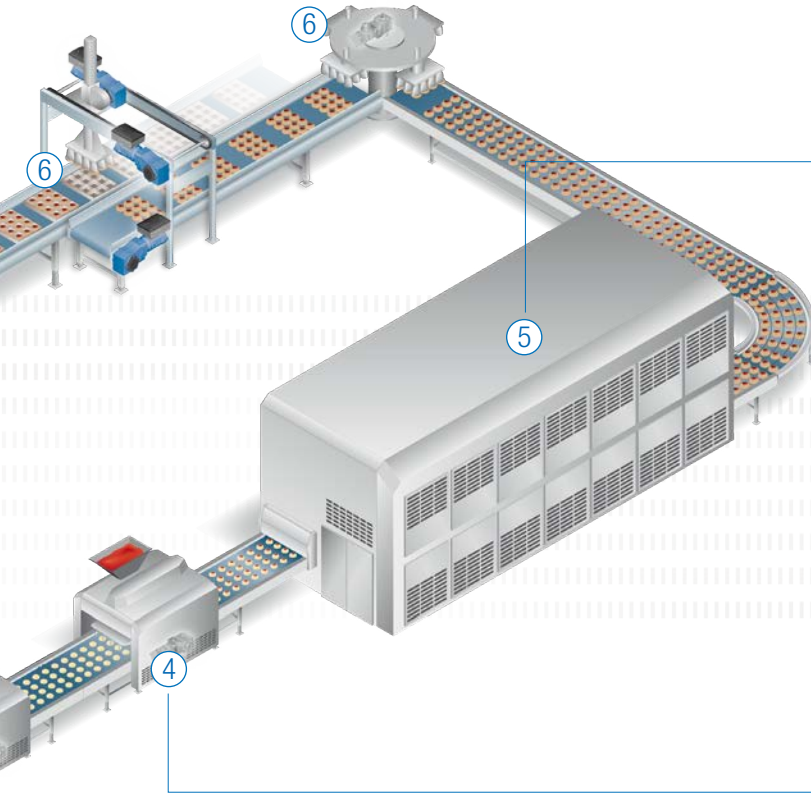
## 1 Kneading and Hoisting

Different doughs require a wide range of kneading speeds and specific processing steps. With NORD variable frequency drive technology, desired speeds, safe stop, and reverse operation are possible.



## 2 Dough Sheeting System, Conveying, and Laminating

NORD drives can be controlled individually, allowing line speed to be adjusted as needed, helping to prevent jams and control the fermentation process.



### 5 Heating, Cooling, Freezing, Fermenting, and Baking

NORD offers drive solutions designed to withstand extreme environments and temperature changes. Food grade oil is available for compatibility with low and high temperatures.

### 4 Weighing, Filling, Seeding, and Covering

Precise positioning and process speed control with NORD drives helps minimize cycle time and match the speeds of conveyors used in the finishing process.

### 3 Dividing, Punching, Stamping, Rounding, and Crushing

Torque monitoring integrated into NORD variable frequency drives ensures appropriate fast rounding and prevents waste dough from sticking to the machine.

**NORD DRIVESYSTEMS is one of the world's leading suppliers of drive solutions for the bakery industry and provides:**

- ▶ Extensive knowledge of applications and technical support
- ▶ Complete drive solutions from a single source
- ▶ Strong global presence and service
- ▶ Thousands of drive systems installed in the food industry
- ▶ Comprehensive, versatile range of high quality products
- ▶ Great reliability, economy, and service life
- ▶ Recognized product quality that is compliant with international standards
- ▶ Drives designed to meet the hygienic requirements of the bakery industry

# Drive Solutions for the Bakery Industry

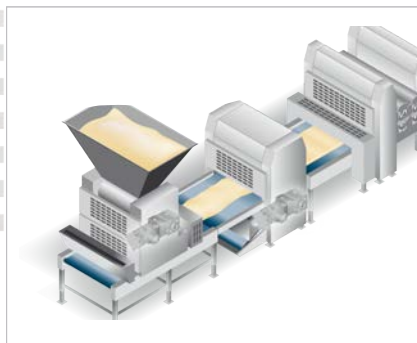
NORD DRIVESYSTEMS is a globally active provider of robust, reliable drive technology, including drives for the specialized environments of the bakery industry. NORD designs customized, individual drive solutions that meet the requirements of most bakery applications.



## Kneading and Hoisting

NORD's intelligent drive technology meets the varying requirements of dough kneading speeds and further processing steps with accuracy and safety.

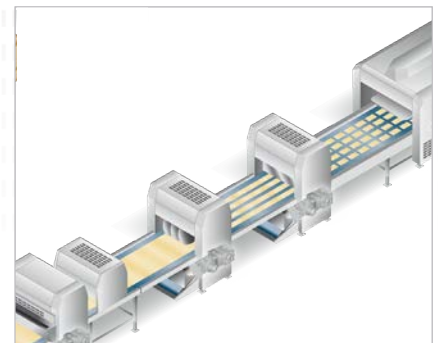
- ▶ Reinforced bearings to support large axial and radial loads
- ▶ Dual-gear agitators with counter rotating shafts available
- ▶ Food grade oil available
- ▶ Optimized sealing systems for leak-free operation



## Dough Sheeting System, Conveying, and Laminating

Static and dynamic positioning for filling, seeding, and conveying is made possible with NORD VFDs with integrated encoders combined with digital, analog, and virtual sensor technology.

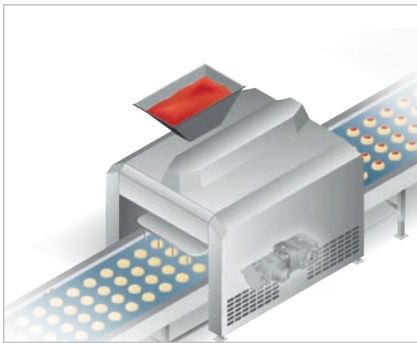
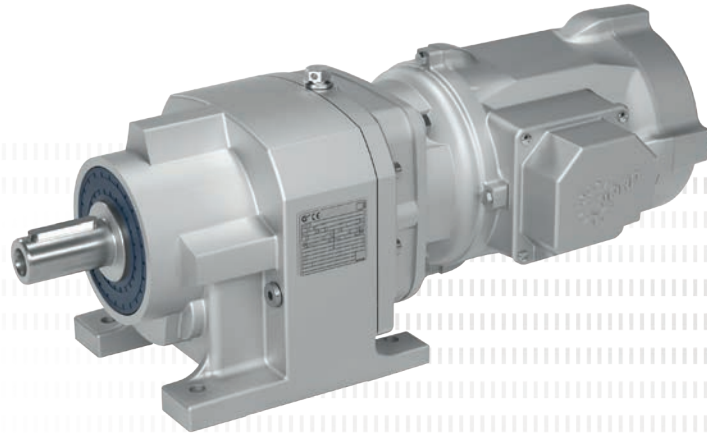
- ▶ Drives can be controlled individually
- ▶ Programmable variable frequency drives for STO and reverse operation
- ▶ Extra-strong output shaft bearings to safely handle heavy loads
- ▶ Temperature sensors for overheating protection



## Dividing, Punching, Stamping, Rounding, and Crushing

NORD VFD technology allows for precise positioning and dynamic sequences to be implemented reliably. Torque can be monitored directly to ensure appropriate levels of force are used during each stage of processing.

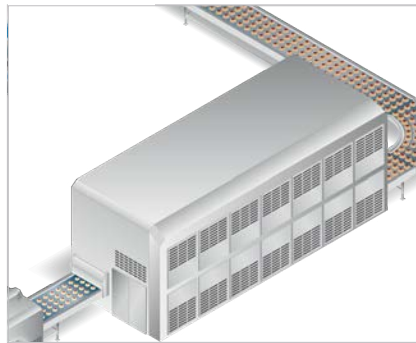
- ▶ Stainless steel fittings
- ▶ Hygienic, wash-down surfaces on all drive components
- ▶ Various fan and fan-less configurations
- ▶ Wall or motor mounted variable frequency drives



### Weighing, Filling, Seeding, and Covering

Wall or motor mounted variable frequency drives can sync conveyors to accurately match the position and speeds of equipment used during weighing, filling, seeding, and covering processes.

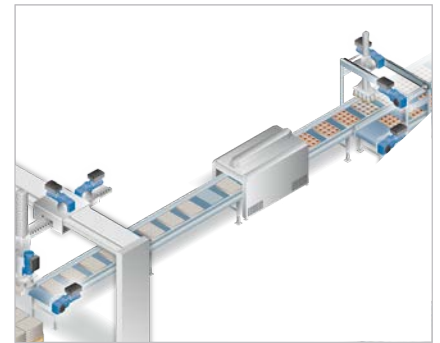
- ▶ Integrated encoders for precise positioning and control
- ▶ High-quality paints or sealed surface treatments for easy cleaning
- ▶ Plug-and-play connections
- ▶ H1 food grade oil for gear lubrication



### Heating, Cooling, Freezing, Fermenting, and Baking

NORD's drive solutions withstand harsh environmental conditions with hygienic, wash-down housings, corrosion resistant surfaces, and stainless steel fittings.

- ▶ H1 low- and high-temperature food grade oils
- ▶ Hydrophobic bearing lubricants
- ▶ Condensation drains
- ▶ IP66 or optional IP69K ingress protection



### Labeling, Tagging, Packaging, and Palletizing

With low-backlash drives from NORD, precise, dynamic movement becomes possible, resulting in significantly shorter cycle times that save time and money.

- ▶ Cabinet-installed and motor mounted variable frequency drives for positioning with encoder feedback
- ▶ Soft start, deceleration ramp, brake, and STO functions
- ▶ Integrated PLC functionality
- ▶ Integrated actuators and sensors

# Drive Solutions for the Bakery Industry

Secure, Safe, and Hygienic Drive Solutions From a Single Source



## Reliable

From pinions to circuit boards, all NORD mechatronic components are produced in our own factories, allowing us to provide the highest quality products for unsurpassed reliability, long operating times, increased service life, and reduced operating costs. Countless configuration options cater to all requirements of the bakery industry.

- ▶ Special lubricants for low and high temperatures
- ▶ Temperature sensors to protect against overheating
- ▶ Protection class IP66 or IP69K for cleaning with hot water
- ▶ Stainless steel shafts and accessories
- ▶ Metal fan blades and fanless designs
- ▶ Protection against moisture, dust, and rust with high-quality, multilayer surface coatings

## Proven and Hygienic

Demanding environments are common in the bakery industry. These include extreme temperatures, use of high pressure jet cleaning, and various hazardous areas including those that use alcoholic liquids and chemicals during cleaning processes. NORD's specialized solutions stand up to these environments and have proven themselves in baking applications around the world.

- ▶ Explosion protected motors (ATEX, NEC) for Zone 1/21 and Zone 2/22 explosion hazard areas
- ▶ Dairy versions available with condensate drains and anti-condensation heaters

## Easy to Service and Maintain

Thanks to their optional plug-and-play connections and modular structure, NORD drive units are incredibly easy to service and maintain. They are engineered to minimize down times, reduce parts inventory, and increase overall plant availability.



## Explosion-Protection

Flour dust and other fine-grained deposits increase the risk of ignitions or explosions in bakery environments.

NORD offers secure solutions for dust explosion protection in line with ATEX directives.



## Energy Efficient

NORD drive solutions are also environmentally friendly and help reduce operating costs and minimize CO<sub>2</sub> emissions.

- ▶ High efficiency helical and bevel gear units achieve optimum power transmission performance
- ▶ NORD motors comply with international energy efficiency classes up to IE5+
- ▶ NORD variable frequency drives have energy saving functions to effectively reduce energy consumption



# Drive Solutions for the Bakery Industry

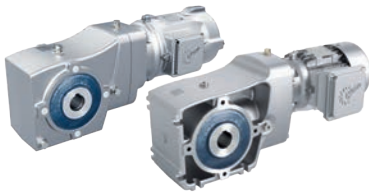
## DuoDrive Integrated Gear Unit and Motor (Catalog G5010)



- ✓ Integrated gear unit and motor
- ✓ System efficiency up to 92%
- ✓ Simple plug-and-play commissioning
- ✓ High power density

Sizes: 2  
Power: 0.50 – 4.00 hp  
Torque: 230 – 2,186 lb-in  
Ratio: 3.24:1 – 18.1:1

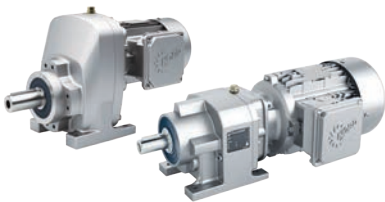
## NORDBLOC.1® 2-Stage Helical Bevel Gear Units (Catalog G1000)



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

Sizes: 6  
Power: 0.16 – 10 hp  
Torque: 443 – 5,842 lb-in  
Ratio: 3.03:1 – 70:1

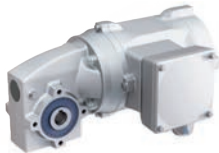
## NORDBLOC.1® Helical Inline Gear Units (Catalog G1000)



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

Sizes: 16  
Power: 0.16 – 50 hp  
Torque: 266 – 29,207 lb-in  
Ratio: 1.07:1 – 456.77:1

## UNIVERSAL SMI Worm Gear Units (Catalog G1000)



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

Sizes: 5  
Power: 0.16 – 5.00 hp  
Torque: 186 – 3,780 lb-in  
Ratio: 5.00:1 – 3,000.00:1

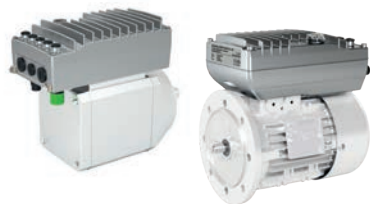
## UNICASE™ Helical Bevel Gear Units (Catalog G1000)



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

Sizes: 11  
Power: 0.16 – 200 hp  
Torque: 1,593 – 442,537 lb-in  
Ratio: 8.04:1 – 13,432.68:1

### NORDAC® *ON/ON+* SK 300P Variable Frequency Drives (Catalog E3000)



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

NORDAC *ON*  
 Sizes: 3  
 Voltage: 3~ 400V  
 Power: 0.50 – 3 hp

NORDAC *ON+*  
 Sizes: 3  
 Voltage: 3~ 400V  
 Power: 0.50 – 4 hp

### NORDAC® *BASE* SK 180E Variable Frequency Drives (Catalog E3000)



- ✓ 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

### NORDAC® *FLEX* SK 200E Variable Frequency Drives (Catalog E3000)



- ✓ 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: 0.33 – 30 hp

### NORDAC® *PRO* SK 500P Variable Frequency Drives (Catalog E3000)



- ✓ 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: 5  
 Voltage: 1~ 200 – 240 V, 3~ 380 – 480 V  
 Power: 0.33 – 30 hp

### Smooth Surface Motors (Catalog M7000)

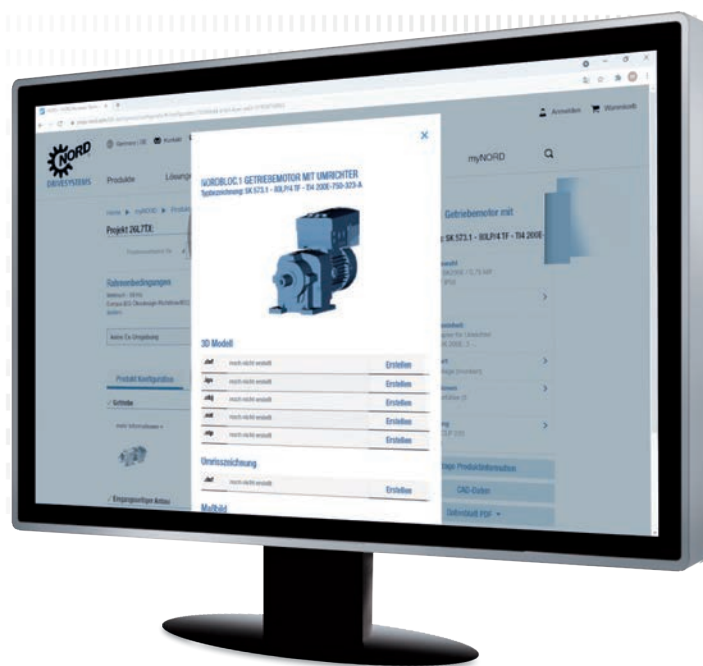


- ✓ Wash-down design
- ✓ Various motor protection options
- ✓ IP66 or IP69K protection
- ✓ Inverter/vector duty

Sizes: 71 – 100  
 Power: 0.16 – 1.50 hp  
 Number of poles: 4  
 Efficiency class: IE3

# 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](http://myNORD.com)!



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