



# **DRIVE SYSTEMS**

**FOR MATERIAL HANDLING EQUIPMENT**



**A6023**





NORD products are specifically tailored to meet your material handling equipment and system needs.  
NORD product applications include:

- CONVEYING
- MOVING AND POSITIONING
- PALLETIZING
- STORING
- CRANE SYSTEMS

Our staff has been developing, manufacturing, and distributing drive technology since 1965. We specialize in the integration of mechanical drive components and power electronics into compact, specifically tailored units, such as garmotors with integrated, on-board frequency inverters. Our product range includes moisture-proof garmotors that are oil-tight, and impervious to water, emulsions, cleaning agents, and airborne contaminants.

Typical NORD motors use an IP55 motor enclosure, which can accommodate a wide ambient temperature range, and exposure to harsh environments. NORD has readily available options, including special paints, increased corrosion protection, IP66 motor and brake enclosures, special lubricants, and Viton® shaft seals.

Because each NORD product is customized specifically to your application we provide you with the best solution for your equipment's drive requirements using NORD-developed options designed to solve the most difficult applications. NORD components are robust; they are designed to operate continuously for long periods, requiring only minimal servicing.

NORD's 35+ years of design and application experience includes parallel shaft gearboxes, right-angle gearboxes, and integral garmotors.

With field distribution systems mounted directly on the drives, wiring and installation effort is minimal. NORD's Power Plug Quick Connector provides easy disconnect and reconnect for the motor wiring, which permits rapid exchange of malfunctioning components, which is extremely important for material handling equipment.

## ROLLER AND BELT CONVEYORS

In material handling, typical conveying systems bridge long distances. The modular plant and machinery layout needed to bridge this distance requires a distributed drive control system. The compact and efficient NORDAC, trio assembly, consisting of a motor, a speed reducer, and a motor-mounted SK 300E frequency inverter, is the most convenient and economical way to provide a distributed control system.

Each NORDAC trio is pre-assembled at the NORD factory and comes with an integrated line filter, which significantly reduces process design time, installa-

# RELIABLE & EFFICIENT DRIVING FOR MATERIAL HANDLING EQUIPMENT

tion time, and the need for additional hard wiring. The SK 300E inverter unit plugs directly onto the terminal box of the NORD motor.

Enclosed in an IP 66 (NEMA 4 & 12) protected housing, the frequency inverter operates reliably over the temperature range of  $-10^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  (approximately  $14^{\circ}\text{F}$  to  $125^{\circ}\text{F}$ ). Standard inverter equipment includes complete motor thermal protection.

With an integrated braking chopper plus a control circuit for an electromagnetic brake, the trio handles sensitive hoisting control functions extremely well. Because the NORDAC trio allows a starting torque of up to 400 percent, and has a typical five-second overload capacity of 200 percent, the device is not easily tripped. The SK 300E is resistant to conditions such as line voltage fluctuations and quick temperature changes. Its operating efficiency of over 97 percent is standard.

The SK 300E is easy to operate. Its programming is stored in the NORD motor's "electronic name plate". If another inverter replaces the original inverter, the new inverter reads the parameter settings from the motor memory and instantly programs the new inverter. The users can add an optional modular I/O or bus interface if required.

## MOVING, POSITIONING AND STORING

Because energy costs have become a significant factor when material handlers are procuring new systems or upgrading existing systems, NORD has added energy saving drive systems and components to its range of products. These systems meet the North-American EPACT, Canadian NRCan, and the European CEMEP standards. Typical state-of-the-art NORD drives provide excellent efficiency using a premium efficiency motor, a double-stage helical-bevel gear unit with an efficiency of 97 percent, and a frequency inverter.

High-efficiency gearing in the speed reducers is directly coupled to the motors. The sensorless, vector current control system used in integral NORD frequency inverters ensures optimum adjustment to process parameters and conditions. The drive unit is connected via Profibus-DP to the master control system. Drive speed and acceleration

can be varied any time by communication of control commands.

## PALLETIZING

In technical environments where pick-and-place functions operate at maximum speed, such as with palletizing robots, servo technology is a key element of productive automated systems. Providing a closely coupled system comprising the controller, motor, and NORD speed reducer maximizes dynamic system response, increases quality, and achieves process efficiencies beyond the capabilities of mechanical systems.

NORD intelligent servo drives control motor operation by adding a controller capable of real-time processing to the gearmotor assembly, which increases the system dynamic response to levels not attainable by mechanical drive systems. Because they can store up to 700 lines of code, these servo drives are capable of replacing the host machine control system in less complex applications.

NORD inverter/controllers are pre-programmed according to user needs with process-related functions that the user enables through simple inputs. The range of such functions includes control of charging machines, conveyor belt separators, and packaging machines.

## CRANES

NORD provides efficient drive equipment with high-performance systems meeting the requirements of large overhead travel cranes. Despite typically severe vibration and temperature conditions, tracking stability provided by the NORD travel drives is excellent.

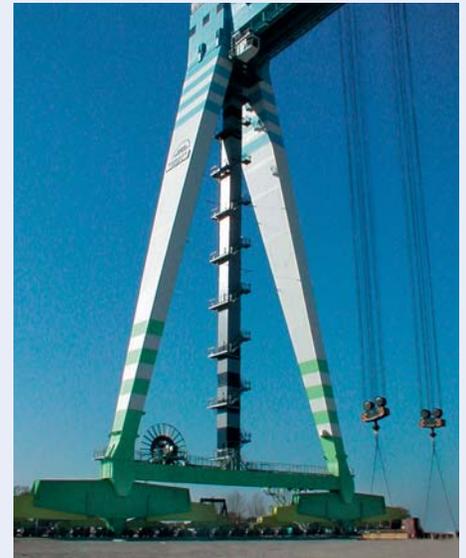
NORD units drive the largest portal crane in the world, which is located at a shipyard in Denmark. The crane has a height of 374 feet (114m) and a lifting capacity of 1,000 tons. This unit follows its track with an accuracy of less than 1/4-inch (6 millimeters).

These drives, which operate over a temperature range from  $-22$  to  $+104^{\circ}\text{F}$  ( $-30$  to  $+40^{\circ}\text{C}$ ), are protected by housings made of high-grade cast iron, and are particularly resistant to the severe maritime climate. The drives are equipped with high quality gear sets, splined shafts, and microswitch controlled brakes.

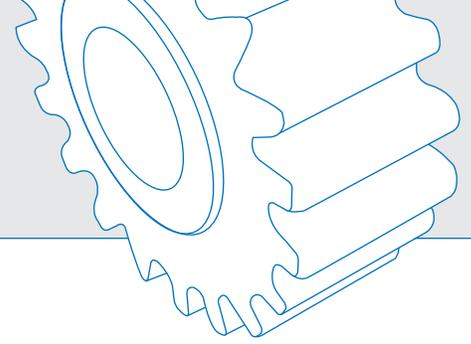
*NORD Drive Systems provides responsive production solutions for the material handling industry, furnishing customized components such as:*

- speed reducers
  - motors
- inverters / controllers

*The technical sophistication of our mechanical and electronic components has earned NORD a leading position in the drive systems industry, as one of the top three manufacturers in the world.*



# Product Overview



## UNICASE™ SPEED REDUCERS



### HELICAL IN-LINE

- Foot or Flange Mount
- Torque up to 205,000 lb-in
- Gear ratios – 1.82:1 to over 300,000:1



### NORDBLOC®.1 HELICAL IN-LINE

- Foot or Flange Mount
- Torque up to 26,550 lb-in
- Gear ratios – 1.88:1 to over 370:1



### PARALLEL HELICAL CLINCHER™

- Shaft, Flange or Foot Mount
- Torque up to 797,000 lb-in
- Gear ratios – 4.26:1 to over 300,000:1



### SCP SCREW CONVEYOR PACKAGE

- Shaft, or Flange Mount
- Torque up to 53,100 lb-in
- Gear ratios – 4.32:1 to over 1500:1



### RIGHT ANGLE HELICAL-BEVEL 2-STAGE

- Foot, Flange or Shaft Mount
- Torque up to 5,840 lb-in
- Gear ratios – 4.1:1 to 72:1



### RIGHT ANGLE HELICAL-BEVEL

- Foot, Flange or Shaft Mount
- Torque up to 283,000 lb-in
- Gear ratios – 8.04:1 to over 300,000:1



### RIGHT ANGLE HELICAL-WORM

- Foot, Flange or Shaft Mount
- Torque up to 27,585 lb-in
- Gear ratios – 4.40:1 to over 300,000:1

## HIGH PERFORMANCE MOTORS & BRAKEMOTORS



### INVERTER/VECTOR DUTY

- Standard or Energy Efficient
- Integral, NEMA or Metric IEC
- 1/6 to 250 hp

## UNICASE™ SPEED REDUCERS



### MINICASE™ RIGHT ANGLE WORM

- Foot, Flange or Shaft Mount
- Torque up to 3,540 lb-in
- Gear ratios – 5:1 to 500:1



### FLEXBLOC™ WORM

- Modular bolt-on options
- Torque up to 4,683 lb-in
- Gear ratios – 5:1 to 3,000:1



### MAXXDRIVE™ LARGE INDUSTRIAL GEAR UNITS PARALLEL HELICAL

- Modular bolt-on options
- Torque up to 2,027,000 lb-in
- Gear ratios – 5:1 to 1,600:1



### MAXXDRIVE™ LARGE INDUSTRIAL GEAR UNITS HELICAL-BEVEL

- Modular bolt-on options
- Torque up to 2,027,000 lb-in
- Gear ratios – 5:1 to 1,600:1

## NORDAC AC VECTOR DRIVES



### SK200E FAMILY

- Decentralized, high performance
- 380-480V, 3-phase to 10 hp
- 200-240V, 3-phase to 5 hp
- 200-240V, 1-phase to 1.5 hp
- 100-120V, 1-phase to 1 hp



### SK500E FAMILY

- Compact, high performance
- 380-480V, 3-phase, to 50hp
- 200-240V, 3-phase, to 15hp
- 200-240V, 1-phase, to 3hp
- 110-120V, 1-phase, to 1.5hp



### SK700E FAMILY

- Flexible high performance
- 380-460V, 3-phase, to 200hp



DRIVESYSTEMS

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