

INTELLIGENT DRIVESYSTEMS, WORLDWIDE SERVICES



**DRIVE SOLUTIONS FOR
THE TYRE INDUSTRY**



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NORD DRIVESYSTEMS Group

Headquarters and technology centre in Bargteheide, near Hamburg



Innovative drive solutions for more than 100 branches of industry

Mechanical products	Electrical products	Electronic products
Gear units	Motors	Frequency inverters, motor starters and field distributors

7 production locations with cutting-edge technology produce gear units, motors, inverters etc. for complete drive systems from a single source.



Gear unit production



Motor production



Inverter production

Subsidiaries and sales partners in 98 countries on 5 continents provide local stocks, assembly centres, technical support and customer service.



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

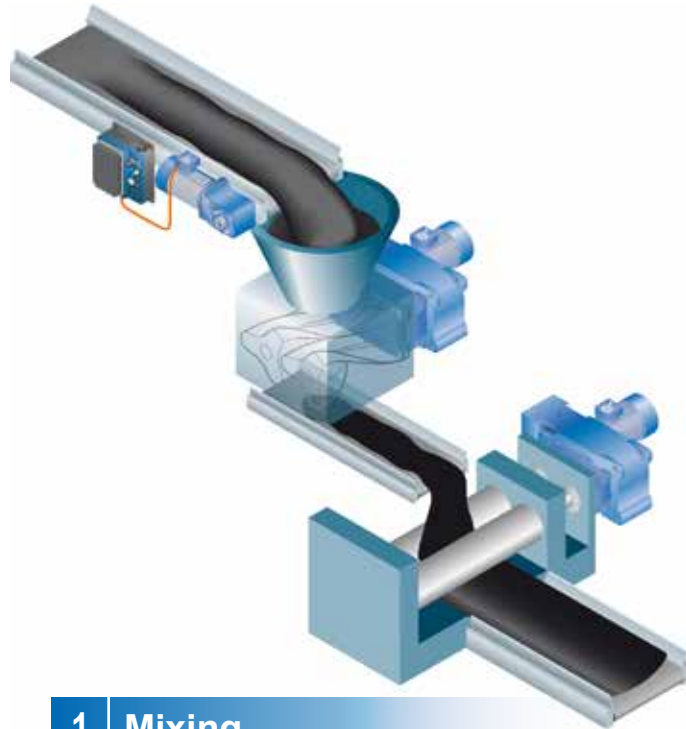


NORD DRIVE SOLUTIONS FOR THE TYRE INDUSTRY

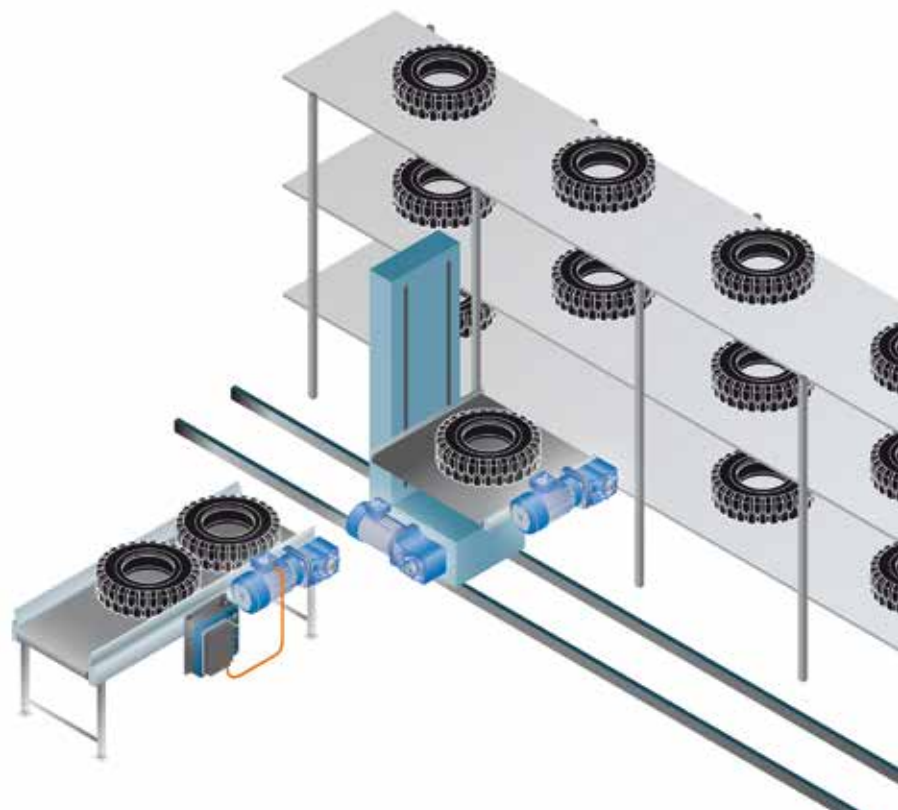
NORD DRIVESYSTEMS is a leading international drive technology company and provides solutions which are used all over the world.

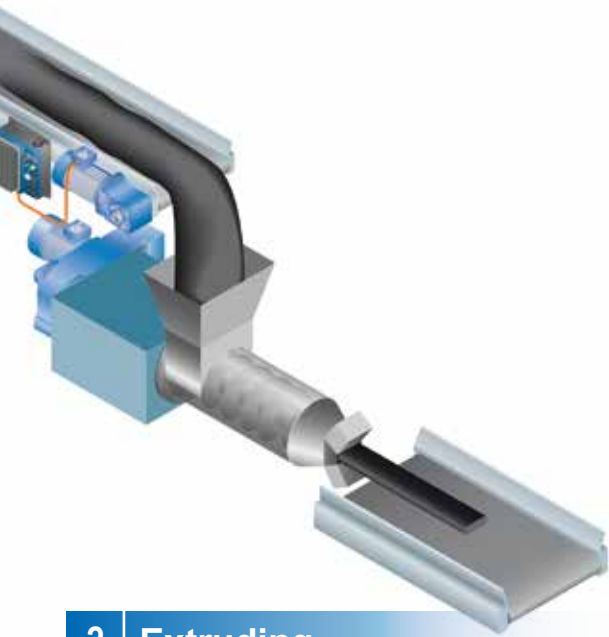
NORD DRIVESYSTEMS provides:

- Extensive knowledge of applications and technical support
- Complete drive solutions from a single source
- Strong global presence and service
- Thousands of installed drives in a wide range of applications throughout the world
- Wide range of products with high quality standards
- Great reliability, economy and service life
- Recognised product quality compliant with international standards

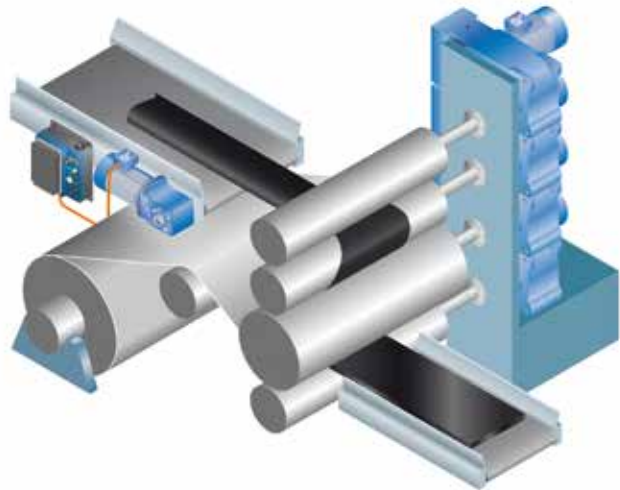


1 Mixing

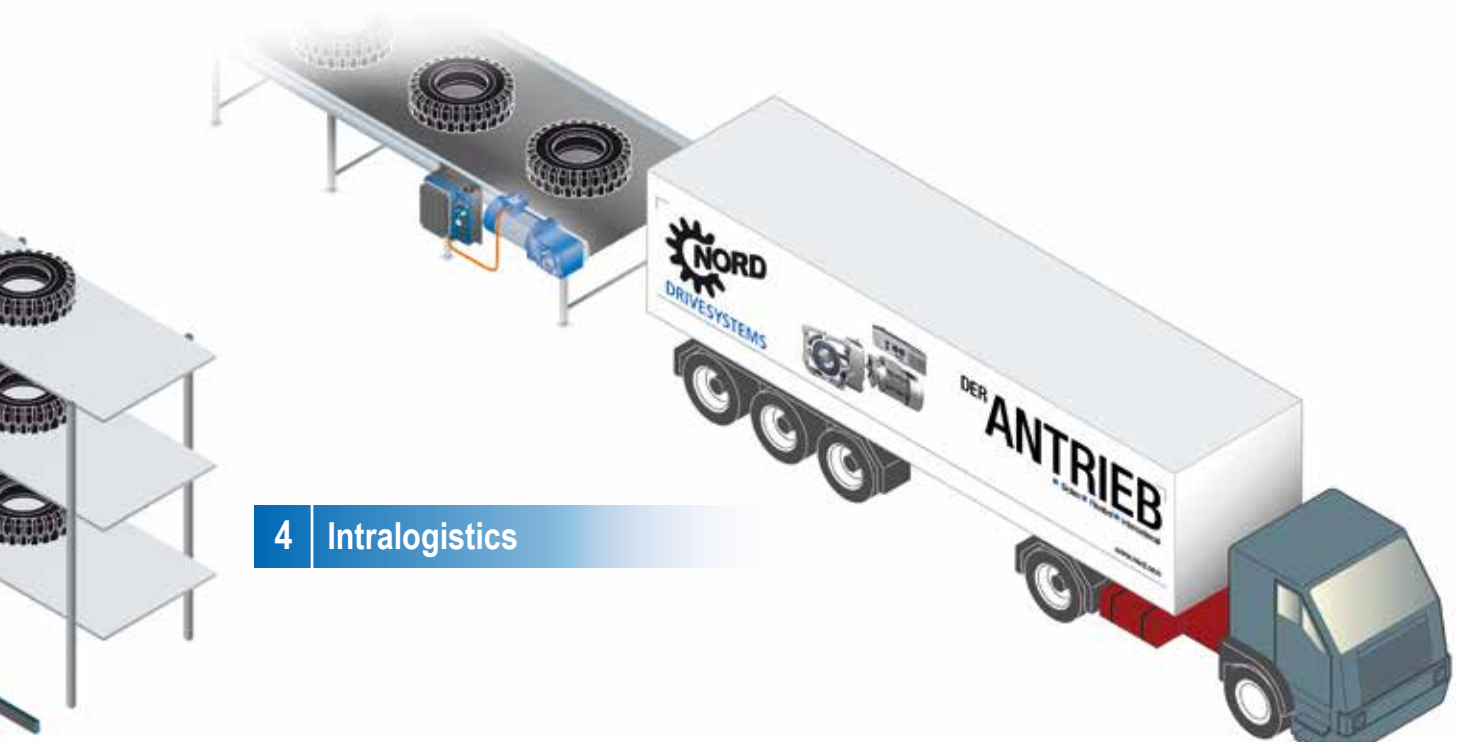




2 Extruding



3 Calendering



4 Intralogistics

APPLICATIONS IN THE TYRE INDUSTRY

NORD DRIVESYSTEMS covers a wide variety of applications in the tyre industry with industry-specific, innovative drive solutions.

We are thoroughly familiar with the requirements of your branch of industry. We place a high value on long-term cooperation with our customers and partners. You can be certain that we will use our entire expertise to strengthen the reputation of your brand.

NORD DRIVESYSTEMS provides support:

DESIGN

- myNORD
- Reduced number of variants
- Project design/optimisation
- Drive system design
- Application solutions
- Green solutions
- CAD drawings


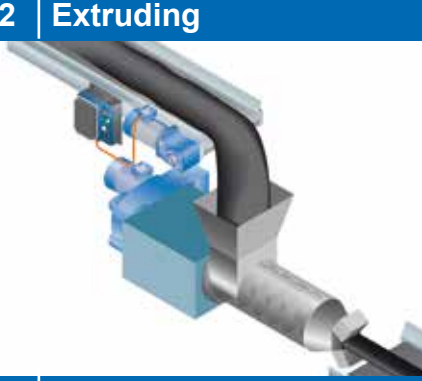


COMMISSIONING

- Plug-and-Play
- Support
- Training
- Documentation
- Smart commissioning

SERVICE

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

NORD DRIVESYSTEMS is your dependable worldwide project partner with subsidiaries and sales partners in 98 countries on 5 continents.

1	Mixing	 <p>The tyre production process starts by mixing the components. They are mixed at high temperatures and pressures to obtain an homogeneous mass.</p>
2	Extruding	 <p>An extruder consists of an extruder cylinder and an extruder screw. The rubber components are mixed in the extruder under high pressure and then pressed through a nozzle.</p>
3	Calendering	 <p>A calender consists of several large diameter rollers, which roll the rubber mass out into thin layers. Depending on the requirements, a layer of textile or steel threads can be inserted between the layers.</p>
4	Intralogistics	 <p>Within the factory, the tyres are moved on belt and roller conveyors. The plant includes elevators, inclined conveyors and direction switches, as well as overhead conveyors.</p>

- Compact design
- Robust housing with high torque capacity
- Reinforced bearings with increased spacing as option
- Various output versions for adaptation to different mixing applications

- Special extruder flange for highest axial forces
- Versatile output shaft versions according to customers requirements

- Versatile mounting
- Compact design enables simple stacking of multiple gear units

- Reduction of variants for smaller local spare parts stocks
- Fully decentralised drive units with motor or wall mounted frequency inverters
- Energy efficient drive units
- Plug-and-Play inverters
- Easy maintenance and repair



NORD SOLUTIONS FOR THE TYRE INDUSTRY

EFFICIENT, RELIABLE AND PROVEN



Energy efficient

NORD DRIVESYSTEMS drive solutions are environmentally friendly and help to reduce operating costs and minimise CO₂ emissions.

- High efficient helical and bevel gear units achieve optimum power transmission performance.
- NORD motors comply with international energy efficiency classes up to IE4.
- NORD frequency inverters have energy saving functions to effectively reduce energy consumption.

Reduced number of variants

Careful and intelligent selection of NORD drive units reduces the number of variants and therefore inventory and spare parts costs.

- Reduction of the number of variants reduces operating costs, e.g. for servicing and maintenance and therefore reduces costs for the customer (TCO).
- The modular system simplifies engineering and commissioning.

Reliable

Reliability is our main focus when developing our drive solutions. All of our system components are precisely matched to each other and ensure smooth operation.

- UNICASE gear units ensure precise positioning of bearings and shafts.
- The gear units are extraordinarily robust, run very quietly and have a particularly long service life.
- NORD frequency inverters are equipped with safety functions to protect the drive system electronically.

Easy to service and maintain

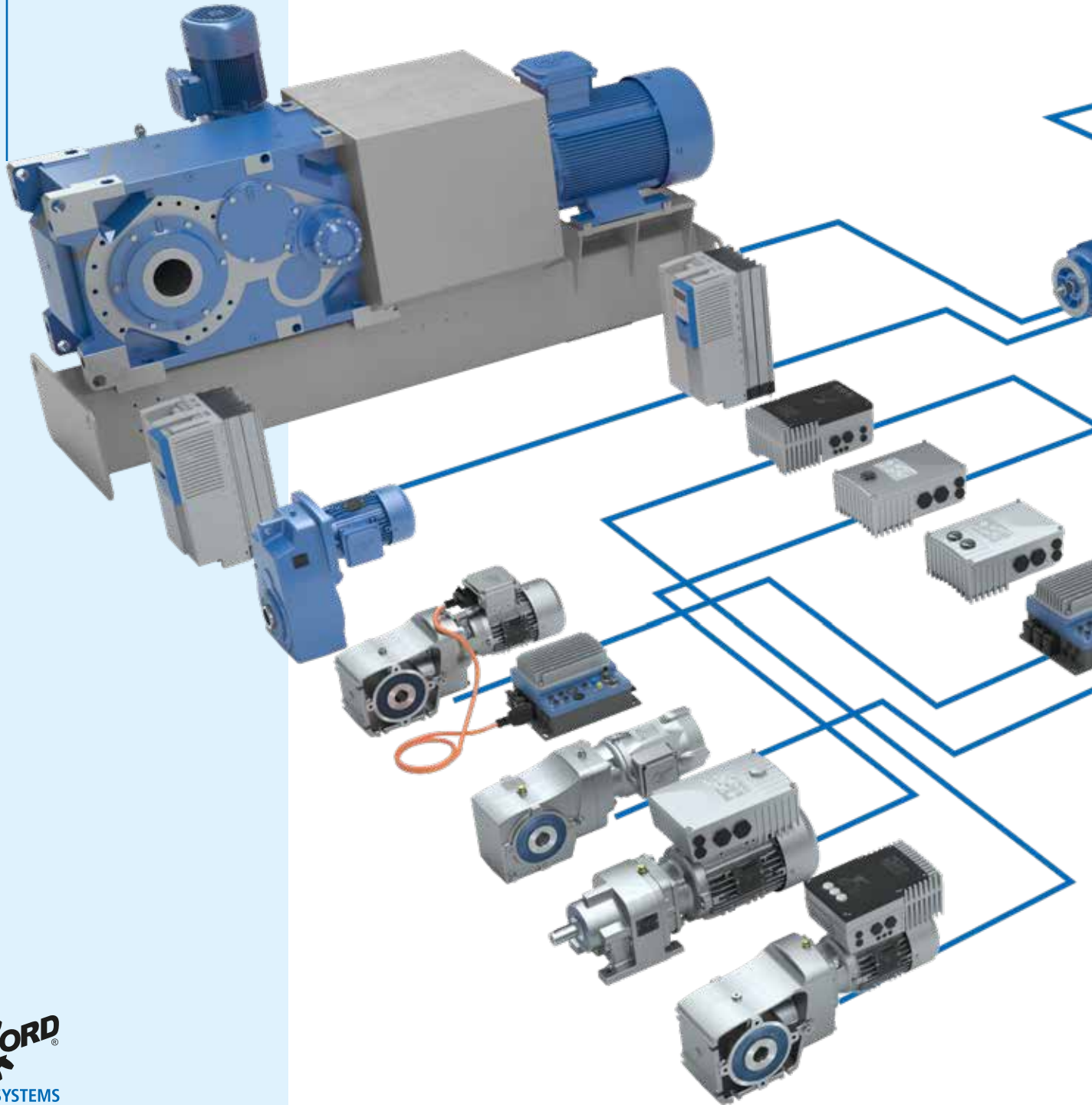
Thanks to their plug connections and modular structure, NORD drive units are especially easy to service and maintain. They therefore help to reduce down times and increase plant availability.

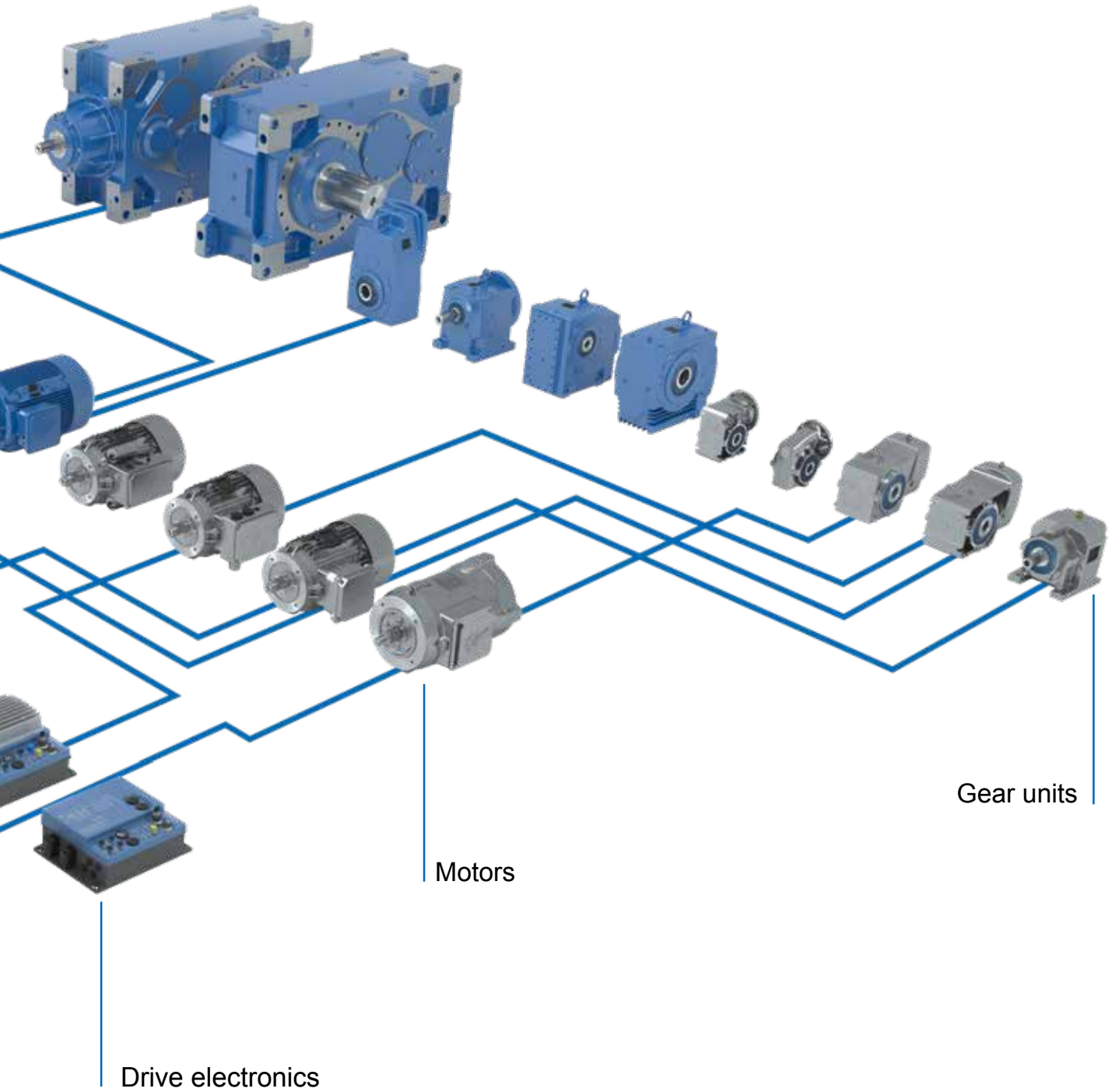
- System solutions specially customised to the tyre industry
- Simple commissioning
- Global NORD network
- Easy to service and maintain
- Reduced Total Cost of Ownership (TCO)
- Modular design
- Energy savings
- Project support



COMPLETE DRIVE SOLUTIONS FROM A SINGLE SOURCE

Drive solutions





With these three components – gear unit, motor and drive electronics – the NORD product range provides optimum, tailored drive solutions. Each of the variants combines the highest product quality, short planning and assembly times, high delivery availability, and an excellent price/performance ratio.

THE IDEAL SOLUTION FOR INTRALOGISTICS IN THE TYRE INDUSTRY

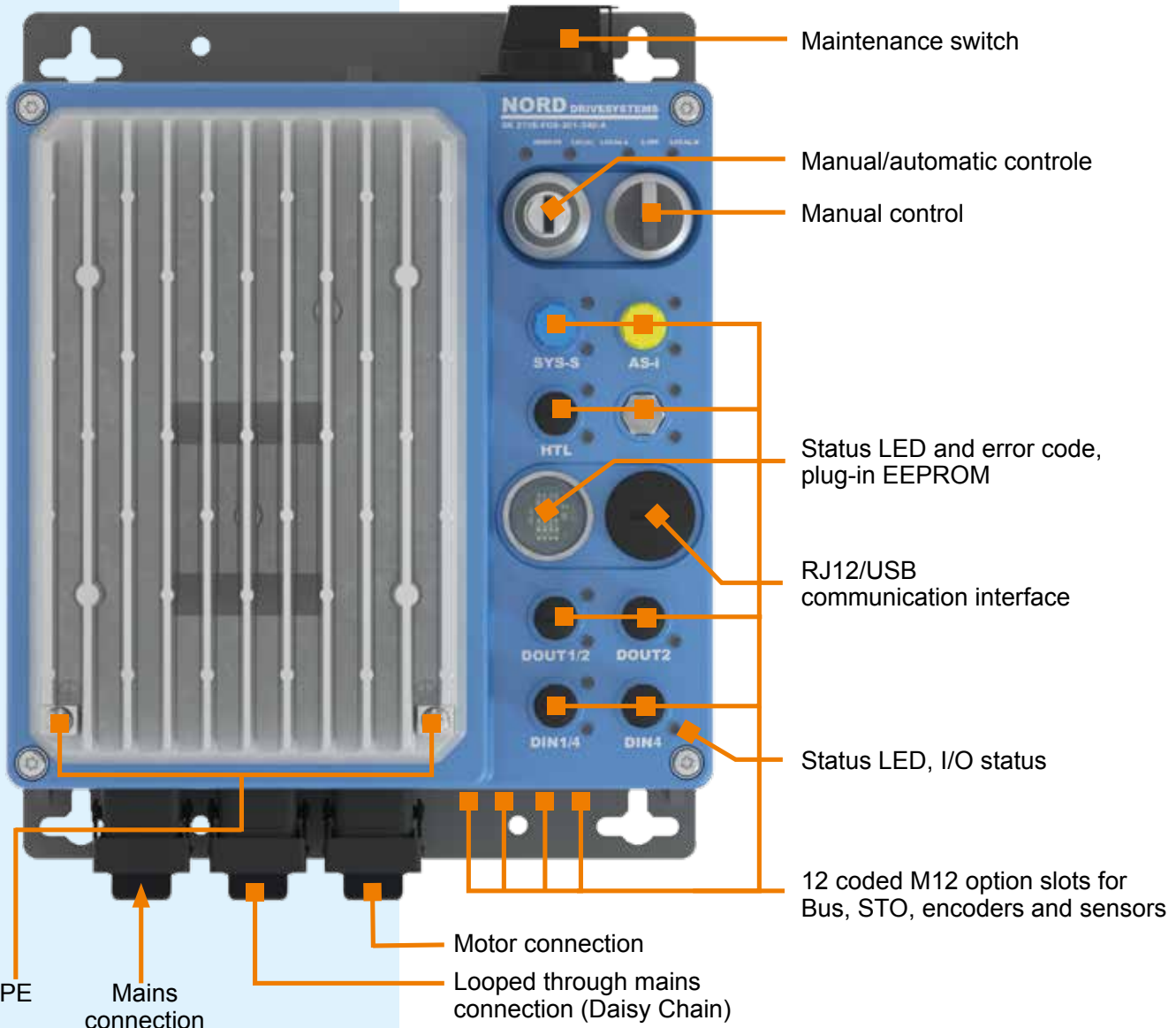


- High-efficient 2-stage bevel gear unit
- IE4 PMSM* synchronous motor
- Power plug connector
- Signal connector
- Incremental encoder (optional)
- Pre-assembled cables
- High overload capacity
- Motor power 1.1 – 5.5 kW



* permanent magnet synchronous motor

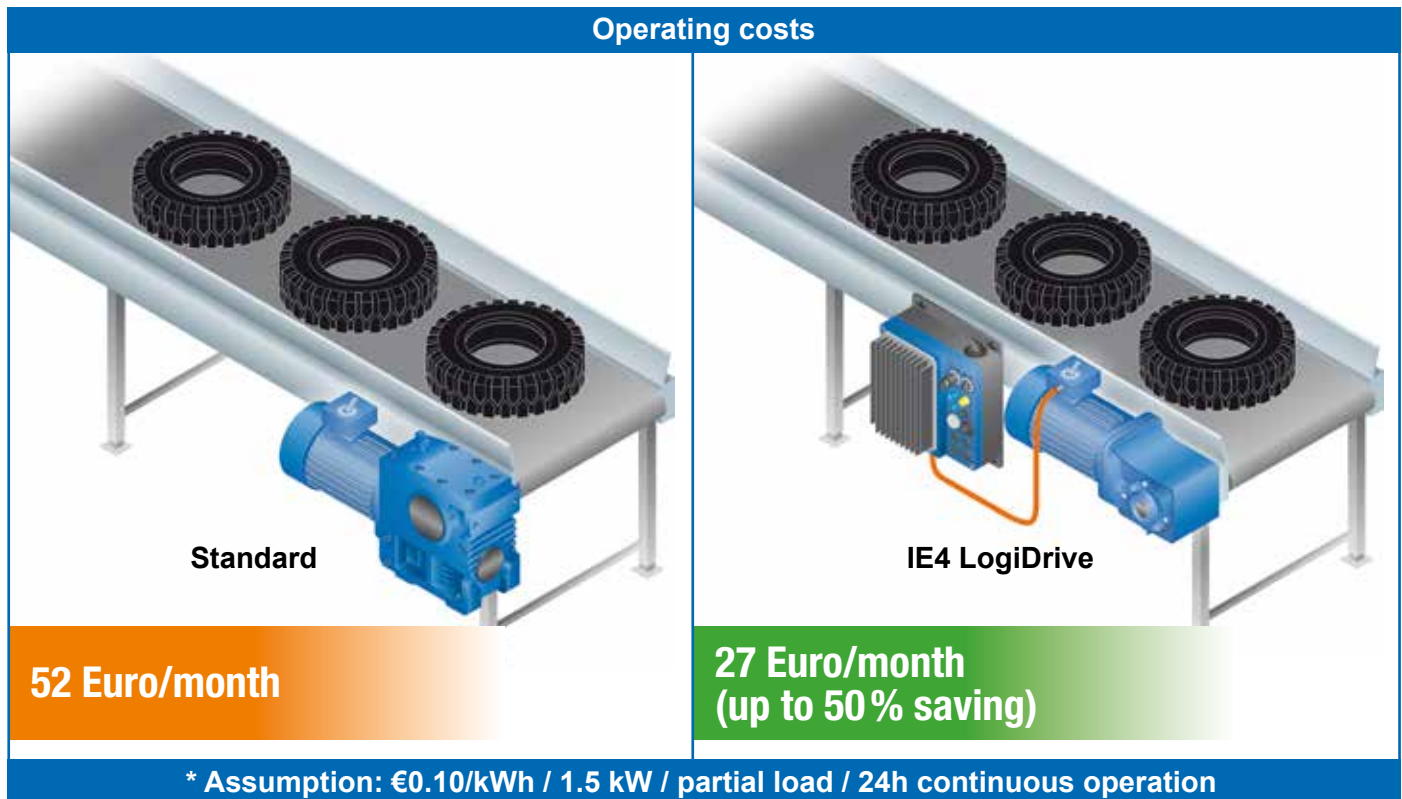
NORDAC LINK Field Distributor



High-efficiency IE4 motors

The IEC 60034-30 standard specifies the efficiency requirements for IE4 motors. NORD permanent magnet synchronous motors meet and exceed these

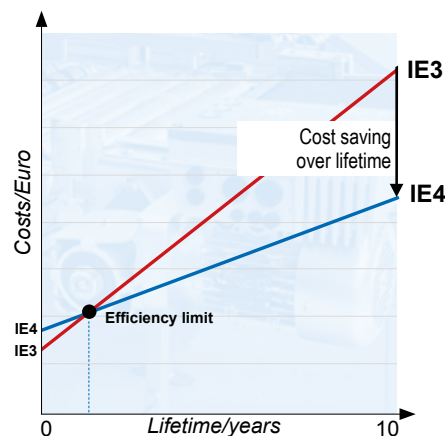
standard requirements. With their high efficiency and excellent performance, our IE4 motors increase the energy efficiency of your plant.



Overall operating costs

Our LogiDrive utilises its full potential in applications which are characterised by partial loads and low speeds. Use of IE4 synchronous motors enables considerable cost savings in tyre production.

Over its entire lifespan, the LogiDrive solution produces large cost savings and rapidly achieves profitability with only a low additional investment.



means energy efficiency:

- By compliance with the most stringent energy efficiency directives
- Due to considerably reduced total operating costs
- Due to high efficiency, even in partial load ranges and at low speeds thanks to PMSM technology

HIGH PERFORMANCE APPLICATIONS FOR THE TYRE INDUSTRY

Users do not just need drive components, but rather complete solutions and functioning systems.

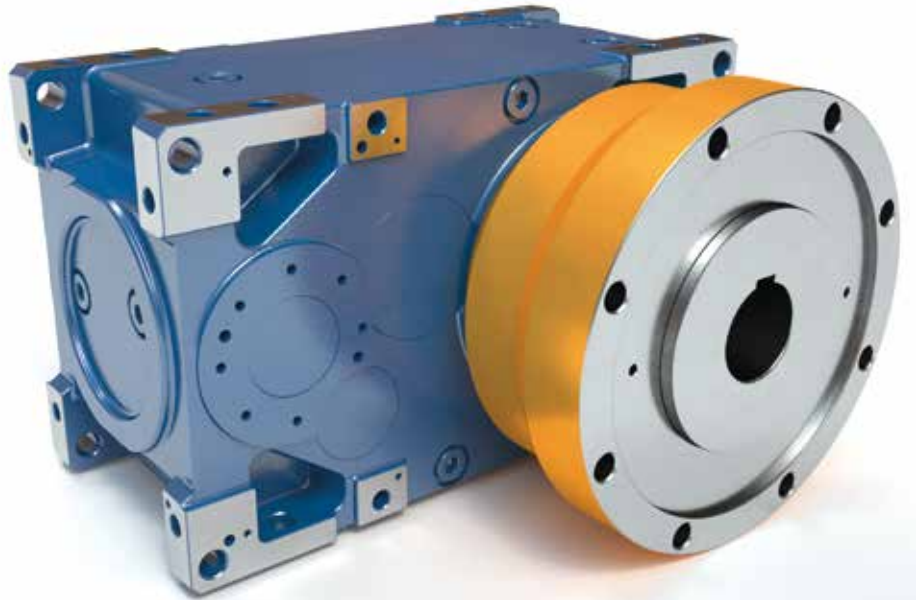
Because of this, NORD DRIVESYSTEMS pursues a consistent system philosophy, which is reflected in the perfectly matched modules of our range of industrial gear units. The optimally matched individual components form the basis for a wide range of versions, great flexibility and short planning and installation times. This enables the drive solutions to be individually tailored to the customer's requirements with short delivery times, even for large gear units.

MAXXDRIVE® industrial gear units (Catalogue G1050)

- Industrial gear units (hollow and solid shaft)
- Foot mounted motor (IEC B3)
- Flanged motor (IEC B5)
- Special bearings for axial forces (VL5)
- Compact housing
- Various internal or external cooling options
- Customized design of flange connection and shaft geometry

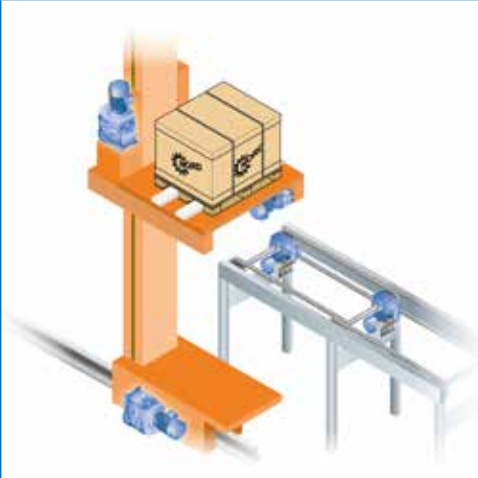
Sizes	11
Power	1.5 – 4,000 kW
Torque	15 / 20 / 25 / 30 / 40 / 50 / 75 / 110 / 150 / 190 / 250 kNm
Ratio	5.60:1 – 30,000:1

Due to their compact design and modular structure, NORD industrial gear units are the ideal solution for your applications for mixing, extruding and calendering.



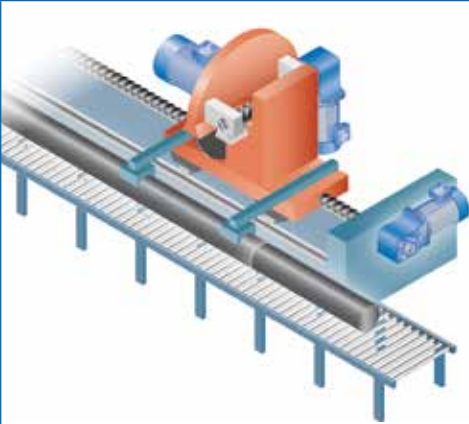
THE IDEAL SOLUTION FOR SERVO APPLICATIONS

Drives for positioning applications



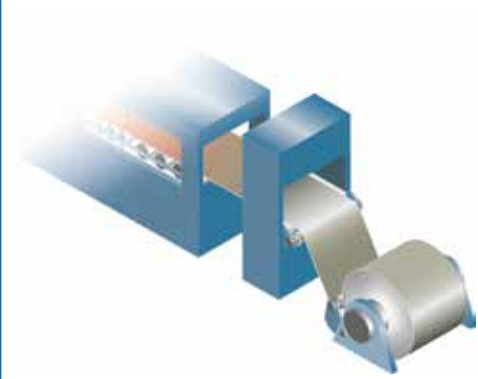
- Storage and retrieval devices
- Lifting platforms, lifting systems
- Overhead and portal cranes
- Stacking and palletising systems
- Turntables

Drives for synchronised applications/ axis coordination



- Lifting stations
- Rolling, drawing and stretching
- Conveying and alignment of endless materials
- Cross cutters
- Flying saw
- Linear XYZ - portal systems

Drives for winding applications



- Winders and unwinders for various materials
- Paper roll handling: longitudinal cutters, laminators, etc.
- Coordinated cutting blade

A servo drive unit is a drive unit with electronic control of the position, speed or torque, with exceedingly high demands for dynamics, adjustment range and/or precise movement.

NORD DRIVESYSTEMS supplies drive solutions consisting of

- Motors (ASM/PMSM)*
- Gear units
- Drive electronics
- Accessories (cables, plug connectors, encoders) for a wide range of servo applications.

All components are from the NORD product range and therefore provide great advantages with regard to costs and flexibility.

Applications such as positioning, synchronous operation or winding can normally be implemented from the NORD product range.

Please contact us for solutions from NORD DRIVESYSTEMS if you use servo drives.

* ASM = Asynchronous motor

PMSM = Permanent magnet synchronous motor

Automated guided vehicles, stacker cranes or any other conveyor systems: NORD DRIVESYSTEMS offers the ideal drive solution for every application.

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