

INTELLIGENT DRIVESYSTEMS, WORLDWIDE SERVICES



**DRIVE SOLUTIONS FOR
THE METALS INDUSTRY**



NORD DRIVESYSTEMS GROUP SERVING THE METALS INDUSTRY





NORD, A Global Leader

Producing over 1 million reducers annually and employing 3000 people globally, NORD is constantly improving and expanding its products to meet a never ending variety of industrial challenges.

Our successful rise to the elite list of gearmotor manufacturer's has been accomplished by listening and working closely with our clients. With the help of our customers we have created optimal drive solutions and together we continue solid growth.

North American Facilities (sales, assembly & service)

- Waunakee, WI (Madison)
- Charlotte, NC
- Corona, CA (Los Angeles)
- Brampton, ON Canada (Toronto)
- Guadalupe, Mexico
- Over 40 District offices
- Over 500 Distributor branches

Global Facilities

- Operations in 35 Countries



NORD Product Portfolio

NORD Drivesystems' product portfolio is extensive and continuously evolving in order to meet the needs of today's fast-changing markets. NORD's range of drive equipment includes: helical in-line, helical shaft-mount, helical-bevel, helical-worm and worm gear units with torques from 90 lb-in to 2,200,000 lb-in, readily available AC motors and from 1/6 HP to 250 HP, variable frequency drives up to 250 HP, and mechanical variable speed drives.

Mechanical Products	Electrical Products	Electronic Products
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Gear Drives

AC Motors

AC Vector Drives & Motor Starters



Innovative drive solutions

- Products for many industries

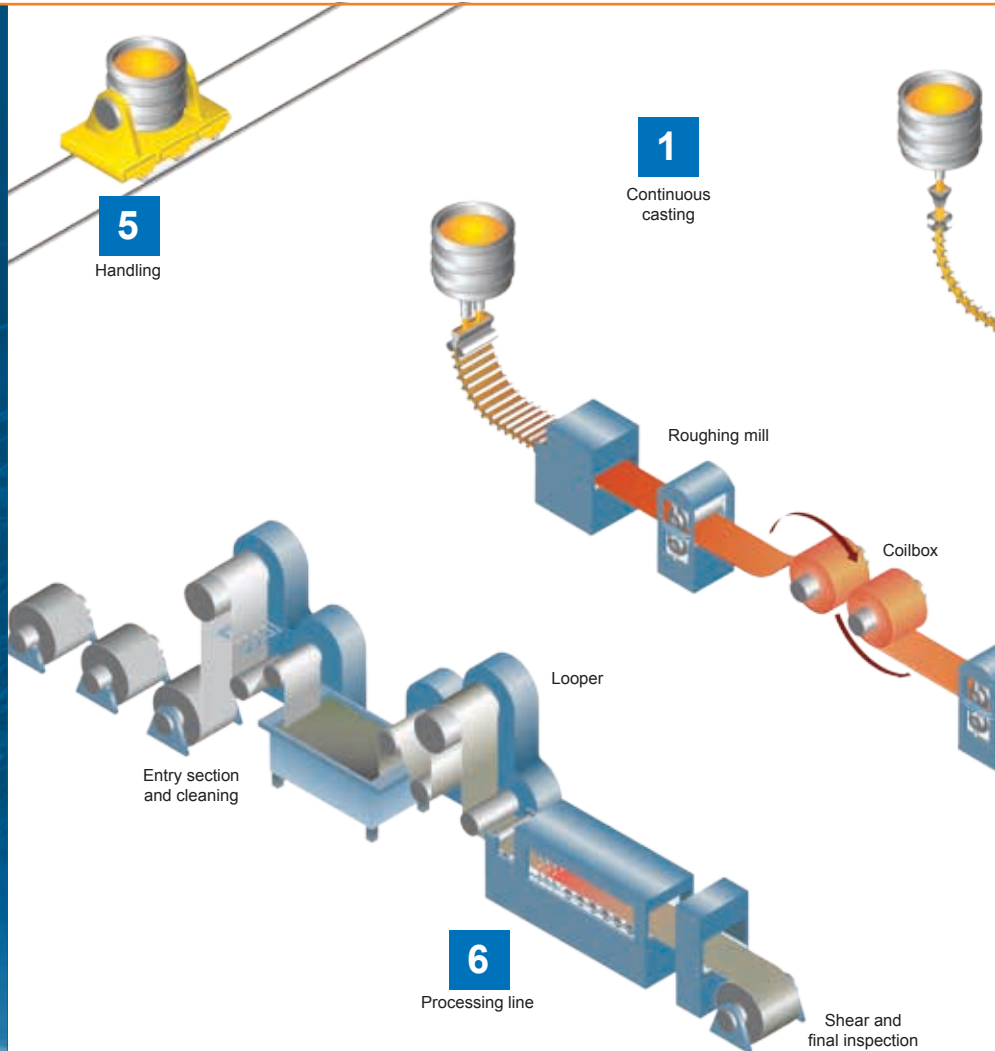
DRIVE SOLUTIONS FOR METAL PRODUCTION APPLICATIONS

Complete Drive Solutions

NORD Drivesystems is a global leader in drive solutions that are used by metal manufacturers worldwide. Extensive expertise for the metals industry enables NORD to supply tough, custom drives that are suited for the extreme environmental conditions that are present in this field. NORD provides:

- Strong application knowledge and technical support
- Complete drive solutions from a single source
- Strong global presence and support
- Large product portfolio with high quality standards
- High reliability, efficiency and durability
- Recognized production quality according to global standards

NORD's innovative drive solutions are specified and utilized for a range of metal production applications. With your business's reputation in the balance, we fully understand your requirements. We believe in building long term relationships based on reliability and trust.



1 Continuous Casting

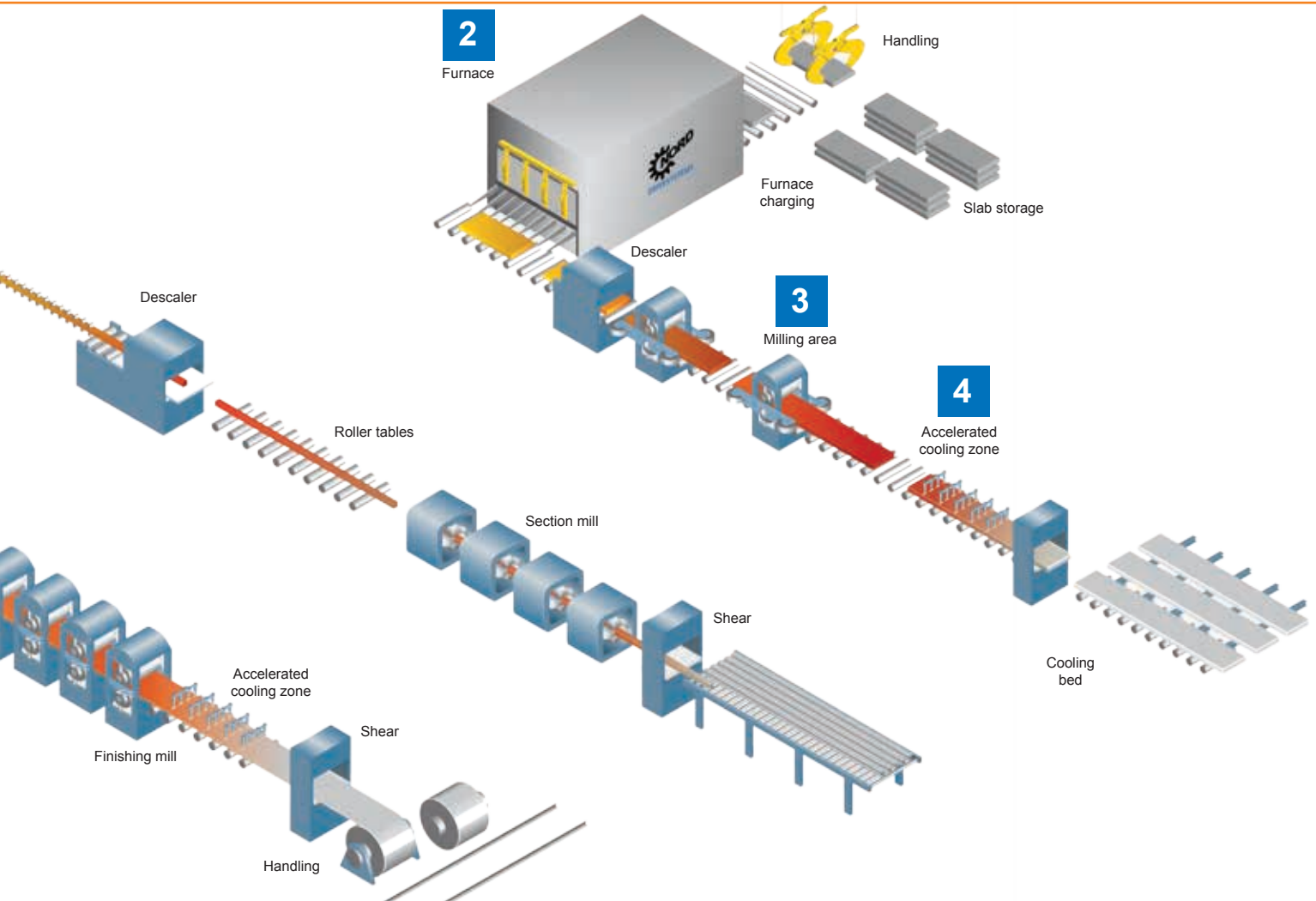


Continuous casting is a process where molten metal is solidified into a semifinished product. This process is used in order to improve yield, quality and productivity while lowering cost.

2 Furnace



Metalurgical furnaces are used for producing industrial metals through countercurrent exchange process.



3 Milling Area



A machining process that uses a wide range of tools, such as a CNC machine, in order to remove material from advancing pieces of steel.

4 Cooling Zone



Accelerated cooling zones are used for discharging materials and controlling the time required for the material to cool to the correct temperature range

5 Handling



Handling includes transporting ladles, mold boxes, bar stock and coil handling. Additional applications include annealing, pickling plant, shipping and receiving

APPLICATIONS FOR THE METALS INDUSTRY

Metals Industry Classifications

In metal plants all over the world, NORD DRIVESYSTEMS provides comprehensive drive solutions for every process. NORD systems are engineered to meet current requirements today – and live up to future requirements.

Recognized Metals Organizations & Standards

NORD DRIVESYSTEMS is among the world leaders in the metal industry and supplies drive solutions for many well known metal manufacturers around the world such as:



Logistics Applications

Different logistics applications require a diverse range of gearmotors – from precise drive systems to heavy-duty industrial gear units. NORD offers solutions for many types of logistics applications.

- Cranes
- Ladle Handling
- Roll Change Carriage
- Storage Systems

Continuous Casting

Continuous casting is characterized by extremely high temperatures and often limited installation space.

- Usually Right-Angled Helical-Bevel Gears
- Insulation Class H Recommended
- IC410 unventilated or IC416 forced cooling fan
- High temperature oil and fluoro elastomer seals





Furnaces

NORD offers drive systems for different types of furnaces such as reheating furnaces, heat treatment and walking beam furnaces.

- Circular fin motors in IC410 design
- ISO Class H insulation
- High ambient temperatures
- Individually controlled rollers
- Optimized synchronization of several rollers

Hot Rolling

Drives for hot rolling processes must reliably operate in challenging ambient conditions, extreme irregular operation modes, heavy shock load rates and very high temperatures.

- Circular fin motors in IC410 design
- Stall time capability
- ISO Class H insulation
- High acceleration rates
- Reverse operation

Processing Line

Many gear drives are used on rollers or within aggressive environments like galvanizing, annealing or coating lines.

- Drives with a wide speed range
- Drives with heavy-duty encoders and brakes
- Special coatings
- Optimized synchronization of several rollers

INTELLIGENT, EFFICIENT & PROVEN SOLUTIONS FOR THE METALS INDUSTRY



Intelligent

NORD assists its customers in selecting the most suitable product from our portfolio, considering the real time conditions in a steel mill. Allow our experienced application engineers to assist you in calculating the various parameters such as the power/torque requirements, bearing life and oil temperature in order to find the right product for your application.

- Highest standards of technology and quality
- Comprehensive advice on systems and products
- High availability and rapid service throughout the world

Efficient

Steel plants demand peak performance on a 24x7 basis with zero-maintenance and the highest possible efficiency levels. With extensive knowledge in drive technology solutions, NORD Drivesystems is well known in the metals industry as a systems supplier by providing:

- Individual project consulting
- Motors built to operate efficiently in the harsh environments in the steel industry.
- Gear drives optimized for extremely high temperatures
- AC Vector Drives offering intelligent, cost-effective drive solutions; either wall or motor mounted.

Proven

NORD engineers are experienced in the design process, the varied loads and required starting torques (acceleration) that are required by the metals industry. Break-down torques, protection against a steel slab becoming blocked, or only a few rollers accelerating materials (overloading drives) are also considered. NORD application engineers are waiting to assist in any part of the process including:

- Deceleration and acceleration of the transported material.
- In the transport phases where constant speed that is relative to little power is necessary.
- The calculation of drives selected according to the high acceleration load and shock loads where a high service factor is required, based on the acceleration torque.





Gear Unit

- Helical gear drives
- Parallel shaft gear drives
- 3-Stage bevel gear drives

AC Motors

- IE1/IE2/IE3/IE4
- Unventilated motors rated IC410
- Optimized efficiency

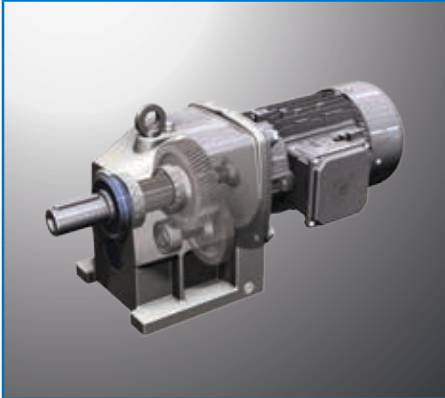
AC Vector Drives

- SK500E series
rated 0.33HP - 120HP
- SK200E series
rated 0.33HP - 30HP

NORD DRIVE SOLUTIONS FOR THE METALS INDUSTRY



Helical In-Line gear units (Catalog G1000)



- Foot or flange mounting
- Long life, low maintenance
- High quality sealing
- UNICASE™ housing

hp	0.16 - 200
lb-in	204 - 204,983
i	1.24:1 - 14,340.31:1
Output	0.84 - 1415 rpm
Efficiency	Up to 98%

Parallel Shaft gear units (Catalog G1000)



- Foot, flange or shaft mounted
- Hollow or solid shaft
- UNICASE™ housing

hp	0.16 - 250
lb-in	575 - 796,567
i	4.03:1 - 6,616.79:1
Output	0.1 - 430 rpm
Efficiency	Up to 97%

AC Vector Drive SK 200E (Catalog F3020)



- Energy saving function
- Ethernet based bus systems
- Integrated "Posicon" position control
- Optional on-board AS interface integration

U[V]	1~110 ... 120 ± 10%
	1~200 ... 240 ± 10%
	3~200 ... 240 ± 10%
	3~380 ... 500 -20% / +10%
P[hp]	0.33 - 30 hp

Helical Bevel gear units (Catalog G1000)



- Foot, flange or shaft mounting
- Hollow or solid shaft
- UNICASE™ housing
- Industry leading ratio range

hp	0.16 - 200
lb-in	up to 442,500
i	3.58:1 - 300,000:1
Output	0.1 - 490 rpm
Efficiency	Up to 95%

MAXXDRIVE™ gear units (Catalog G1050)



- CEMA mounted design for Parallel and Helical Bevel
- Compact and cost-effective
- Eliminates belted input systems

hp	3- 1300
lb-in	up to 2,196,000
i	5.54:1 - 1600:1
Output	1 - 316 rpm
Efficiency	Up to 97%

AC Vector Drive SK 500E (Catalog F3050)



- Energy saving function
- Ethernet based bus systems
- “Posicon” position control
- Plug-in modules for communication (field bus)

U[V]	1~110 ... 120 ± 10%
	1~200 ... 240 ± 10%
	3~200 ... 240 ± 10%
	3~380 ... 480 - 20% / +10 %
P[hp]	0.33 - 120 hp



Whether for continuous casting,
milling, handling or your furnaces
NORD DRIVESYSTEMS
provides the optimum drive
solution for every application.



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Global Vision, Local Support

NORD makes its wide product range easily available through a global network that includes representation in over 60 countries. By providing all of our customers with prompt delivery, and expert support services, we are firmly committed to exceeding customer expectations and being responsive to the ideas and specifications of every customer, anywhere in the world.