

Drive solutions for the steel & metals industry

Complete drive solutions from a single source

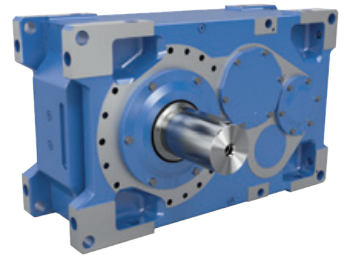


Complete drive solutions from a single source



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.



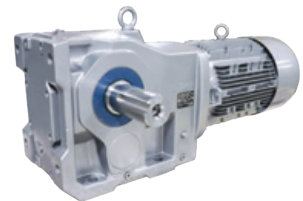
Reduce Lead Times and Decrease Inventory

- ▶ 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!

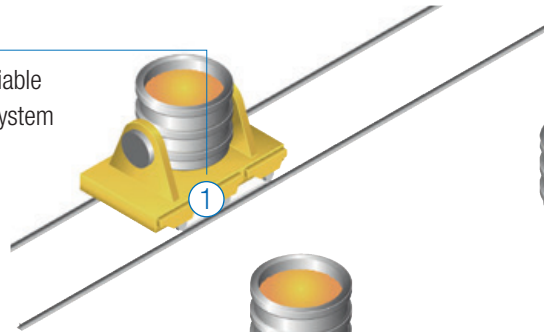




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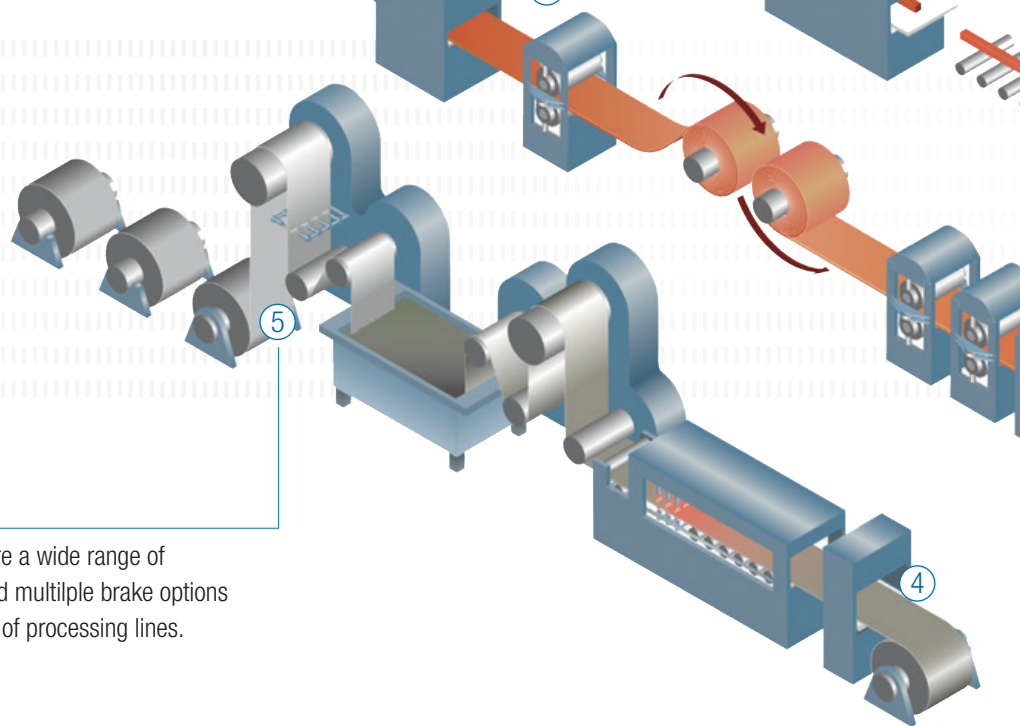
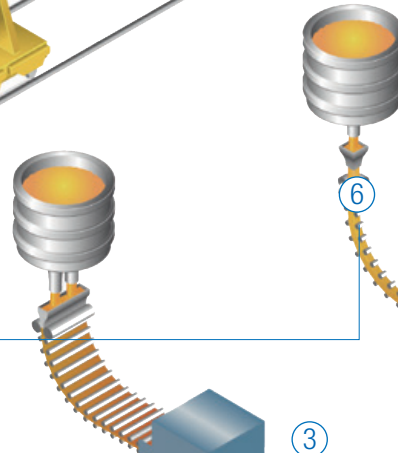
1 Logistics applications

Different logistics applications require a variable range of geared motors. NORD's modular system allows for versatile configurations.



6 Continuous casting

NORD's robust gearboxes feature numerous options that withstand the extreme temperatures of the continuous casting process.



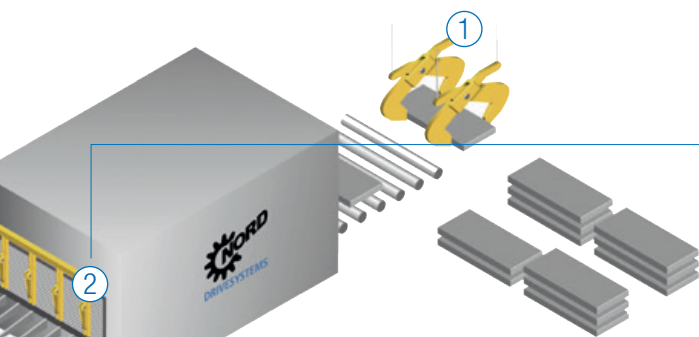
5 Processing lines

Drive solutions from NORD feature a wide range of speeds, heavy duty encoders, and multiple brake options to meet the aggressive conditions of processing lines.

NORD DRIVESYSTEMS is a global supplier of robust, reliable drive systems that are used by metal manufacturers worldwide. NORD supplies complete, customized solutions for the extreme conditions which are prevalent in the steel & metals industry.

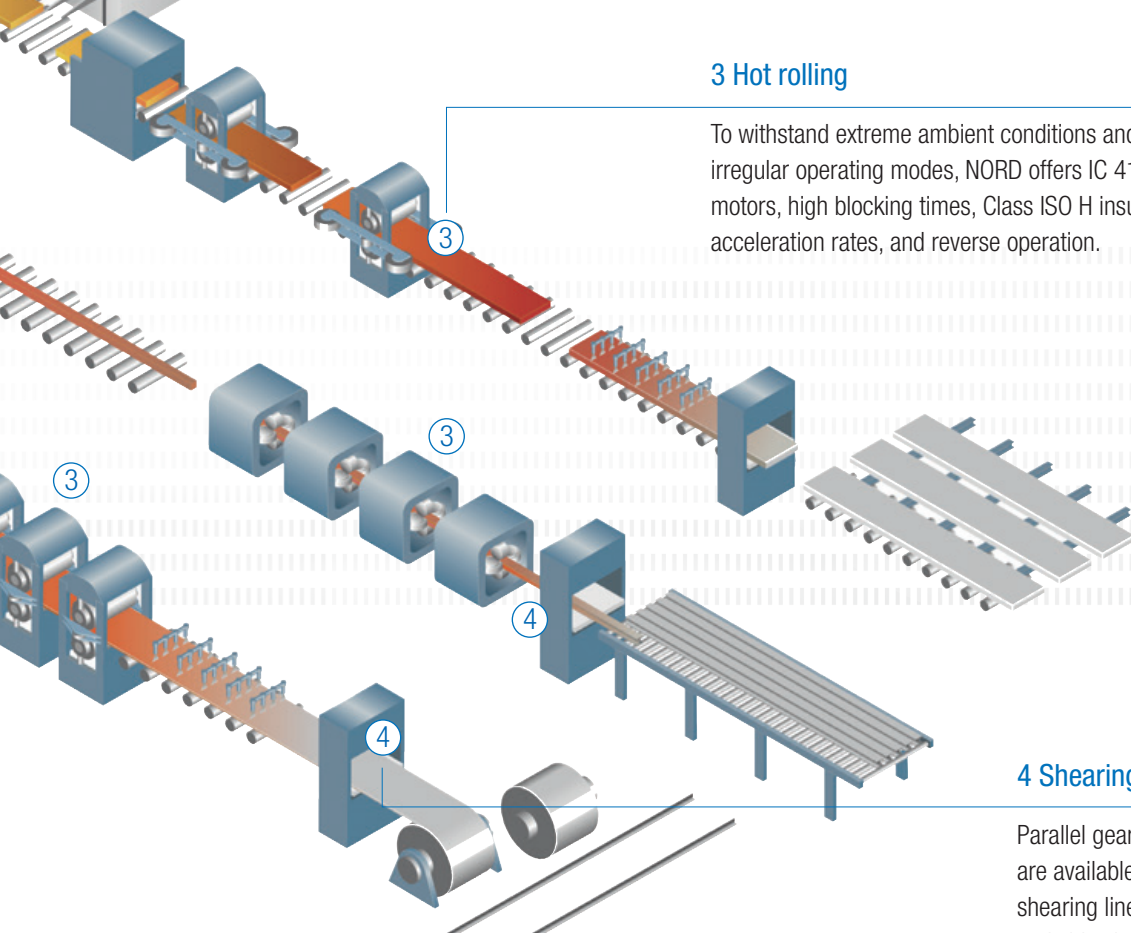
Typical fields of application:

- ▶ Continuous casting
- ▶ Accelerated cooling sections
- ▶ Furnaces
- ▶ Handling
- ▶ Hot rolling
- ▶ Processing lines



2 Furnaces

Furnaces require robust drives to withstand the high ambient temperatures they produce. NORD systems are able to handle these temperatures while controlling rollers with extreme precision.



3 Hot rolling

To withstand extreme ambient conditions and highly irregular operating modes, NORD offers IC 410 ring-rib motors, high blocking times, Class ISO H insulation, high acceleration rates, and reverse operation.

4 Shearing lines

Parallel gear units with a variety of motor options are available to meet the specific requirements of shearing line applications such as cropping shears and side shearing machines.

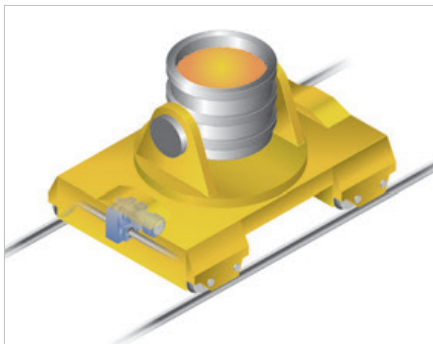
NORD drive technology achieves long lifetimes, even under extremely harsh conditions. Regardless of extreme electrical and mechanical loads, the systems ensure full performance and reliable operation at all times.

- ▶ Switching operation 24/7
- ▶ High accelerations
- ▶ High peak loads
- ▶ Reversing mode
- ▶ High ambient temperatures
- ▶ High water pressures and scale

Drive solutions for the steel & metals industry

NORD DRIVESYSTEMS provides:

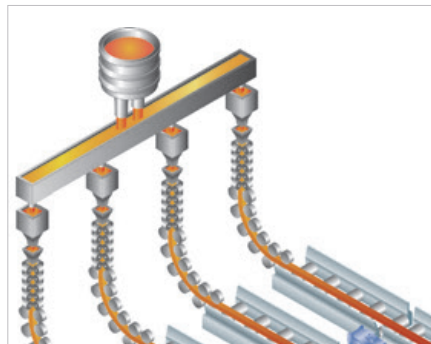
- ▶ Extensive knowledge of applications and expert technical support
- ▶ Complete drive solutions from a single source
- ▶ Strong global presence for service and support
- ▶ Thousands of installed drives in the steel & metals industry
- ▶ Wide range of products with high quality standards
- ▶ Ultimate reliability and robustness
- ▶ Recognized product quality in accordance with international standards: ISO 9001, UL, CSA, GOST-R, CCC and ATEX



Logistics applications

Logistics applications require a wide range of geared motors – from precise mechatronic drive systems to high-powered industrial gearboxes. NORD supplies reliable solutions for intralogistics applications of all kinds.

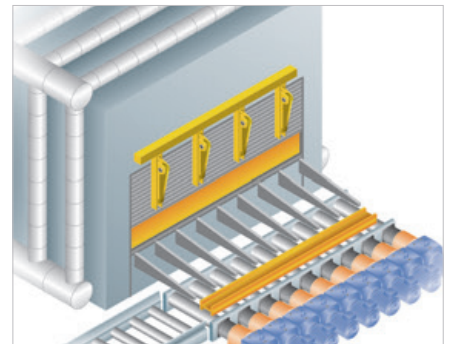
- ▶ Cranes and hoists
- ▶ Ladle handling
- ▶ Roller replacement carriages
- ▶ Warehouse systems



Continuous casting

The continuous casting process often involves extremely high temperatures and confined installation spaces. NORD has the solutions you need, including:

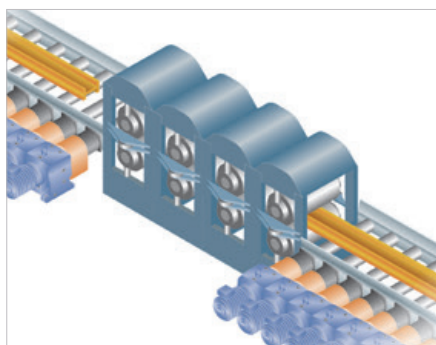
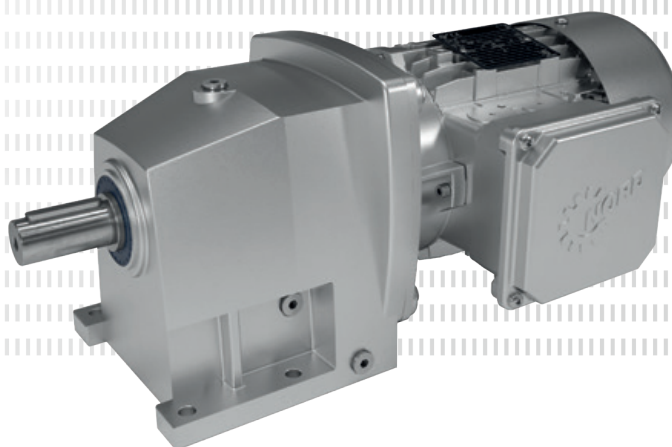
- ▶ Powerful, compact right-angle bevel gear units ideal for tight installation spaces
- ▶ Recommended Class ISO H insulation
- ▶ Non-ventilated IC410 motors or externally ventilated IC416 motors with high temperature oil and Viton seals



Furnaces

NORD provides the flexible, reliable drive systems needed to keep pre-heating, heat treatment, and walking beam furnaces operating smoothly.

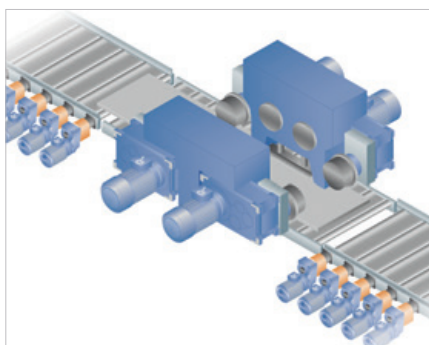
- ▶ IC 410 ring-rib motors
- ▶ ISO H insulation options
- ▶ Solutions that withstand high temperatures
- ▶ Individually controlled rollers
- ▶ Precise control and synchronization of multiple rollers



Hot rolling

Drives for hot rolling processes have to withstand extreme ambient conditions, highly irregular operating modes, heavy peak loads, and very high temperatures. NORD offers a variety of solutions that stand up to these demanding environments.

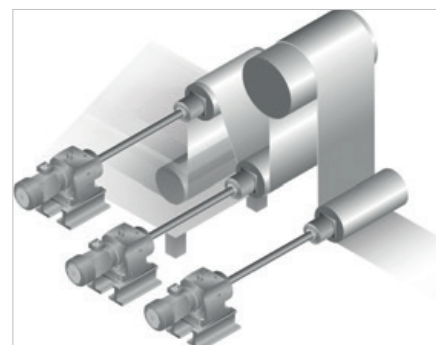
- ▶ IC 410 ring-rib motors
- ▶ High blocking times
- ▶ ISO H insulation
- ▶ High accelerations
- ▶ Reversing mode



Shearing lines

Drive solutions for shearing lines such as cropping shears and side shearing machines typically consist of a combination of parallel shaft gear units with large hollow shaft diameters and non-ventilated motors. NORD drive solutions give you:

- ▶ High cycle rates
- ▶ High accelerations
- ▶ High peak loads



Processing lines

A large number of motors are used in processing lines, such as those used for hardening, coating, and galvanizing applications. These systems have to constantly cope with challenging operating conditions while maintaining consistent product quality. NORD provides products with:

- ▶ Wide speed ranges
- ▶ Heavy-duty encoders and brakes
- ▶ Specialized surface protection options
- ▶ Precise control for synchronization of multiple rollers

Drive solutions for the steel & metals industry

Reliable drive solutions – satisfied customers



Parallel shaft geared motors for rolling mills



Pressure rollers for hot rolling lines



Bevel geared motors for cooling bed chain feed tables

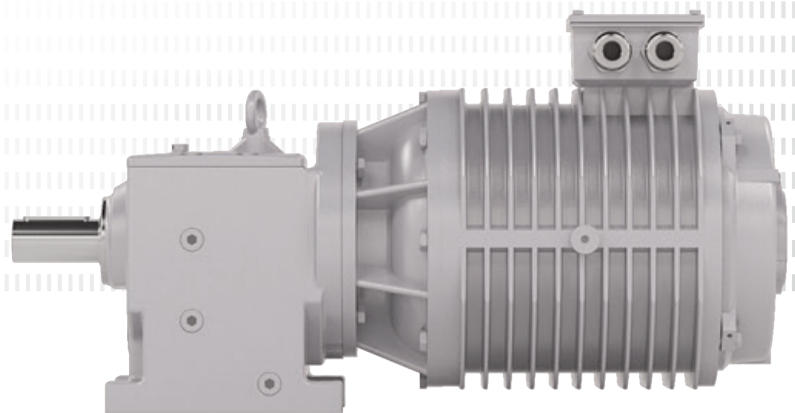


Logistics handling – ingot handling

NORD DRIVESYSTEMS supplies well-thought-out, future-proof solutions for all processes in steel and aluminium plants throughout the world, catering to current and future requirements.

NORD is an international industry leader and supplies drive solutions to many well known metal producers such as:





Drive solutions for the steel & metals industry

Housing

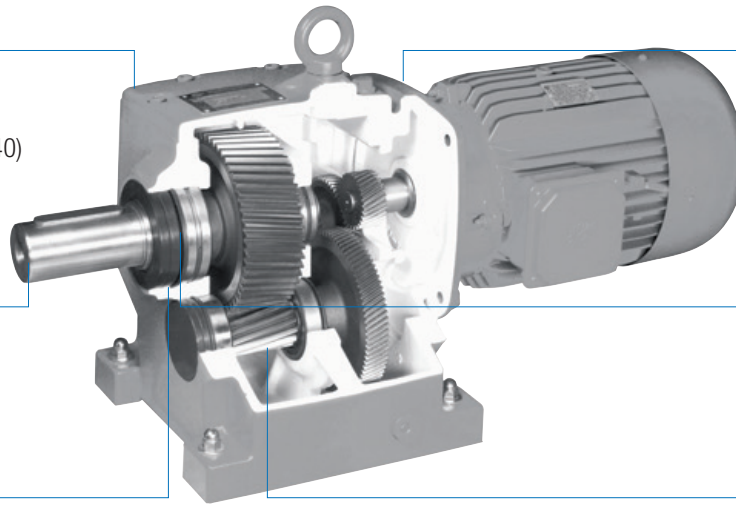
Robust housings with vibration absorption EN-GJL-200 (GG200), optionally EN-GJS-400-15 (GGG40)

Shafts

Optional reinforced shaft materials, e.g. 42CrMo4

Sealings

Optional sealing solutions such as QUADRALIP™ seals, Viton shaft sealing rings, and special labyrinth seals



Surfaces

Special surface protection options to withstand demanding operating conditions

Bearings and shafts

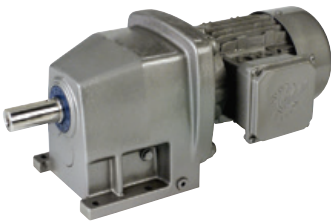
Heavy-duty bearings and shafts

Lubrication

Synthetic lubricating oil

Further options on request

UNICASE™ helical gear units (Catalog G1000)



- ✓ 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

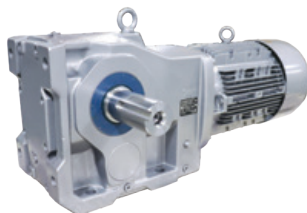
CLINCHER™ parallel shaft gear units (Catalog G1000)



- ✓ 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

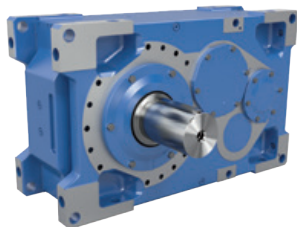
UNICASE™ bevel gear units (Catalog G1000)



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

Sizes: 11
 Power: 0.16 – 200 HP
 Torque: Up to 442,500 lb-in
 Ratio: 8.04:1 – 13,432.68:1

MAXXDRIVE® industrial gear units (Catalog G1050)



- ✓ Parallel and angled gear units
- ✓ UNICASE housing
- ✓ High precision axis alignment
- ✓ Long life, low maintenance

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

NORDAC® FLEX SK 200E variable frequency drives (Catalog E3000)



- ✓ Energy saving function
- ✓ Integrated PLC
- ✓ Integrated POSICON positioning control

Sizes: 4
 Voltage: 1~ 110 – 120 V, 1~ 200 – 240 V, 3~ 200 – 240 V, 3~ 380 – 500 V
 Power: 0.33 – 30 HP

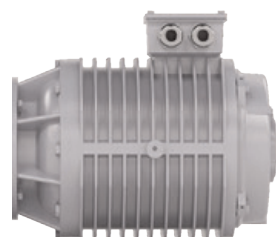
NORDAC® PRO SK 500E variable frequency drives (Catalog E3000)



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

Non-ventilated motors (IC 410) – reliable under extreme conditions



- ✓ Fully encapsulated versions (up to Protection Class IP66)
- ✓ Available as ring-rib or longitudinal rib versions
- ✓ Shock absorbing EN-GJL-200 (GG200) cast steel housing
- ✓ Reinforced, EN-GJS-400-15 (GGG40) cast steel A bearing plate
- ✓ Heavy-duty bearings and shafts
- ✓ Project-specific windings
- ✓ Hard torque characteristics with high starting torque
- ✓ Insulation systems for inverter feeds
- ✓ Insulation Class ISO H

Ventilated NORD motors (IC 411 or IC 416) and other options are also available.

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!



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