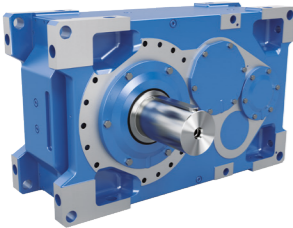
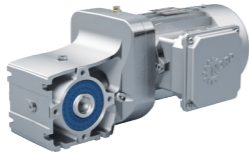


**Drive solutions for
intralogistics and warehousing**
Complete drive systems from a single source





Industrial gear units



Geared motors



Frequency inverters and motor starters

- ▶ Headquarters and technology centre 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 and drive electronics for complete drive systems from a single source
- ▶ NORD has 48 subsidiaries in 36 countries and further sales partners in more than 50 countries. They provide local stocks, assembly centres, technical support and customer service
- ▶ With more than 4,700 employees worldwide, we create customised solutions



Headquarters in Bargteheide

Motor production

Production and assembly

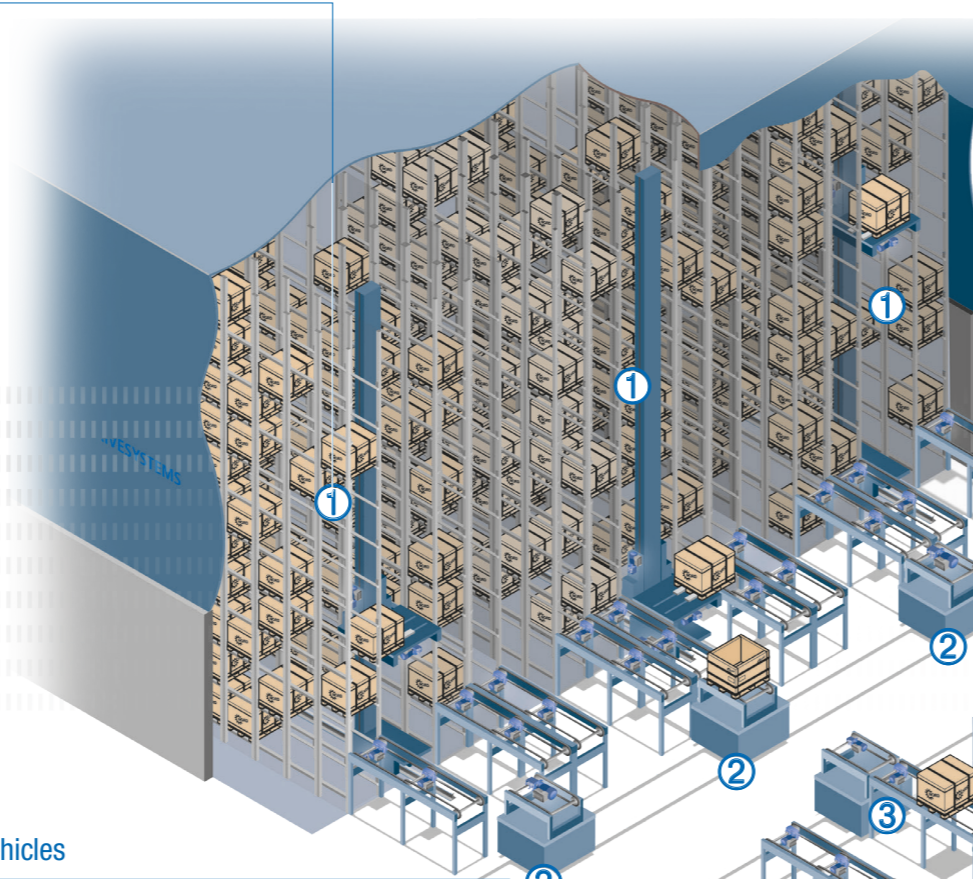
Motor mounting

Integrated solutions for the special requirements of intralogistics handling

- ▶ System solutions specially customised to intralogistics requirements
- ▶ Easy commissioning
- ▶ Global NORD network
- ▶ Plug-and-Play systems
- ▶ Easy maintenance/service friendly
- ▶ Lower total costs over product service life
- ▶ Standardisation
- ▶ Energy saving
- ▶ Project support

1 Storage and retrieval devices

Automated storage systems offer high storage density. Agile stacker cranes are therefore essential for rapid retrieval and storage of goods.

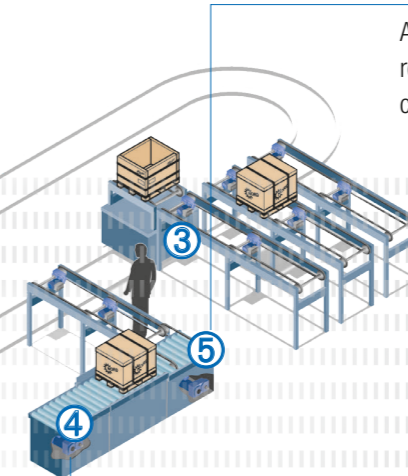


3 Chain conveyors

Chain conveyors are primarily used to transport heavyweight load units and industrial containers.

5 Corner transfer conveyor

A corner transfer conveyor is a combination of roller and chain conveyors that allows for a 90° change of direction.



2 Transfer trolley transport vehicles

Transfer trolley transport vehicles move loads from a conveyor belt to a defined location within the warehouse.



4 Roller conveyors

Roller conveyors are versatile transport systems for handling light to moderately heavy packing units.

NORD DRIVESYSTEMS is one of the world's leading drive technology companies. Our solutions are used throughout the world for a wide variety of applications in many industry sectors.

NORD DRIVESYSTEMS provides:

- ▶ Extensive application knowledge and technical support
- ▶ Complete drive solutions from a single source
- ▶ Strong global presence and service
- ▶ 100,000 plus installed drives in the intralogistics industry
- ▶ Wide range of products with high quality standards
- ▶ Great reliability, economy and service life
- ▶ Recognised production quality compliant with international standards

We support you with the following:

Design

- ▶ myNORD
- ▶ Version reduction
- ▶ Projectdesign/optimisation
- ▶ Drive design
- ▶ Application solutions
- ▶ Green solutions
- ▶ CAD drawings
- ▶ TCO/ROI calculations
- ▶ Efficiency optimisation

Commissioning

- ▶ Plug-and-play
- ▶ Support
- ▶ Training
- ▶ Documentation
- ▶ Smart commissioning

Service

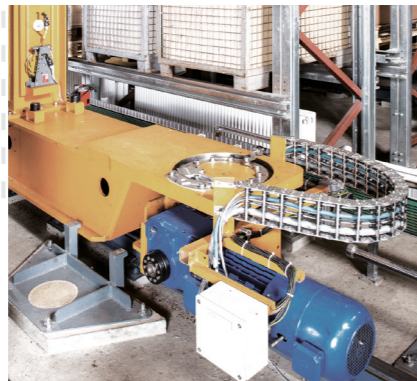
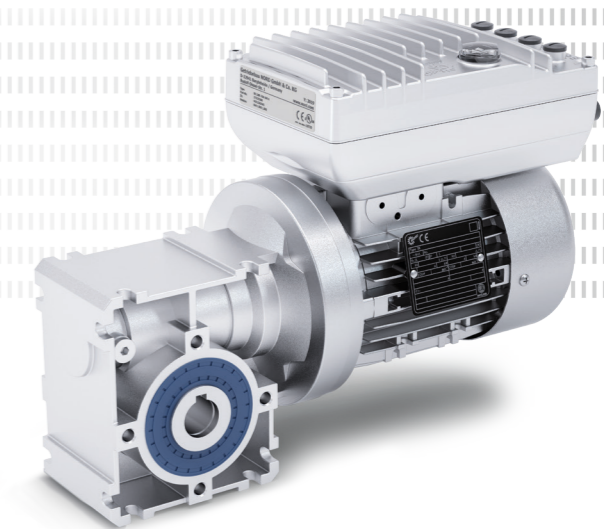
- ▶ Predictive maintenance (PLC function)
- ▶ Spare parts, express shipping
- ▶ Global presence
- ▶ 24/7 Support

Drive solutions for intralogistics and warehousing

NORD DRIVESYSTEMS develops and produces scalable drive solutions for all sectors of intralogistics.

As early as 1981, NORD DRIVESYSTEMS developed the revolutionary UNICASE housing. An enclosed gear unit housing which combines all elements of the gear unit which is produced from a single piece of material.

- ▶ A housing block which integrates all bearing points
- ▶ Complete machining in a single step
- ▶ High output torques
- ▶ High axial and radial loads
- ▶ Ultimate reliability
- ▶ Long service life
- ▶ Quiet running



Storage and retrieval devices

Automated storage systems offer high storage density. Agile stacker cranes are therefore essential for rapid retrieval and storage of goods. To achieve a high degree of mobility and extraordinary storage and retrieval throughput, these systems depend on dynamic and precise drives.

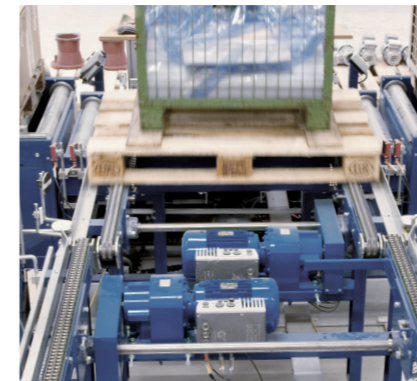
- ▶ Dynamic
- ▶ Easy to service and maintain
- ▶ Precise positioning
- ▶ Energy efficient
- ▶ DC link in inverter



Transfer trolleys transport vehicles

Automated guided transfer trolleys move loads from a conveyor belt to a defined location within the warehouse. As soon as a transport vehicle stops at its destination and aligns with a storage and retrieval device, NORD drives ensure that the loads are positioned precisely for rapid and smooth transfer.

- ▶ Compact design
- ▶ Easy to service and maintain
- ▶ Precise positioning
- ▶ With integrated PLC function



Chain conveyors

Chain conveyors are primarily used to transport heavyweight load units and industrial containers. NORD supplies the corresponding robust drive solutions with repeatedly proven long service life and reliability – both in single and double line configurations.

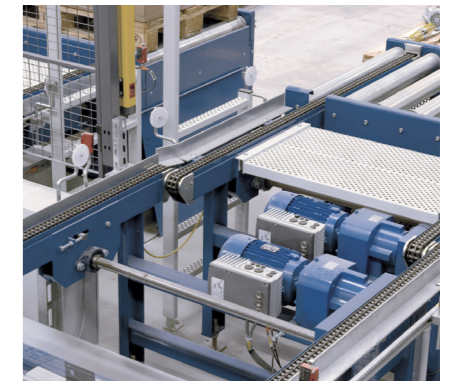
- ▶ Compact design
- ▶ Easy to service and maintain
- ▶ Reduced number of variants
- ▶ Overload capacity
- ▶ Standardised



Roller and belt conveyors

Roller and belt conveyors are versatile transport systems for handling light to moderately heavy packing units. NORD drives can be individually controlled to intelligently adjust the speed on the line – for the precise, dynamic control of distances and accumulation of packing units.

- ▶ Compact design
- ▶ Easy to service and maintain
- ▶ Reduced number of variants
- ▶ Overload capacity
- ▶ Standardised
- ▶ Many IOs available



Corner transfer conveyors

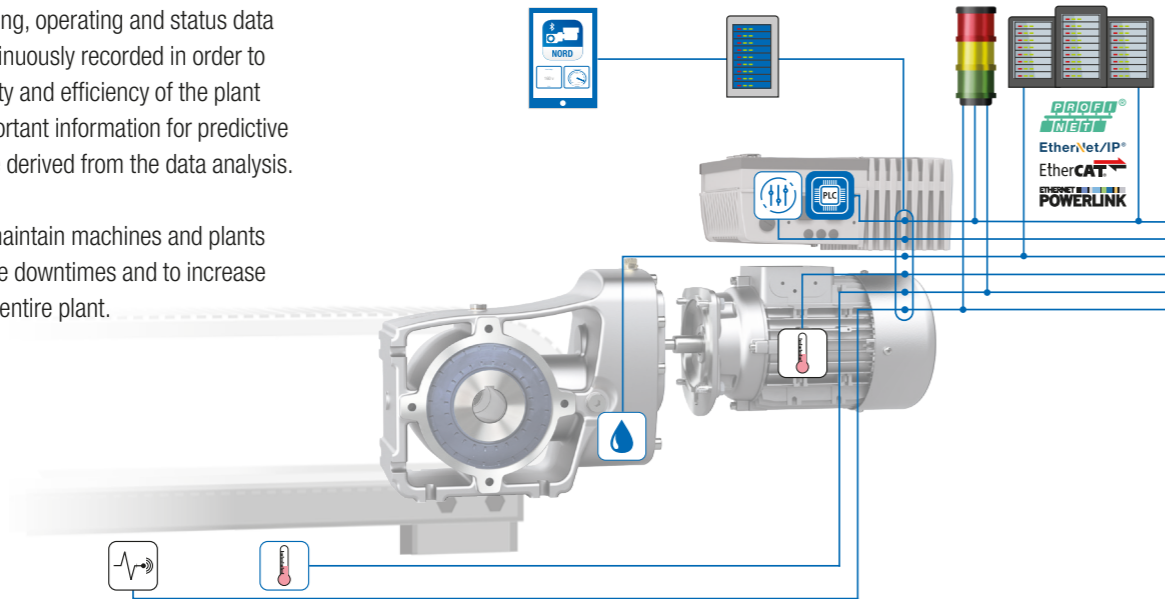
A corner transfer conveyor is a combination of roller and chain conveyors that allows for a 90° change of direction. By lifting or lowering the chain, chain conveyors receive or transfer unit loads.

- ▶ Compact design
- ▶ Easy to service and maintain
- ▶ Overload capacity

Drive solutions for intralogistics and warehousing

In condition monitoring, operating and status data are regularly or continuously recorded in order to optimise 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 maintain machines and plants proactively, to reduce downtimes and to increase the efficiency of the entire plant.



- System vibration sensor**

 - ▶ NORD qualified sensors
 - ▶ Customer-specific sensors can be connected (analogue/digital)
- Temperature sensor**

 - ▶ Motor temperature sensor on the basis of PT1000
 - ▶ Ambient or system temperature
- Oil change**

 - ▶ Determination of the optimum time for oil change on the basis of the virtual oil temperature
 - ▶ Algorithm is executed in the internal PLC
- Drive parameters**

 - ▶ Read-out of the drive parameters of the drive system
 - ▶ Basis for virtual sensors
- Integrated PLC**

 - ▶ Pre-processing of drive-specific parameters and drive-related sensors
 - ▶ Evaluation of drive condition
- Signal beacon**

 - ▶ Local display of drive condition
 - ▶ 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 condition monitoring information with process data

The revolutionary DuoDrive with integrated IE5+ motor is especially suitable for reducing the total cost of ownership.

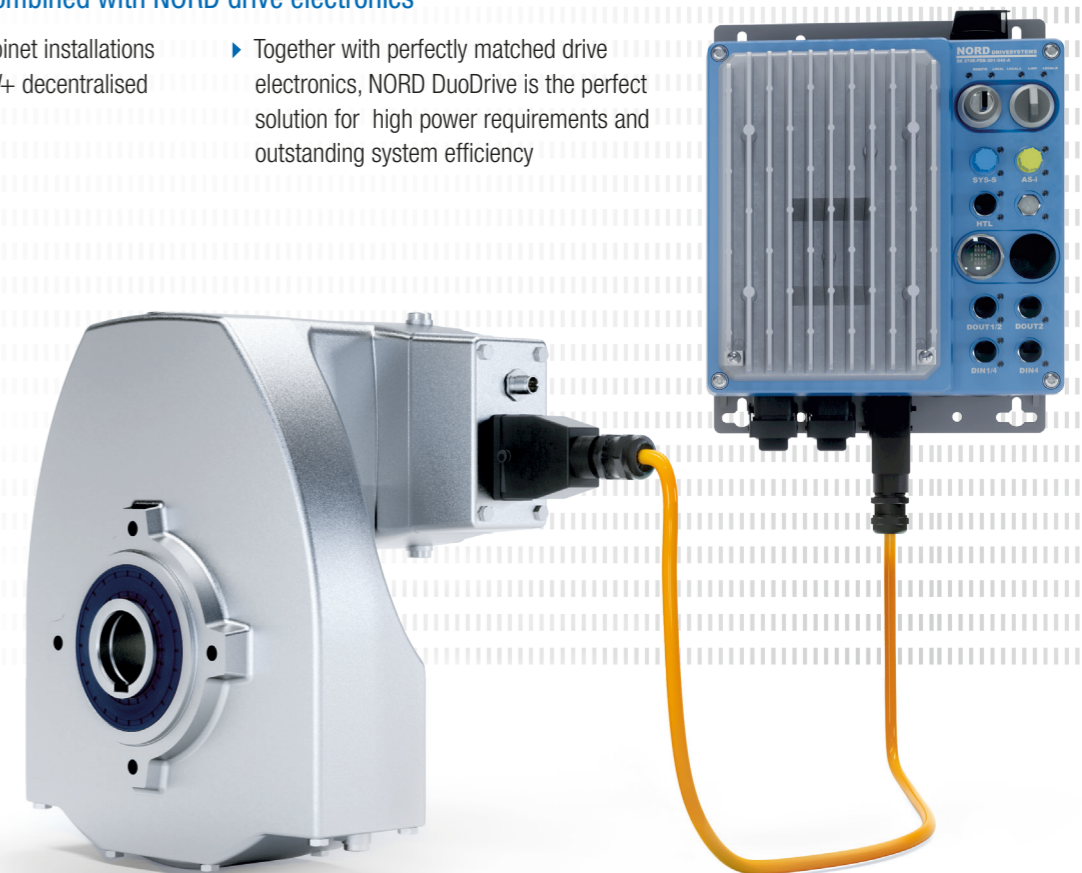
- ▶ Extremely high system efficiency of up to 92%
- ▶ Reduced Total Costs of Ownership (TCO) and faster Return on Investment (ROI)
- ▶ Reduced number of versions through constant motor torque over a wide speed range
- ▶ Very compact wash-down design for optimal installation space utilisation
- ▶ Market-compatible connection dimensions for simple replacement
- ▶ Very low noise emissions thanks to quiet running

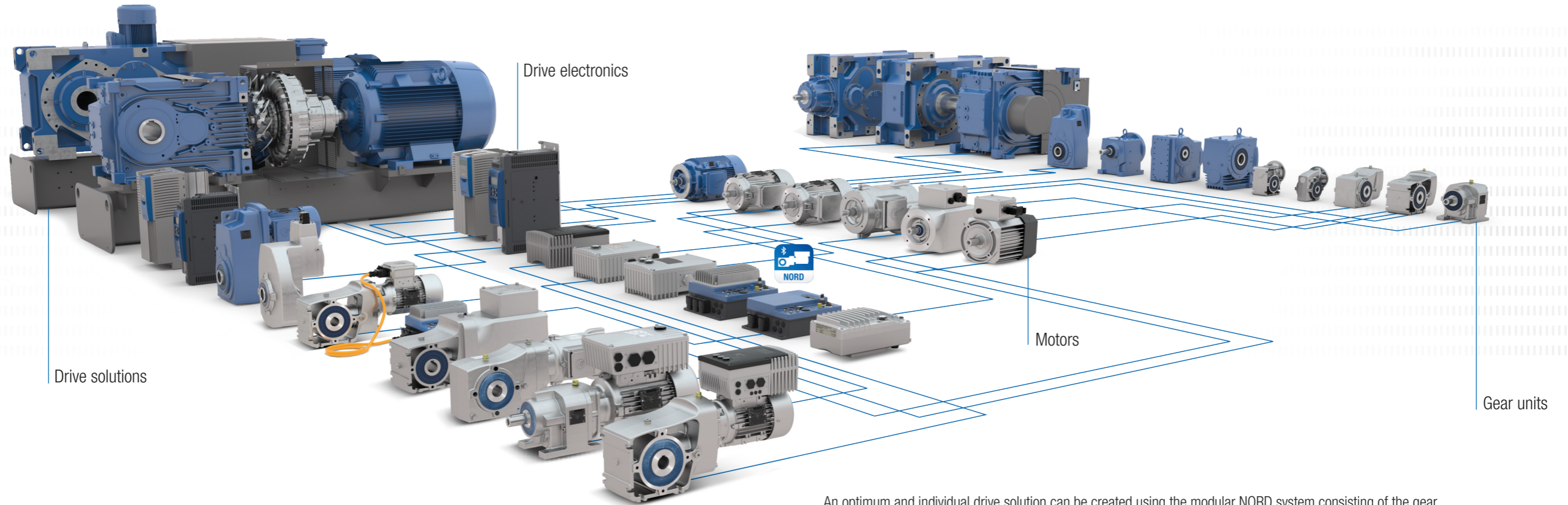
Features

- ▶ Latest generation permanent magnet synchronous motor (PMSM) integrated in a single-stage helical in-line gear unit housing
- ▶ Power range from 0.35 to 1.5 kW in a single size
- ▶ Flexible attachment options:
 - ▶ B5 flange (160 mm diameter)
 - ▶ B14 flange (160 or 200 mm diameter)
 - ▶ Torque arm, shrink disc and GRIPMAXX™
- ▶ Wide variety of motor connection options such as HANQ8 / HAN10E plug connectors, circular connectors or directly wired
- ▶ Various motor options such as holding brake or integrated encoder system

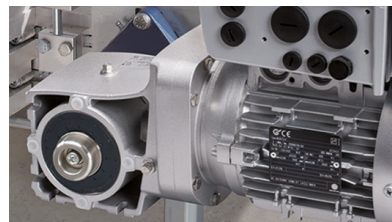
Perfect system solution combined with NORD drive electronics

- ▶ NORDAC *PRO* for control cabinet installations
- ▶ NORDAC *LINK*, *FLEX* and *ON+* decentralised wall mounting
- ▶ Suitable system wiring:
 - ▶ Motor connection
 - ▶ Mains supply
 - ▶ Signal connection
- ▶ Together with perfectly matched drive electronics, NORD DuoDrive is the perfect solution for high power requirements and outstanding system efficiency





An optimum and individual 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 good price/performance ratio.



Reliable gear units with one-piece UNICASE housing can cater for any load.

- ▶ 2-stage, high efficiency bevel gear design
- ▶ High power density
- ▶ Long service life



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

- ▶ Designed in compliance with international standards
- ▶ High overload capability
- ▶ Energy efficient



Intelligent drive electronics provide exactly the control options that you need.

- ▶ Scalable functions
- ▶ Full field bus connection facilities
- ▶ Wide power range
- ▶ Flexible configuration



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

- ▶ All common bus systems
- ▶ Quick and simple commissioning with plug-in control box or using NORDCON software and NORDAC ACCESS BT
- ▶ Optionally with intralogistics options
- ▶ Key switch



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

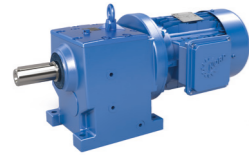
- ▶ Mains switch
- ▶ Selector switch for local or remote control
- ▶ Start/Stop and Forward/Reverse switch



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
- ▶ PLC integrated at no extra cost

UNICASE helical in-line gear units (Catalogue G1000)



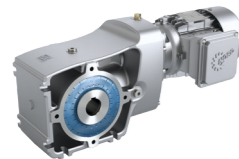
- ✓ Foot- or flange-mounted version
 - ✓ Long life, low-maintenance
 - ✓ Optimum sealing
 - ✓ UNICASE housing
- Sizes: 11
Power: 0.12 – 160 kW
Torque: 10 – 26,000 Nm
Ratio: 1.35 – 14,340.31:1

UNICASE parallel shaft gear units (Catalogue G1000)



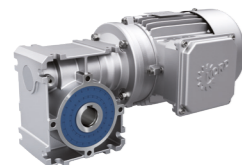
- ✓ Foot mounted, flange mounted or face mounted
 - ✓ Hollow or solid shaft
 - ✓ Compact design
 - ✓ UNICASE housing
- Sizes: 15
Power: 0.12 – 200 kW
Torque: 110 – 100,000 Nm
Ratio: 4.03 – 15,685.03:1

NORDBLOC.1® 2-stage helical gear units (Catalogue G1014)



- ✓ Foot mounted, flange mounted or face mounted
 - ✓ Hollow or solid shaft
 - ✓ Aluminium housing
- Sizes: 6
Power: 0.12 – 9.2 kW
Torque: 50 – 660 Nm
Ratio: 3.03 – 70:1

UNIVERSAL SI worm gear units (Catalogue G1035)



- ✓ Modular
 - ✓ Universal mounting
 - ✓ Life-long lubrication
 - ✓ IEC version
- Sizes: 5
Power: 0.12–4.0 kW
Torque: 21 – 427 Nm
Ratio: 5.00 – 3,000:1

Motors (Catalogue M7000)



- ✓ IE3 motors from 0.12 kW (Size 63)
- ✓ IE5+ synchronous and asynchronous motors



International energy efficiency standards

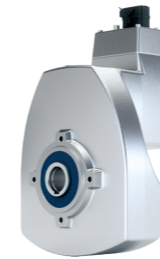
- ▶ EU: IE1 – IE5+ as + per IEC 60034-30
- ▶ US: ee labelling as per EISA 2007 (Dept. of Energy)
- ▶ CA: CSA energy verified as per EER 2010
- ▶ CN: CEL as per GB 18613
- ▶ KR: KEL as per REELS 2010
- ▶ BR: Alto Rendimento as per Decreto nº 4.508
- ▶ AU: MEPS as per AS/NZS 1359.5

NORDAC ACCESS BT



- ✓ Stand-alone parameter memory
- ✓ Bluetooth interface for inverter and NORDCON APP
- ✓ Data transfer to PC via USB
- ✓ Can be plugged in/disconnected during operation

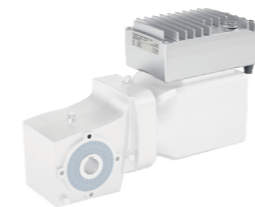
DuoDrive – integrated geared motor concept



- ✓ Highly efficient IE5+ motor
- ✓ System efficiency of 92%
- ✓ Results in a significant reduction of the TCO (Total Cost of Ownership) compared to other drive systems
- ✓ High power density
- ✓ Minimal noise emissions
- ✓ Simple plug-and-play commissioning
- ✓ Hygienic design (wash-down)
- ✓ Design: M1, M4, M5, M6

Sizes: 3
Power: 0.35 – 1.5 kW
Torque: 26 – 78 Nm
Ratio: 3.24 – 16.2:1

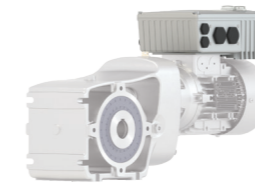
NORDAC ON/ON+ (Catalogue E3000)



- ✓ Optimised by focus
- ✓ Plug-and- Play for fast IBN
- ✓ Very compact design
- ✓ Integrated Ethernet interface

Sizes: 2
Voltage: 3 ~ 400 V
Power: 0.37 – 0.95 kW

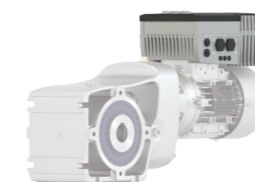
NORDAC START SK 135E motor starter (Catalogue E3000)



- ✓ Integrated electronic brake rectifier
- ✓ Consistent parameter structure
- ✓ Reversing starter with soft start function

Sizes: 2
Voltage: 3 ~ 200 – 240 V, 3 ~ 380 – 500 V
Power: 0.12 – 3 kW or up to 7.5 kW

NORDAC FLEX SK200E frequency inverter (Catalogue E3000)



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

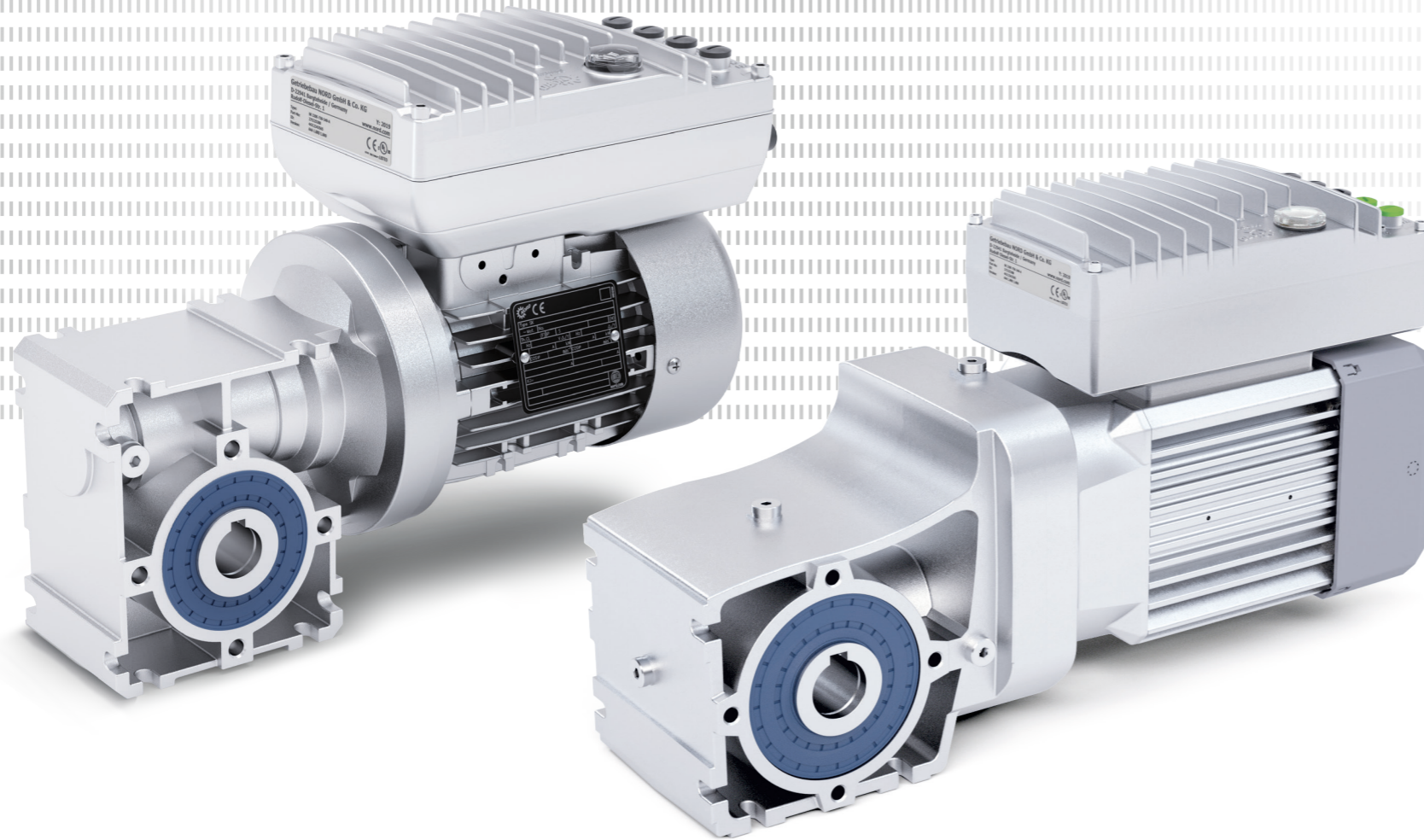
Sizes: 4
Voltage: 1 ~ 110 – 120 V, 1 ~ 200 – 240 V, 3 ~ 200 – 240 V, 3 ~ 380 – 500 V
Power: 0.25 – 22 kW

NORDAC LINK SK250E Feldverteiler *LogiDrive*® (Catalogue E3000)



- ✓ Frequency inverter or motor starter
- ✓ All connections in plug-in version for easy commissioning and maintenance
- ✓ PLC functionality for drive-related functions

Sizes: 3
Voltage: 3 ~ 380 – 500 V
Power: Frequency inverter 0.37 – 7.5 kW, motor starter 0.12 – 3 kW



NORDAC ON – strong focus, optimum function

The decentralised frequency inverter particularly serves the special requirements of horizontal conveyor technology. The NORDAC ON has been developed for IE3 drives while the NORDAC ON+ has been optimised for the combination with the IE5+ synchronous motor. It is characterised by an integrated Ethernet interface and full pluggability as well as a very compact design. An economic plug-and-play solution for IIoT environments

- Power range: 0.37 - 0.95 kW
- Protection class: IP55, IP66
- Wall or motor mounting
- Multi-protocol Ethernet interface
- Plug-and-play solution for fast commissioning

| Motor | BG1 | BG2 | BG3 |
|---------------------|---------------------------|----------------------------|----------------|
| 63 LP/4 – 2,600 rpm | 1.25 Nm – 0.31 kW – 1.2 A | 1.25 Nm – 0.31 kW – 1.2 A* | |
| 71 SP/4 – 2,600 rpm | 1.7 Nm – 0.43 kW – 1.5 A | 1.7 Nm – 0.43 kW – 1.5 A* | |
| 71 LP/4 – 2,600 rpm | | 2.5 Nm – 0.64 kW – 1.9 A | |
| 80 SP/4 – 2,600 rpm | | 3.67 Nm – 0.95 kW – 2.2 A | |
| ASM 90 – 2,600 rpm | | | In preparation |

Features

- ▶ SI worm gears
- ▶ IE3 motor, developed for FI operation
- ▶ 350 V motor
- ▶ 87 Hz characteristic curve
- ▶ Version reduction
- ▶ Pre-configured standard versions
- ▶ Pluggable
- ▶ Ethernet on board
- ▶ Motor-mounted or wall-mounted
- ▶ All customary conveyor belt options are integrated

Greater powers in 87 Hz can be equipped with NORDAC FLEX until BG3 is available.

EN

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