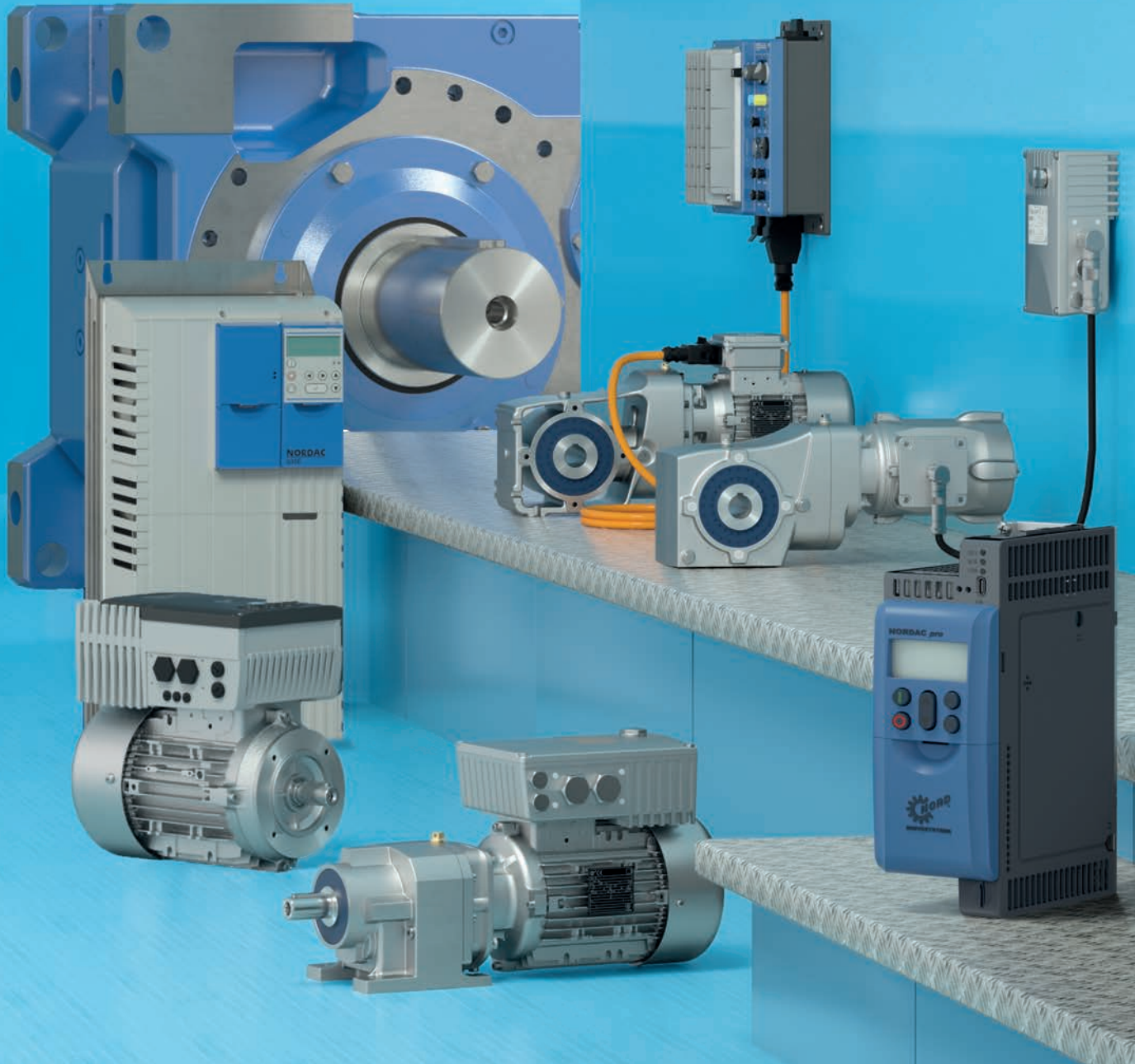


Intelligent Drivesystems, Worldwide Services

PRODUCT OVERVIEW



US

**COMPLETE
DRIVE SOLUTIONS
FROM A SINGLE SOURCE**

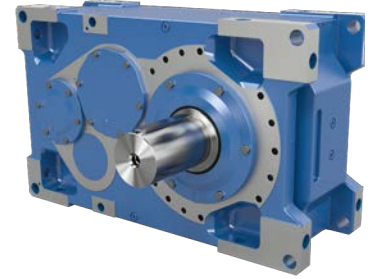


NORD DELIVERS COMPLETE DRIVE SOLUTIONS FROM A SINGLE SOURCE



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.



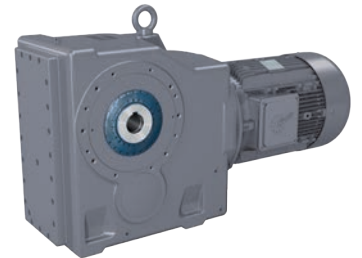
Reduce Lead Times and Decrease Inventory

- 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!



High-performance Solutions

NORD's product portfolio is continuously evolving to meet the needs of today's fast-changing markets, but NORD does far more than manufacture the world's finest drive components. We provide our customers with optimum drive configurations for their specific purposes, providing each and every one of them with complete and efficient systems at a price/quality ratio that's unmatched.

By continuing to invest in the latest research, manufacturing, and automation technology, we are able to deliver innovative drive systems with the highest quality, reliability, and value found in the marketplace today. In short, we never stop improving.

On-time Delivery

Our linked global network of assembly and manufacturing operations gives you the best of both worlds – a world leader with local representatives. NORD has subsidiaries and sales partners in 98 countries on five continents, ensuring local inventory, assembly centers, technical support, and customer service.

This approach also allows us to provide the shortest lead times in the industry. As a NORD customer, you can rest assured that your order will be delivered on time and on spec. We offer our customers:

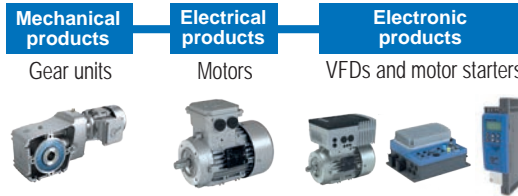
- Fast, accurate, reliable service
- Unmatched product versatility and customizations
- Short lead times
- Technical guidance from experienced engineers
- MyNORD online tools (configure, price, quote, and track your order)
- 24/7/365 after hours emergency support via the NORD 911 hotline

Peace of Mind

NORD's customer-first approach means superior drive solutions and peace of mind are just a call or click away. Put NORD's global team of engineers, manufacturing, service, and support technicians to work for you. Together, we'll build something great!



Headquarters and technology center
in Bargteheide, near Hamburg



Innovative drive solutions
for more than 100 branches of industry

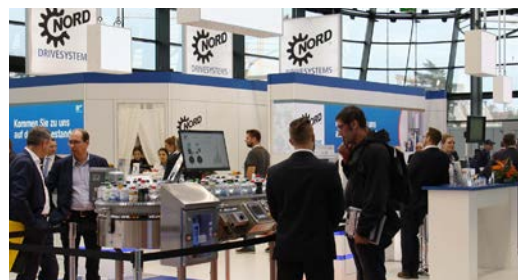


7 production locations with cutting-edge technology
produce gear units, motors, VFDs, and more to provide complete drive systems from a single source.



Subsidiaries and sales partners in 98 countries on 5 continents
provide local inventory, assembly, technical support, and industry-leading customer service.

The map shown above is for information only and does not claim to be created for or applicable to any legal purpose. For this reason, we do not assume any liability for legality, correctness and completeness.

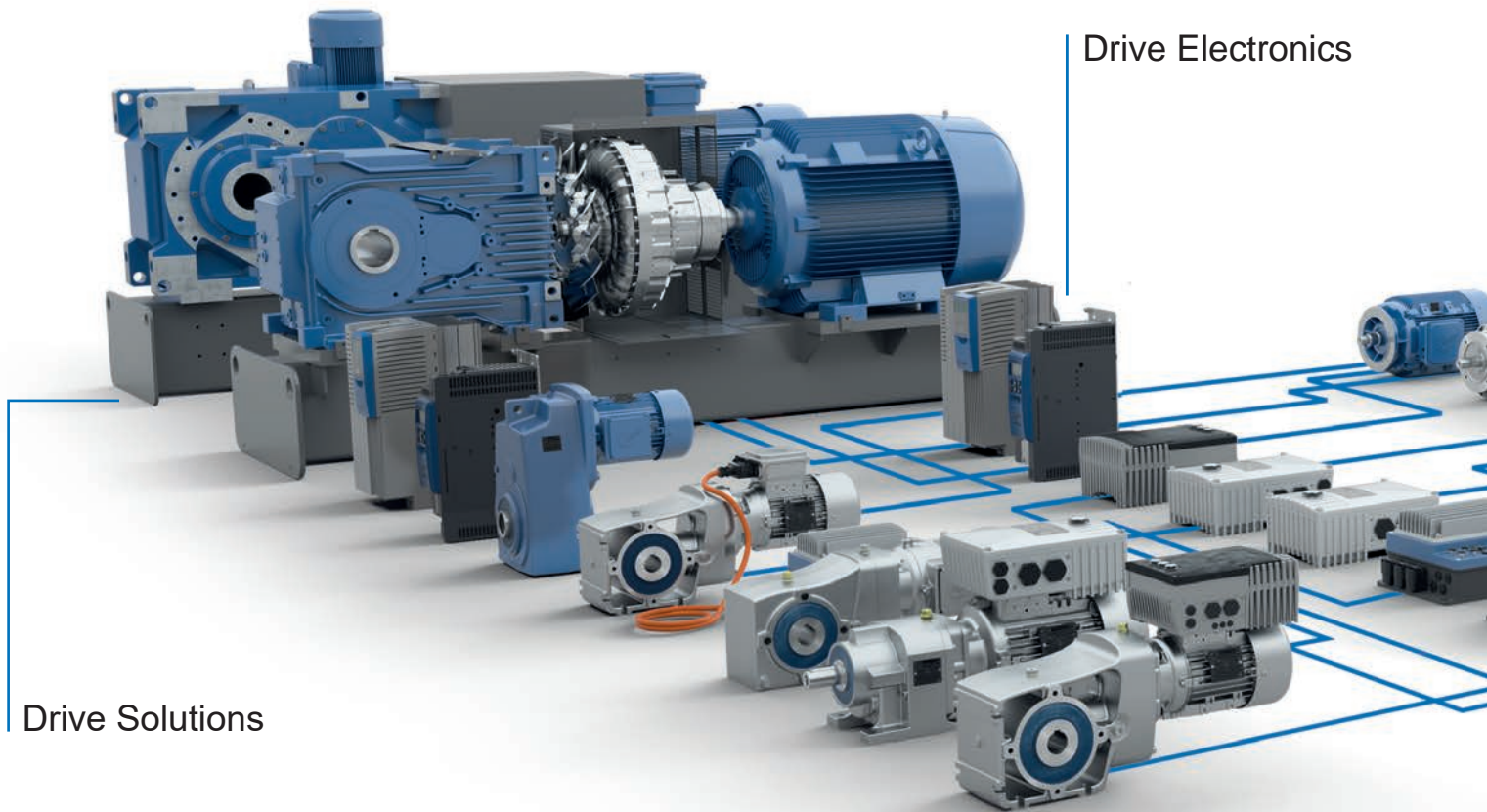


More than 4,000 employees throughout the world
create customized solutions.



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COMPLETE DRIVE SOLUTIONS FROM A SINGLE SOURCE



Drive Electronics

Drive Solutions



Reliable gear units with one-piece UNICASE™ housing.

- Housing block that seamlessly integrates all bearing points
- Complete machining in one step
- High power density
- Long service life
- High axial and radial load capacity
- Customer and application-specific solutions
- Quiet, reliable operation



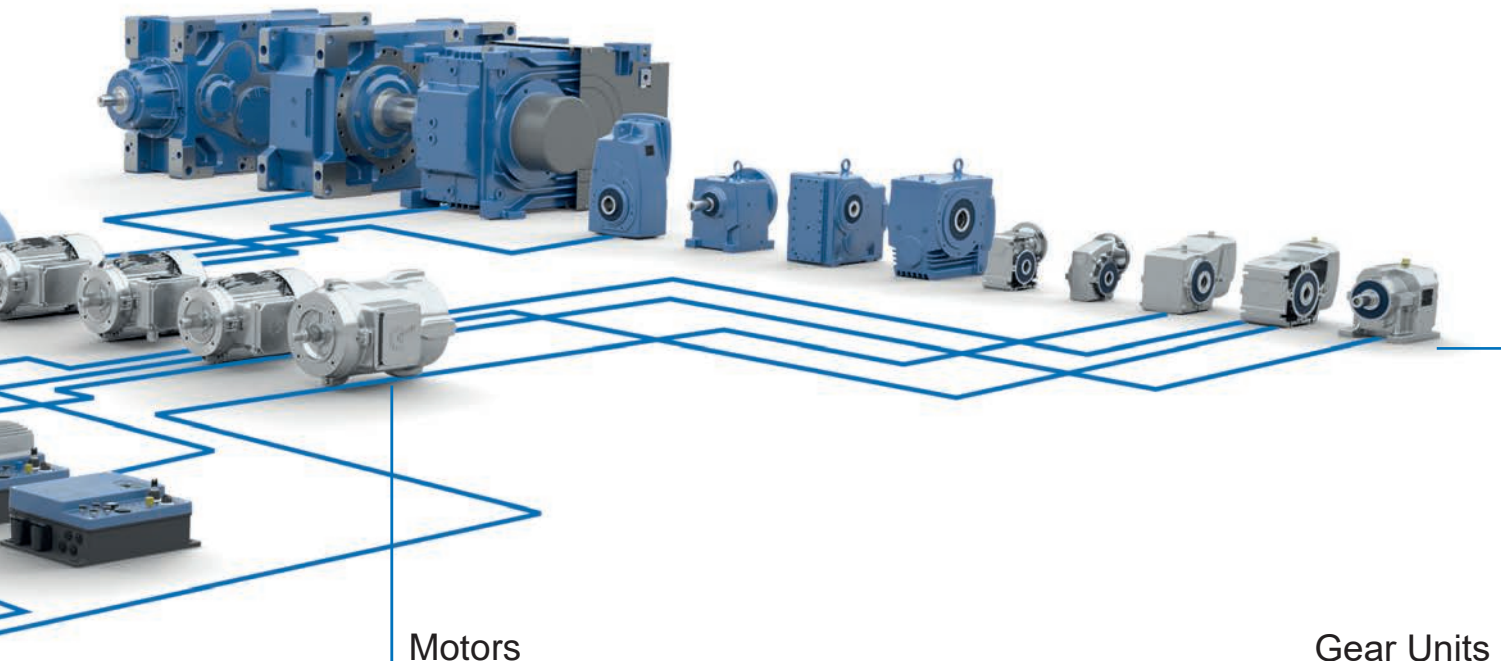
Powerful motors up to IE5 keep drive systems in motion in all operating situations.

- Designed in compliance with international standards
- High overload capacity
- Energy-efficient



Intelligent drive electronics provide the exact control options you need.

- Scalable functions
- Full field bus connection facilities, including Ethernet IP
- Wide power range
- Integrated PLC at no extra cost



An optimal, customized drive solution can be created using the modular NORD system consisting of the gear unit, motor, and drive electronics. Each of the variants combine the highest product quality, short planning and assembly times, high delivery availability, and a top price-to-performance ratio.



Extensive communication options enable access to drives from all levels to enable a wide variety of configuration options.

- All common bus systems, including Ethernet IP
- Quick and simple commissioning with plug-in control box or using NORDCON APP software
- Convenient handheld console for local operation
- Intralogistics options available



Switches and keys are located directly on the drives and enable direct starting and stopping as well as mode switching.

- AC line switch
- Selector switch for local or remote control
- Start/Stop and Forward/Reverse switches
- Energy-efficient



All interfaces are designed for ease of use. Drives can be easily configured and installed.

- Simple Plug-and-Play with all common connection plugs
- Plug-in supply cable and motor output
- Plug-in sensors and encoders
- Pre-assembled cables
- Integrated PLC at no extra cost

NORD DRIVESYSTEMS

GEAR UNITS

Flexible Input Options

There are many available input options for our smallest gear boxes all the way to our powerful MAXXDRIIVE® units.

- NEMA
- IEC
- Integral Gearmotors
- Solid Input Shafts
- Servo Adapters
- Custom Inputs

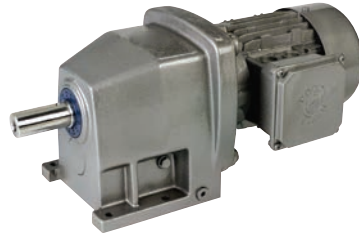
Cut-Pinions

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

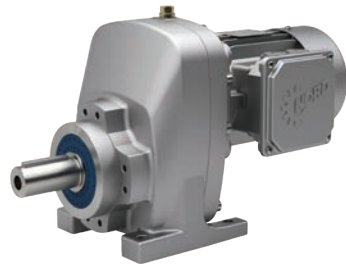
Helical Inline Gear Units



- ✓ Foot or flange mounted
- ✓ Long life, low maintenance
- ✓ Closely stepped ratios
- ✓ Versatile input designs

Sizes	11
Power	0.16 – 200 HP
Torque	Up to 205,000 lb-in
Ratio	1.35 – 14,340.31:1
Efficiency	Up to 98%

NORDBLOC.1® Single Stage Helical Gear Units

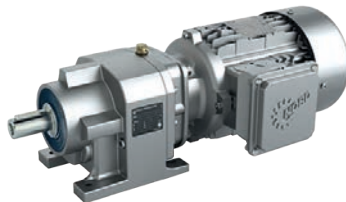


- ✓ Foot or flange mounted
- ✓ Corrosion-resistant aluminum alloy housing (*cast iron SK 871.1 and up*)
- ✓ Suitable for high-speed applications
- ✓ High permissible radial and axial forces
- ✓ NEMA standard output flange and shafts
- ✓ Innovative hollow-socket output options



Sizes	8
Power	0.16 – 60 HP
Torque	Up to 8,851 lb-in
Ratio	1.07 – 13.1:1
Efficiency	Up to 98%

NORDBLOC.1® Two-stage Helical Gear Units

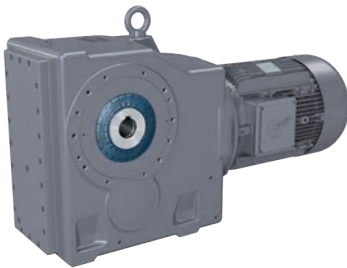


- ✓ Foot or flange mounted
- ✓ Corrosion-resistant aluminum alloy housing (*cast iron SK 772.1 and up*)
- ✓ High permissible radial and axial forces
- ✓ Smooth surface; long bearing life
- ✓ Comparable to standard European models



Sizes	8
Power	0.16 – 60 HP
Torque	Up to 29,205 lb-in
Ratio	2.1 – 456.77:1
Efficiency	Up to 97%

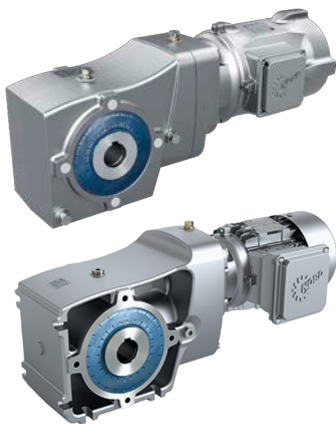
Helical Bevel Gear Units



- ✓ Foot, flange, or shaft mounted
- ✓ Hollow or solid shaft, keyless bore options
- ✓ Cast iron housing
- ✓ Keyless shaft designs with Shrink Disc and GRIPMAXX™
- ✓ High efficiency
- ✓ Long service life, low maintenance
- ✓ Various bearing designs for high axial and radial load capacities

Sizes	11
Power	0.16 – 200 HP
Torque	Up to 442,500 lb-in
Ratio	8.04 – 13,432.68:1
Efficiency	Up to 95%

Two-stage Bevel Gear Units



- ✓ Foot, flange, or shaft mounted
- ✓ Hollow or solid shaft
- ✓ Compact design
- ✓ Keyless shaft designs with Shrink Disc and GRIPMAXX™
- ✓ Aluminum alloy housing



Sizes	6
Power	0.16 - 12 HP
Torque	Up to 5,800 lb-in
Ratio	3.03 – 70:1
Efficiency	Up to 97%

GRIPMAXX™

A keyless bushing system for shaft-mounting drives that can accommodate a wide range of solid shaft sizes while ensuring a 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

**Shrink disc keyless bore offering available for non-stock bore sizes. Assembly tolerances require more precision than shafts connected with GRIPMAXX bushing kit.*



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NORD DRIVESYSTEMS

GEAR UNITS

TORQUEPROTECT™

Torque and load monitoring system for wastewater treatment, power plants, and other industries requiring extreme low speed, high-torque drives. It includes:

- (1) NORD gearbox
- NEMA 4X control panel; Avery Weigh-Tronix scale head; NORD firmware
- IP67 sealed stainless steel load cell to continuously monitor torque
- Digital display with continuous torque monitoring feedback displayed as a % of maximum acceptable load
- (3) user relay set points with indicator lights, plus a fourth light to ensure system is fully functioning, wiring is correct, and load cell is active
- Compatibility with user-supplied devices (e.g. stack lights, buzzers, and warning beacons)
- 4-20mA analog output module that allows remote monitoring (advanced package only)



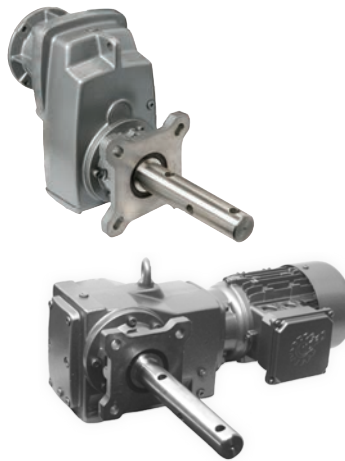
Clincher™ Parallel Shaft Gear Units



- ✓ Foot, flange, or shaft mounted
- ✓ Hollow or solid shaft
- ✓ Compact design
- ✓ Keyless shaft designs with Shrink Disc and GRIPMAXX™
- ✓ Long service life, low maintenance
- ✓ Quiet operation

Sizes	15
Power	0.16 – 200 HP
Torque	Up to 638,000 lb-in
Ratio	4.03 – 15,685.03:1
Efficiency	Up to 97%

Screw Conveyor Package



- ✓ Direct coupled input design
- ✓ No top mounts, pulleys, belts, or guards
- ✓ Closely stepped speed reduction ratios
- ✓ Compact and cost effective
- ✓ Standard CEMA mounting
- ✓ CEMA shafts sizes: 1-1/2", 2", 2-7/16", 3", and 3-7/16"

Sizes	Clincher (12) Helical Bevel (10)
Power	0.16 HP – 60 HP
Torque	Up to 53,100 lb-in
Ratio	4.32 – 4,246.38:1
Efficiency	Up to 97%

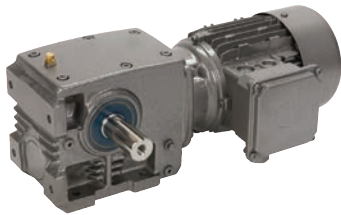
Overhead Conveyors



- ✓ Designed with mounting and output shafts that easily drop into industry-standard footprints.
- ✓ High overhung load capacity
- ✓ QUADRILIP™ sealing system
- ✓ Spread bearing design with dry cavity for optimized oil leakage protection
- ✓ Low maintenance, long service life

Sizes	3
Power	0.33 – 60 HP
Ratio	8.10 – 3,735.92:1
Efficiency	Up to 96%

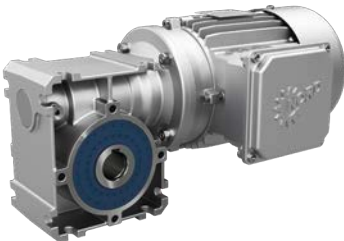
Helical Worm Gear Units



- ✓ Foot, flange, or shaft mounted
- ✓ Hollow or solid shaft
- ✓ Keyless shaft designs with Shrink Disc and GRIPMAXX™
- ✓ Cast iron housing (Size SK02040.1 aluminum alloy)

Sizes	6
Power	0.16 – 20 HP
Torque	407 – 27,350 lb-in
Ratio	4:40 – 7,095.12:1
Efficiency	Up to 94%

FLEXBLOC® Worm Gear Units



- ✓ Modular
- ✓ Universal mounting
- ✓ Lubricated for life
- ✓ NEMA and IEC versions
- ✓ Aluminum alloy housing

Sizes	5
Power	0.16 – 5 HP
Torque	186 – 4,683 lb-in
Ratio	5 – 3,000:1
Efficiency	Up to 94%

MINICASE™ Worm Gear Units



- ✓ Smooth surfaces
- ✓ Lubricated for life
- ✓ NEMA and IEC versions
- ✓ Aluminum alloy housing
- ✓ nsd tupH™ (optional)



Sizes	5
Power	0.16 – 5 HP
Torque	186 – 4,683 lb-in
Ratio	5 – 3,000:1
Efficiency	Up to 94%

NORD allows you to customize your gear units with a wide range of 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
- Heavy duty and spread bearing designs
- 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

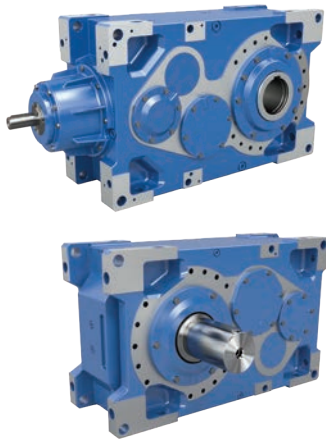


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NORD DRIVESYSTEMS

MAXXDRIVE® INDUSTRIAL GEAR UNITS

MAXXDRIVE® Industrial Gear Units

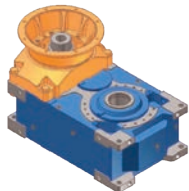


- ✓ All bearings and sealing surfaces are machined in a single process (promoting quieter operation and a long service life)
- ✓ No separating joints in the housing, no sealing surfaces subject to torque
- ✓ High-precision axis alignment
- ✓ Low maintenance
- ✓ Gear ratio range 5.54 to 400:1 with the same foot dimensions
- ✓ Parallel axis and right-angle

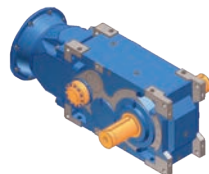
Sizes	11
Power	50 – 2,000 HP
Torque	130,000 – 2,250,000 lb-in
Ratio	7 – 1,600:1*

**with combination gearbox*

Optional Accessory Examples



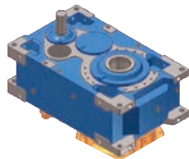
IEC / NEMA Input



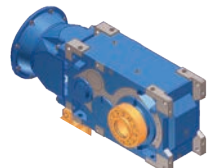
Double Output Shaft / Backstop



IEC / NEMA with Motor



Agitator Flange

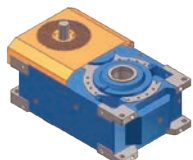


Shrink Disc / Torque Support



Base Frame / Fluid Coupling

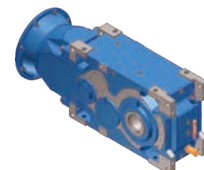
Temperature Management Examples



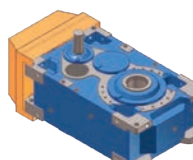
Radial Fan



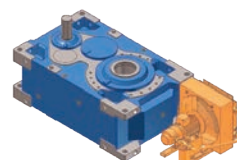
Oil Water Cooler



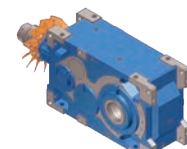
Oil Heater / Sight Glass



Electric Fan

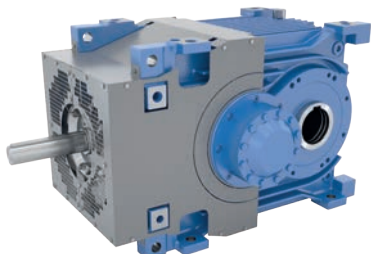


Oil Air Cooler



Axial Fan

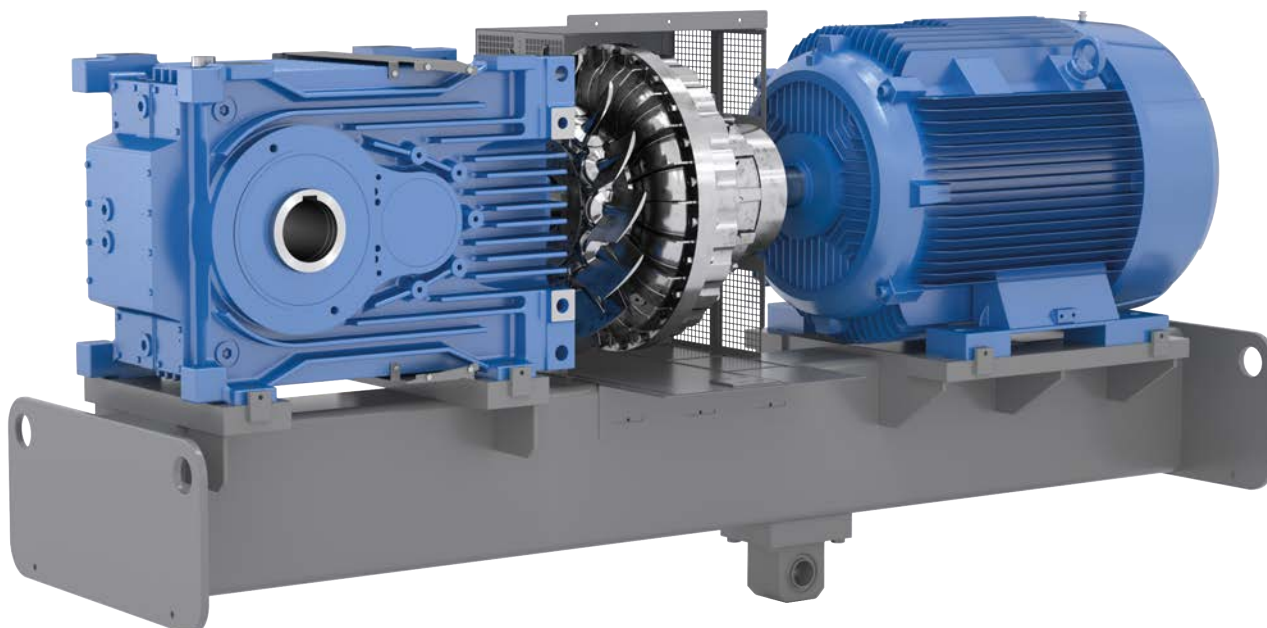
MAXXDRIVE® XT Industrial Gear Units



- ✓ Optimized housing and surface design for highest thermal performance limit
- ✓ All bearing and sealing surfaces are machined in a single process (promoting quiet operation and long service life)
- ✓ No separating joints in the housing, no sealing-surfaces subject to torque
- ✓ High-precision axis alignment
- ✓ Low maintenance

Sizes	7
Power	50 – 1,500 HP
Torque	130,000 – 660,000 lb-in
Ratio	6.30 – 22.4:1

The MAXXDRIVE XT offers the industry a symmetrically designed gearbox for mirror image installations, which drastically reduces spare parts costs and downtime. The optimized housing geometry achieves maximum thermal ratings and effective fan cooling through an enhanced fan design and air flow.



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NORD DRIVESYSTEMS

ASYNCHRONOUS AND SYNCHRONOUS MOTORS

NORD develops its own motors and supplies them to all major markets throughout the world.

This ensures a high level of independence from external suppliers and provides our customers with the decisive advantage of short, dependable lead times.

Motors from NORD also conform to international energy efficiency guidelines and certifications:










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



Single-phase and 2-speed motors available by request.

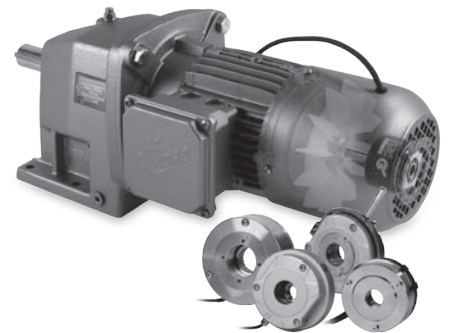
NORD motors are highly customizable. Available options include, but are not limited to:

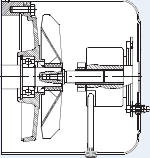
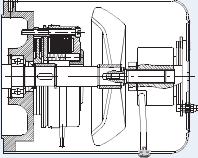
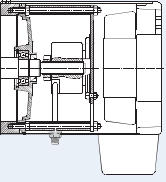
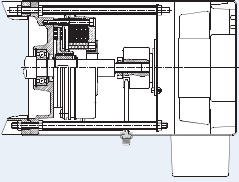
- Custom paint coatings
- Custom surface protection systems
- Environmental and overload protection
- External cooling fans
- Thermal protection
- Connectivity solutions

Energy-saving Motors	Smooth Body Motors
	 nsd 
Explosion-proof Motors Gas Atmospheres	Explosion-proof Motors Dust Atmospheres
 	 

Brakes and Encoders

NORD offers a variety of encoder and brake solutions that will satisfy nearly any application. We work closely with our customers to ensure that all requirements are met and that timing is precise.



			
Standard Motor with Encoder	Encoder with Brake Option	Encoder with F Type Fan	Brake Option, Blower Fan with Encoder

Additional Features

- Inverter Duty
- Extensive motor mounting designs
 - Direct/integral motors
 - Footed, flanged, or foot/flange
 - NEMA
 - IEC

Hazardous Locations

Class I, Division 2
Groups A,B,C, D

Class II, Division 2
Groups F and G
Temp Code T3B



NORD DRIVESYSTEMS

VFDs AND MOTOR STARTERS



NORD DRIVESYSTEMS IS INDUSTRY 4.0 READY!

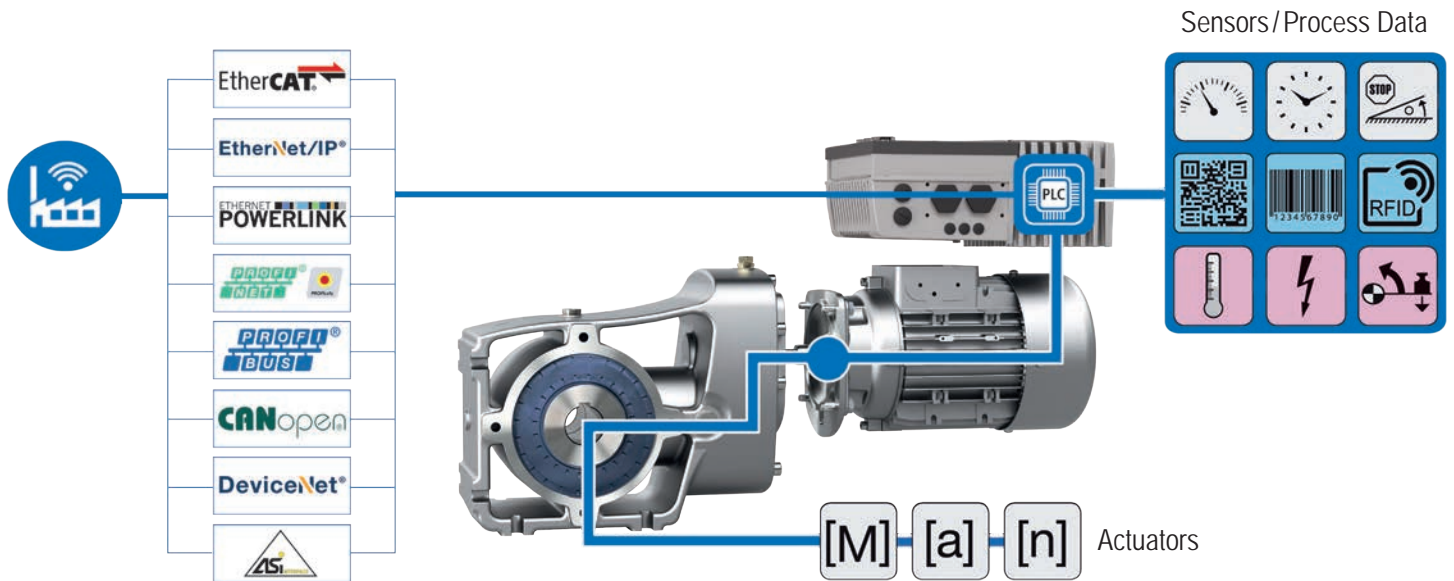
"NORD 4.0 READY!" means that NORD drive units are networked, autonomous, and scalable. The key components are the VFD units with their powerful processors and comprehensive equipment, interfaces, and functions. They not only monitor themselves and the motor, but also the effect on the load situation in plant segments and beyond.

We have the drive units for intelligent processes: Networked – Autonomous – Scalable. 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 the extensive exchange of information on all levels.

The integrated PLC processes data from sensors and actuators. If necessary, it initiates a control sequence and communicates 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 independently decide on a branch position and act accordingly. The drive units can also communicate 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 parameter sets and can be simply adopted.

As a result, the VFD can coordinate both simple and complex applications independently from the plant control system, and it can respond to changes to the process or remedy many process faults independently without external intervention.



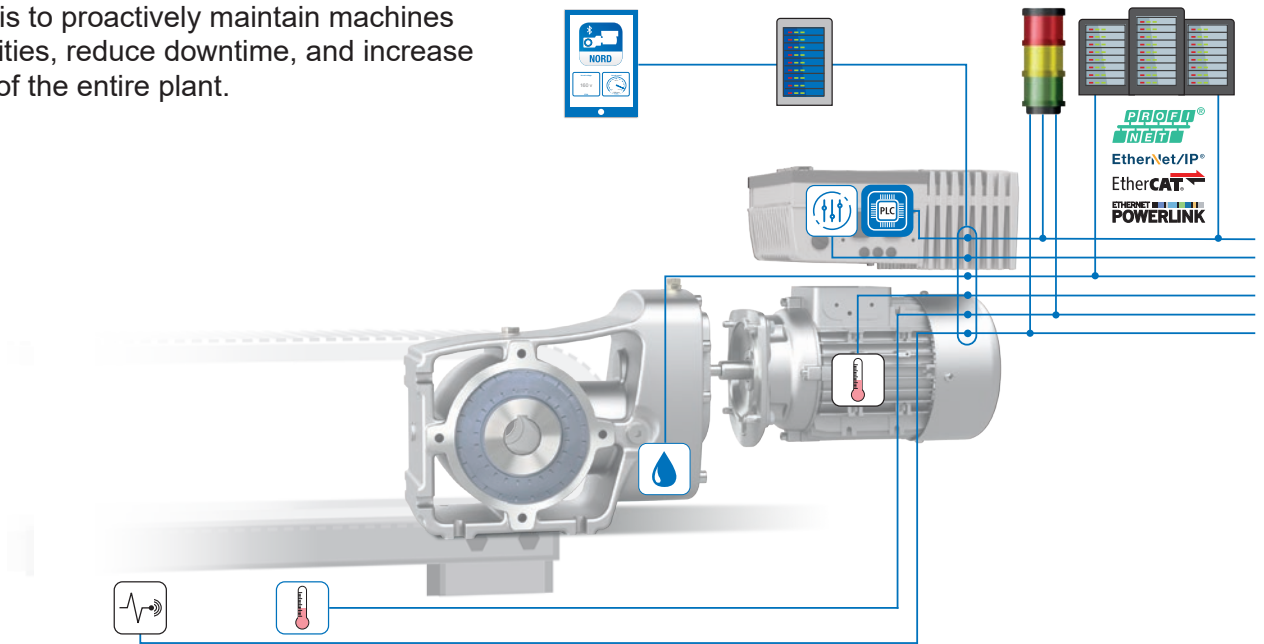

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NORD DRIVESYSTEMS

CONDITION MONITORING

In condition monitoring, operating and status data are regularly or continuously recorded 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 proactively maintain machines and plant facilities, reduce downtime, and increase the efficiency of the entire plant.



System Vibration Sensor



- NORD qualified sensors
- Connection of customized sensors (analog/digital)

Temperature Sensor



- PT1000-based motor temperature sensor
- Ambient or system temperature

Oil Change



- Determines optimal time for oil change based on the virtual oil temperature
- The algorithm is executed in the internal PLC

Drive Parameters



- Readout of drive system parameters
- Basis for virtual sensors

Integrated PLC



- Pre-processing of drive-specific parameters and drive sensors
- Evaluation of drive conditions

Beacon Signal



- Local display of drive conditions
- Scalable display

Local Data Management



- Processing of drive data for drive and system analysis
- Condition monitoring

Local Dashboard



- Display of drive and system data

Higher Level PLC



- Processing of condition monitoring information by the customer
- Combination of collected condition monitoring data and the process data

NORD DRIVESYSTEMS PREDICTIVE MAINTENANCE



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

Oil Temperature Curve of 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 in aging gear units
- 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

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 customer 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!



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NORD DRIVESYSTEMS

VFDs AND MOTOR STARTERS

NORD produces VFD and motor starters for power electronics.

These solutions are available for conventional control cabinet installations as well as for decentralized, fully-integrated drive units.

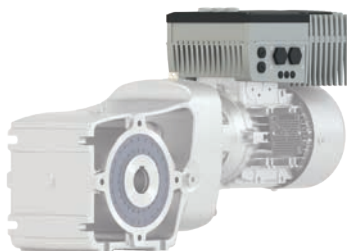
LogiDrive

The LOGIDRIVE™ solution from NORD reduces engineering and commissioning efforts:



- High efficiency two-stage bevel gearbox
- IE4 permanent magnet synchronous motor
- Decentralized variable frequency drive
- Power plug connector
- M12 connectors
- Incremental encoder
- Pre-assembled cables
- High overload capacity
- Standardized hollow shaft diameters

NORDAC® FLEX Variable Frequency Drives

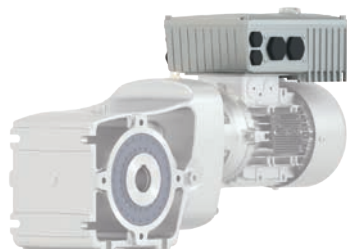


nsd turabi

- ✓ Motor or wall mount
- ✓ Sensorless current vector control (ISD)
- ✓ Energy saving function
- ✓ Integrated PLC and POSICON positioning
- ✓ Safe stop function
- ✓ Protection Class IP55/IP66

Sizes	4
Voltage	1 ~ 110 – 120 V
	1 ~ 200 – 240 V
	3 ~ 200 – 240 V 3 ~ 380 – 500 V
Power	0.33 – 30 HP (0.25 – 22 kW)

NORDAC® BASE Variable Frequency Drives



nsd turabi
(wall mount only)

- ✓ Motor or wall mount
- ✓ Sensorless current vector control (ISD)
- ✓ Integrated PLC
- ✓ Protection Class IP55/IP66/IP69K

Sizes	2
Voltage	1 ~ 110 – 120 V
	1 ~ 200 – 240 V
	3 ~ 200 – 240 V 3 ~ 380 – 500 V
Power	0.33 – 3 HP (0.25 – 2.2 kW)

NORDAC® START Motor Starters



nsd turabi

- ✓ Motor or wall mount
- ✓ Integrated electronic brake rectifier
- ✓ Consistent parameter structure
- ✓ Reversing starter with soft start function
- ✓ Protection Class IP55/IP66/IP69K

Sizes	2
Voltage	3 ~ 200 – 240 V
	3 ~ 380 – 500 V
Power	0.16 – 4 HP (0.12 – 3 kW)

NORDAC® LINK Field Distributors



- ✓ VFD (250E) or motor starter (155E/175E)
- ✓ All connections in plug-in version for easy commissioning and maintenance
- ✓ PLC functionality for drive-integrated functions
- ✓ 250E: IP55/IP65, Motor Starters: IP65

Sizes	VFDs: 1, Motor Starters: 2
Voltage	3 ~ 380 – 500 V
Power	250E: 0.75 – 10 HP (0.75 – 7.5 kW)
	155E: 0.16 – 4 HP (0.12 – 3 kW)

NORDAC® PRO Variable Frequency Drives



- ✓ Stand-alone operation
- ✓ Sensorless current vector control (ISD control)
- ✓ Integrated PLC
- ✓ Protection Class IP20

Sizes	11
Voltage	1 ~ 110 – 120 V
	1 ~ 200 – 240 V
	3 ~ 200 – 240 V
	3 ~ 380 – 480 V
Power	0.33 – 200 HP (0.25 – 160 kW)

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
- ✓ Protection Class IP20

Sizes	3
Voltage	1 ~ 200 – 240 V
	3 ~ 380 – 480 V
Power	0.33 – 7.5 HP (0.25 – 5.5 kW)

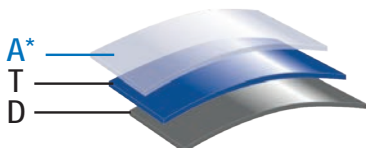
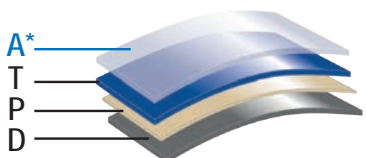
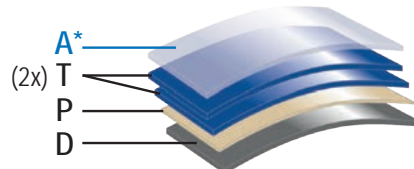
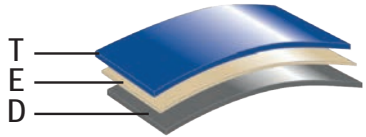
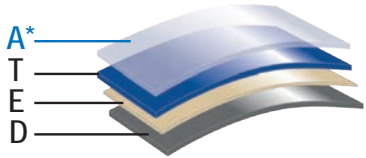
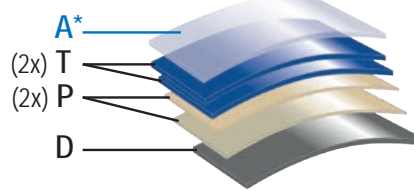
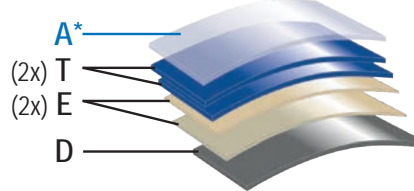
NORDCON APP and NORDAC ACCESS BT

Mobile commissioning and service solution for all NORD drives.



- Stand-alone parameter memory function
- Bluetooth interface for VFD and NORDCON APP
- Data transfer to your PC via USB
- Can be plugged in or disconnected while gear unit is in operation
- 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 parameters

SURFACE PROTECTION COATING SYSTEMS

Coating / Field of Application		Class***	Structure	Coating Thickness**
Basic Basic+ Indoor installation. <i>Previously Standard Stainless Steel (SS)</i>		C2		50 - 90 µm
NORD Severe Duty 2 (NSD2) NORD Severe Duty 2+ (NSD2+) Indoor installation and protected outdoor installation (i.e. open, unheated halls). <i>Previously NSD+ and NSDx3</i>		C2		110 - 150 µm
NORD Severe Duty 3 (NSD3) NORD Severe Duty 3+ (NSD3+) Outdoor installation, city, and industrial atmosphere with low contamination.		C3		160 - 200 µm
NORD Severe Chem Duty 3 (NSDC3) Normal chemical contamination.		C3		100 - 140 µm
NORD Severe Food Duty 3 (NSDF3) NORD Severe Food Duty 3+ (NSDF3+) Food production and packaging areas.		C3		100 - 140 µm
NORD Severe Duty 4 (NSD4) NORD Severe Duty 4+ (NSD4+) Outdoor installation, city, and industrial atmosphere with moderate contamination.		C4		220 - 260 µm
NORD Severe Duty 5 (NSD5) NORD Severe Duty 5+ (NSD5+) Outdoor installation, city, and industrial atmosphere with high contamination.		C5		200 - 240 µm
A*	Optional antimicrobial clear top coat (+ versions) Coating Thickness + 25 µm	T	Top Coat, two-component Polyurethane	
		E	Epoxy Primer, two-component EP Zinc Phosphate	
		P	Primer, two-component Polyurethane	
		D	Dip Primer, single component (for cast-iron units only)	

***Comparable to DIN EN ISO 12944-2 classification of ambient conditions

**Protocol of the coating thickness based on ISO 19840 available on request

nsd tupH



NORD smooth body motor with nsd tupH.

Molecular conversion process ensures aluminum alloy products have the surface protection wash-down applications require.

- Cost-effective alternative to stainless steel
- Corrosion-resistant and won't blister or flake
- Easy-to-clean surfaces
- Resistant to acids and alkalis (wide pH range)

The complete solution for extreme conditions:

- Surface-treated housing components
- DIN and standard stainless steel components
- Wash-down housing (gear unit and motor)
- Stainless steel shafts; special shaft sealing rings

Products available with nsd tupH™:

- Helical inline, helical bevel and FLEXBLOC® gear units
- Smooth body motors
- Electronics NORDAC® START and NORDAC® BASE

All NORD paint coatings and surface treatments are independently verified to resist chemicals and other substances that could have a negative environmental impact. In addition, NORD paints are suitable for the food industry and meet NSF/ANSI 51-2009e requirements.

The standard colors in the US are gray and white. Other options include:

- More than 100 additional color options
- Custom color matching to your specifications
- Antibacterial paints
- Anti-static powder coatings – ideal for electrical products and free of solvents
- Cost-effective stainless steel equivalent coatings (nsd tupH™)

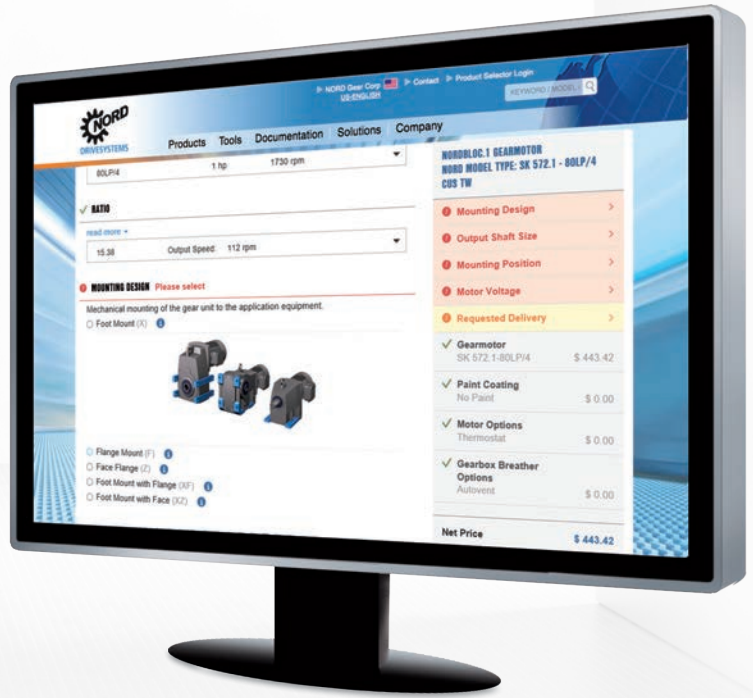
Due to their durable properties, powder coatings are highly suitable for electronics. Surfaces treated in this way are resistant to impact and scratches and can withstand harsh weather and chemicals, making them even more robust than conventional NORD paints. The anti-static properties of powder paints eliminate interference, minimizing the potential for downtime.



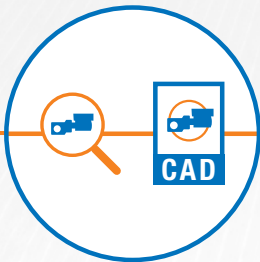
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