

INTELLIGENT DRIVESYSTEMS, WORLDWIDE SERVICES



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**DRIVE SOLUTIONS FOR
THE BAKERY INDUSTRY**

NORD[®]
DRIVESYSTEMS

DRIVE SOLUTIONS FOR THE BAKERY INDUSTRY



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 BAKERY INDUSTRY

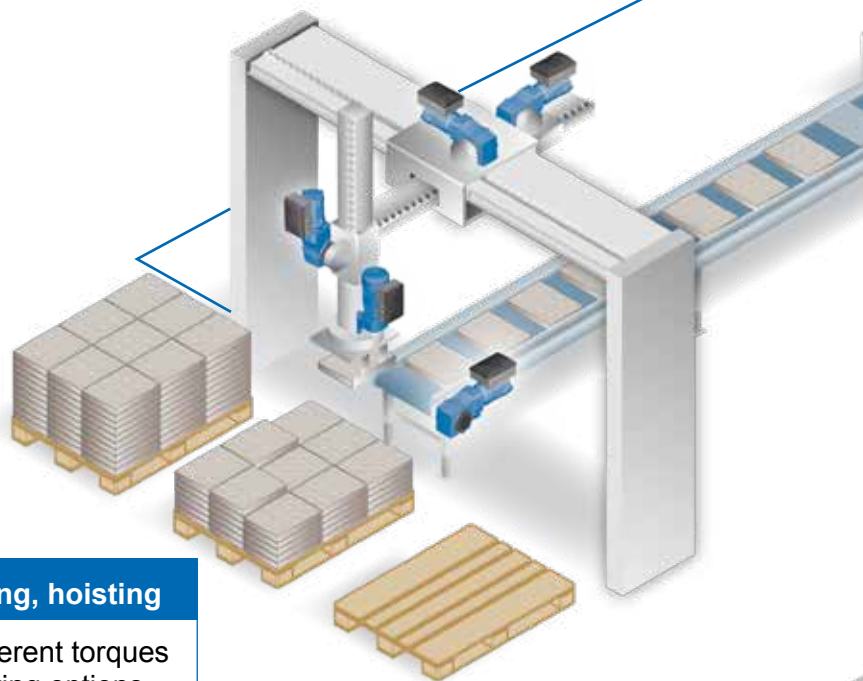
NORD DRIVESYSTEMS is one of the world's leading suppliers of drive solutions for the bakery industry.

NORD DRIVESYSTEMS provides:

- Extensive knowledge of applications and technical support
- Complete drive solutions from a single source
- Strong global presence and service
- A great number of drives installed in the food industry
- Comprehensive, versatile range of high quality products
- Great reliability, economy and service life
- Recognised product quality compliant with international standards
- Drives designed to meet the hygienic requirements of the bakery industry

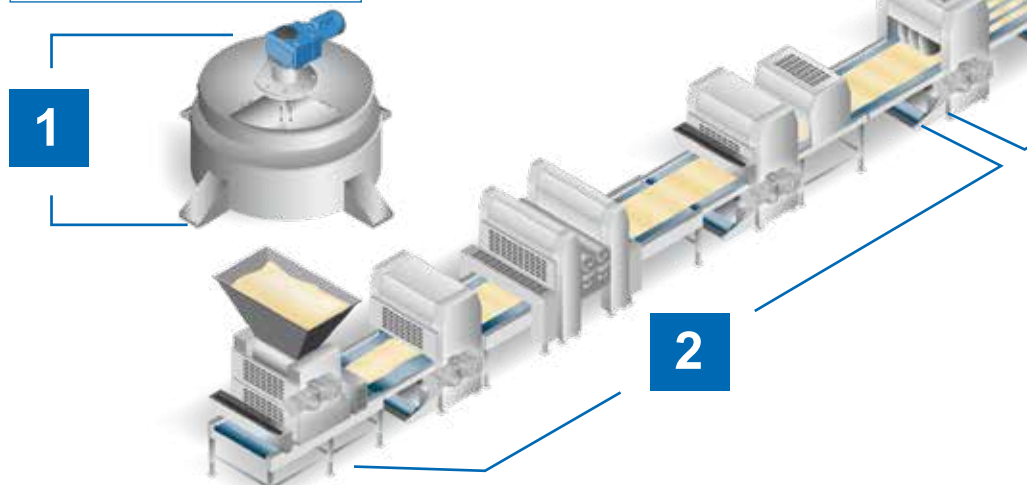
6 Labelling, tagging, packing, palletising

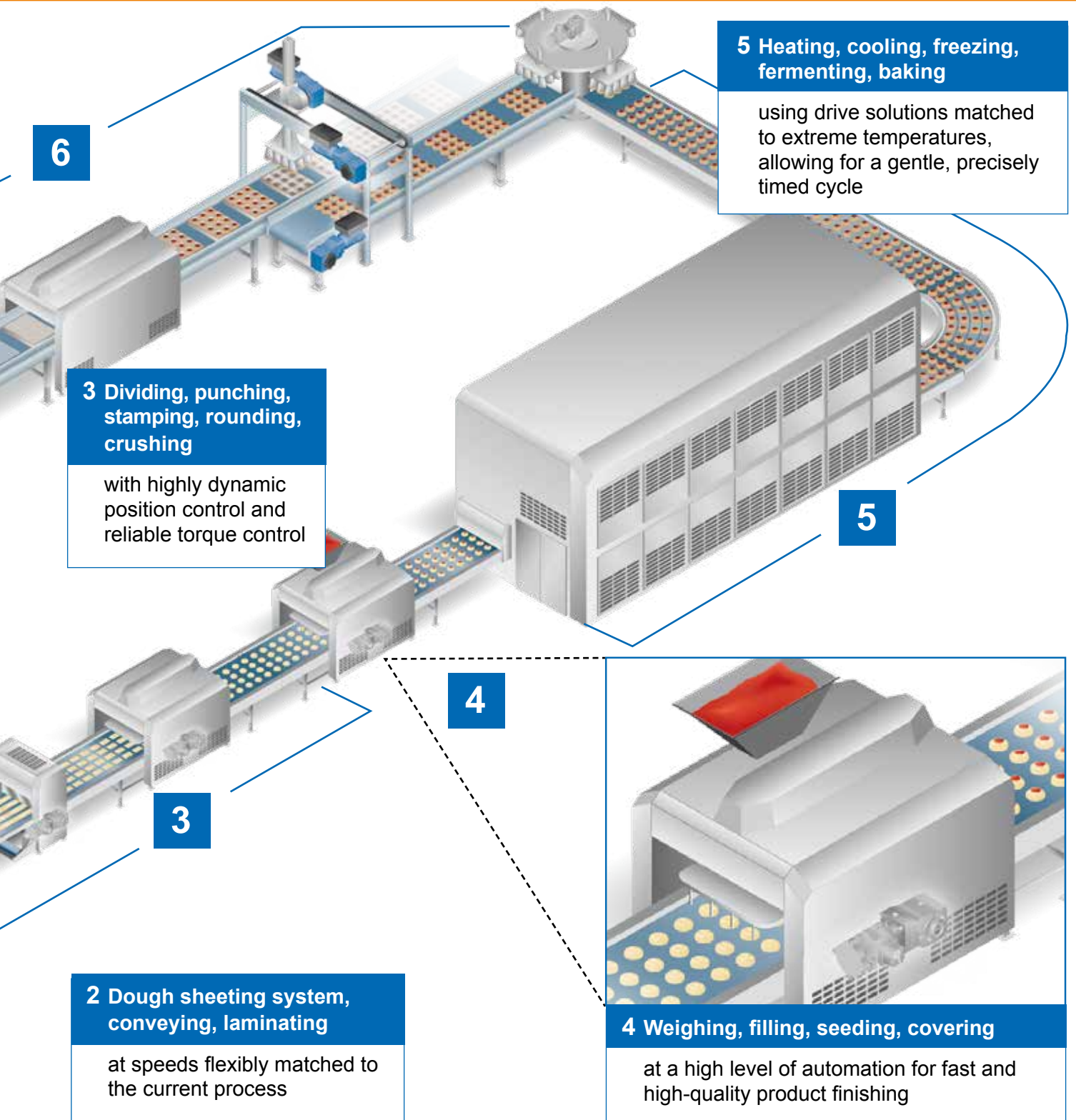
with dynamic, precise control units



1 Kneading, hoisting

with different torques and setting options for individual dough properties



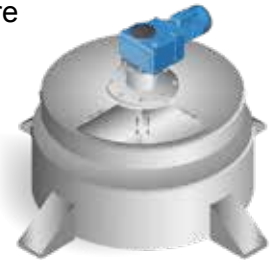


APPLICATIONS IN THE BAKERY INDUSTRY



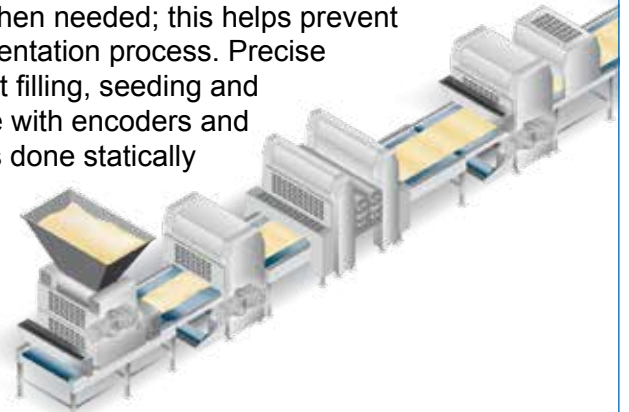
1 Kneading, hoisting

To be perfect, each type of dough requires a specific kneading speed and specific processing steps. With the NORD DRIVESYSTEMS inverter technology, desired speeds, “safe stop” and reversing operation are possible. Reinforced bearings and agitator versions ensure that large axial and radial forces are absorbed permanently. Dual-gear agitators with counter rotating shafts are available upon customer’s request. Intelligent sealing solutions prevent any leakage and in this way protect the foodstuff product. The gear unit is available with food grade oil filling.



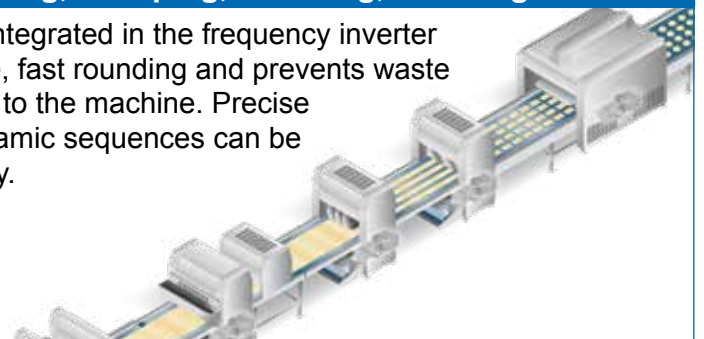
2 Dough sheeting system, conveying, laminating

As NORD drives can be controlled individually, the line speed is variable and adjustable when needed; this helps prevent jams and control the fermentation process. Precise positioning for subsequent filling, seeding and covering is made possible with encoders and sensor technology. This is done statically or dynamically.



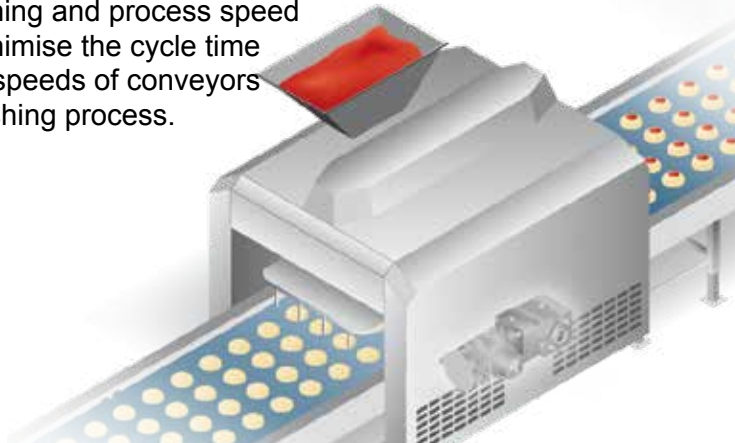
3 Dividing, punching, stamping, rounding, crushing

Torque monitoring integrated in the frequency inverter ensures appropriate, fast rounding and prevents waste dough from sticking to the machine. Precise positioning and dynamic sequences can be implemented reliably.



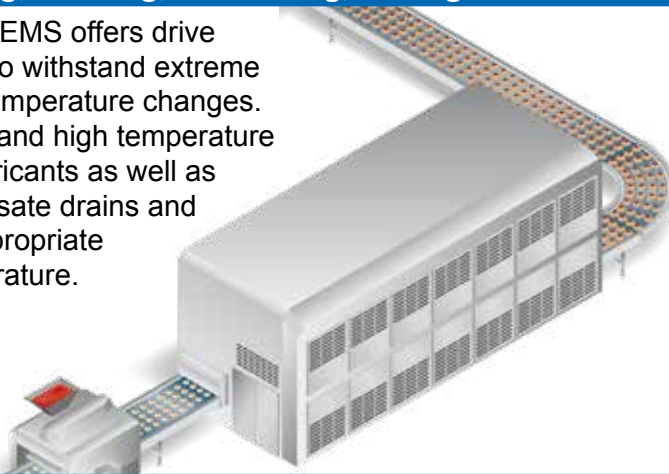
4 Weighing, filling, seeding, covering

Precise positioning and process speed control help minimise the cycle time and match the speeds of conveyors used in the finishing process.



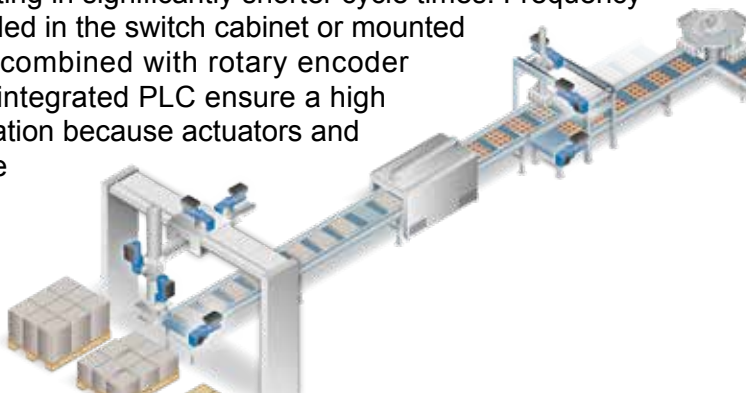
5 Heating, cooling, freezing, fermenting, baking

NORD DRIVESYSTEMS offers drive solutions designed to withstand extreme temperatures and temperature changes. Food-grade H1 low and high temperature oils and bearing lubricants as well as integratable condensate drains and vents ensure an appropriate resistance to temperature.



6 Labelling, tagging, packing, palletising

With low-backlash drives, precise and dynamic moving becomes possible, resulting in significantly shorter cycle times. Frequency inverters installed in the switch cabinet or mounted on the motor, combined with rotary encoder feedback and integrated PLC ensure a high level of automation because actuators and sensors can be integrated.



NORD DRIVE TECHNOLOGY

RELIABLE AND ENERGY EFFICIENT



Explosion-protected NORD drive solutions

Under unfavourable conditions, flour dust and other fine-grained deposits can cause ignitions or explosions.

NORD DRIVESYSTEMS offer secure solutions for dust explosion protection in line with the ATEX directives.

Energy efficient

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

- High efficiency 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.



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Sealed Surface Conversion System

For cost-effective, hygienic drive solutions

nsd tupH describes a surface treatment which makes aluminium geared motors as resistant as stainless steel products and which is considerably more effective than anti-corrosion painting. In combination with stainless steel DIN and standard components, stainless steel shafts and food grade oil filling, nsd tupH drive units are ideal for hygienically demanding applications. They withstand even the most challenging environmental conditions, such as the chemical cleaning treatments used in the food, beverage, and pharmaceutical industries. The treated surfaces are scratch-proof, highly resistant, and do not corrode.

NORD geared motors with nsd tupH are the optimal choice for use in challenging environmental conditions:

- Easy to clean surfaces
- Resistant to acids and alkalis (wide pH range)
- No blistering, even if damaged
- No flaking
- Corrosion resistant, prevents contact corrosion
- Alternative to stainless steel
- Complies with FDA Title 21 CFR 175.300
- Free from chromates
- Excellent heat conduction
- Light weight
- Low surface temperature

The complete solution for extreme conditions:

- Surface-treated housing components
- DIN and standard components made from stainless steel
- Wash-down housing (gear unit and motor)
- Stainless steel shafts
- Special shaft sealing rings
- Food grade oil

Tests performed on surface-treated aluminium housing components:

- ASTM D714 Blister formation
- ASTM D610-08 Corrosion
- ASTM D1654-08 Scratching
- ASTM B117-09 Salt spray test
- ASTM D3170 gravelometer test
- DIN EN ISO 9227 Salt spray mist test
- DIN EN ISO 2409 Cross-cut test



Protection class IP69K

- Protection compliant with IEC 60529 ISO 20653
- IP6x: Dust-proof
- IPx9K: Protection against water for high pressure steam cleaning

Advantages of clean drive units

- Complete solutions
- Great flexibility thanks to NORD's modular system
- Wide range of options
- Excellent price/performance ratio

To the left in the image:
Painted geared motor after 12 months of use



To the right in the image:
Geared motor with nsd tupH surface treatment after 12 months of operation



Get our
nsd tupH flyer
S3900 here

NORD DRIVE SOLUTIONS

SECURE, PROVEN AND MAINTENANCE-FRIENDLY



Reliable

From pinions to circuit boards, all NORD mechatronic components are produced in our own factories, which means unsurpassed reliability, long operating times, long service life and low total operating costs. Countless options cater for all requirements of the bakery industry.

- Special lubricants for low/high temperatures
- Temperature sensors to protect against overheating
- Protection class IP66 or IP69K for cleaning with hot water
- Stainless steel shafts and accessories; metal fan blades; fanless designs
- Protection against moisture: rust protection (dust and rust); multi-layer coatings; nsd tupH

Proven and hygiene-friendly

Demanding environments are common in the bakery industry. These include extreme temperatures, use of high pressure jet cleaning and various hazardous areas, e.g. alcoholic liquids and chemically aggressive environments in cleaning processes. NORD special solutions for this problem have proven themselves throughout the world.

- Explosion protected motors (ATEX, NEC) for Zone 1/21 and Zone 2/22 explosion hazard areas
- nsd tupH surface treatment system to protect against corrosion, chemical, pressure jet and steam jet cleaning
- Dairy versions: Condensate drains, anti-condensation heaters

Easy to service and maintain

Thanks to their optional 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. With subsidiaries and sales partners in 98 countries on 5 continents, NORD DRIVESYSTEMS ensures worldwide support.

DER ANTRIEB

■ Reliable ■ Versatile ■ Global



The Gear Unit

- Generously dimensioned bearings
- High power density
- High level of corrosion protection

The Motor

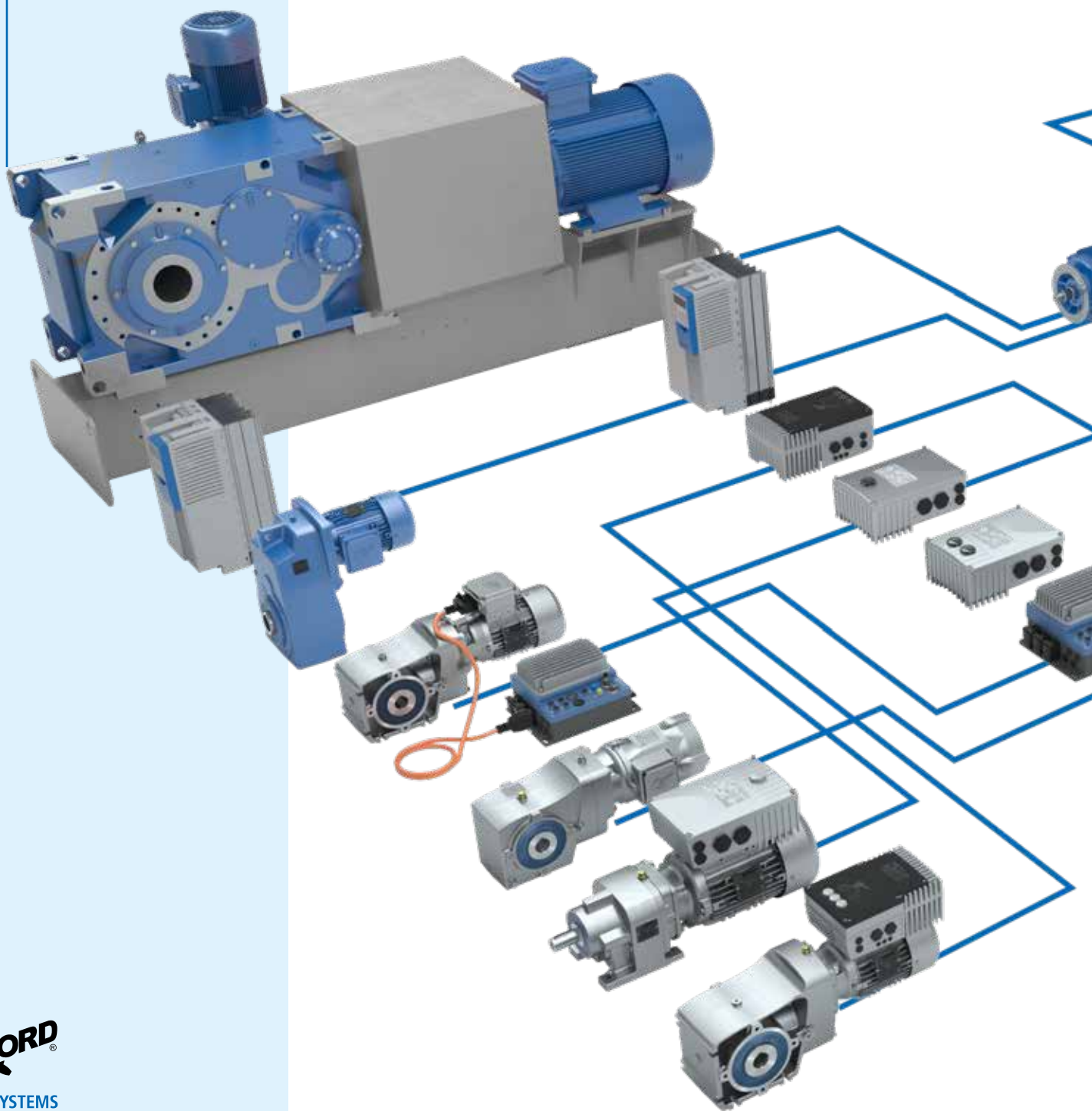
- High efficiency
- International standards
- All operating conditions

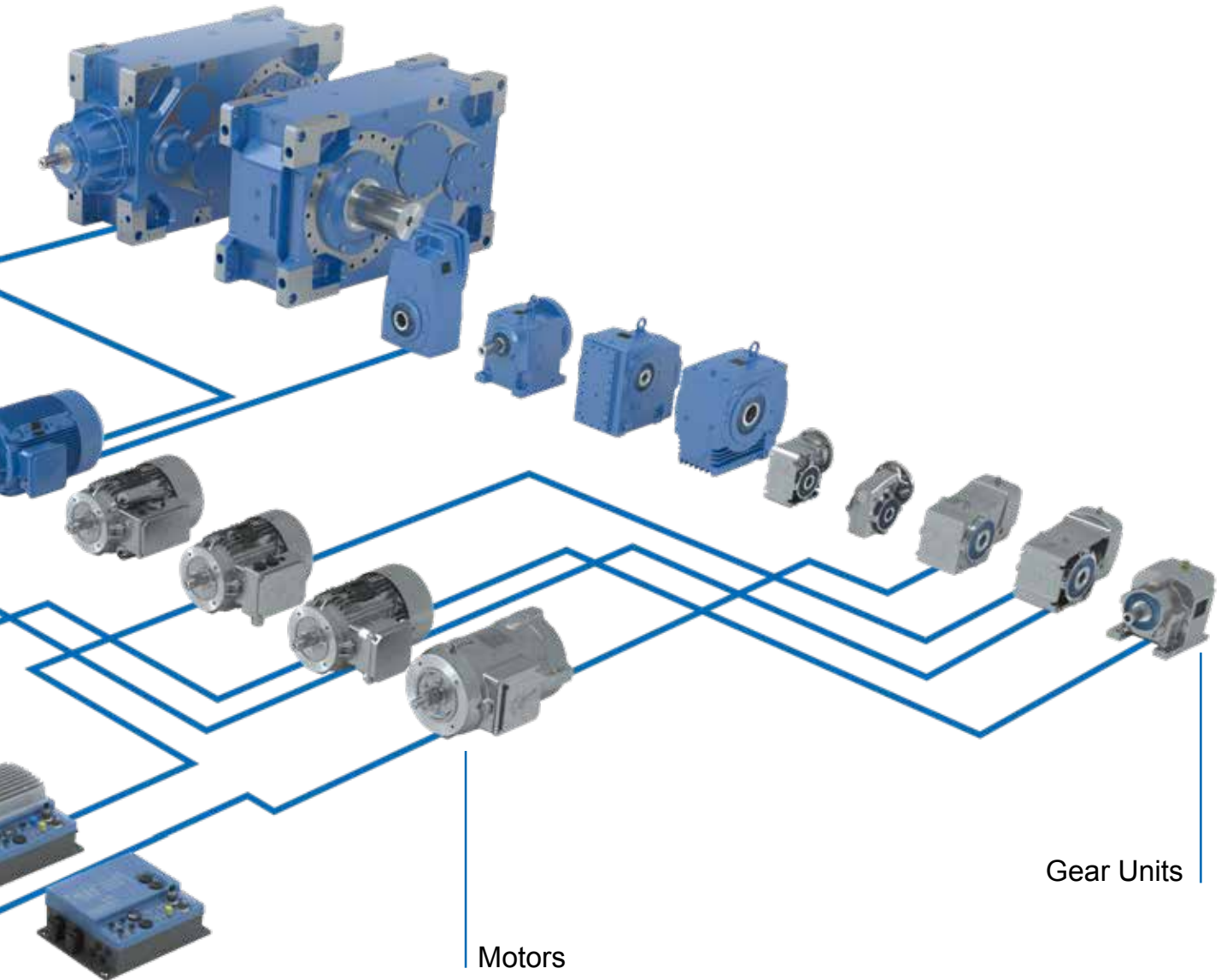
The Drive Electronics

- Compact design
- Simple commissioning
- Protection class up to IP69K

COMPLETE DRIVE SOLUTIONS FROM A SINGLE SOURCE

Drive Solutions





Gear Units

Motors

Drive electronics

An optimum and individual drive solution can therefore 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.

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



- ✓ Foot, flange or shaft mounted
- ✓ Hollow or solid shaft
- ✓ UNICASE cast-iron housing

Power	0.12 – 9.2 kW
Torque	50 – 660 Nm
Speed ratio	3.03:1 – 70:1

NORDBLOC.1® helical gear units (Catalogue G1000)



- ✓ Foot or flange mounted
- ✓ Die-cast aluminium housing
- ✓ UNICASE housing
- ✓ Industry standard dimensions

Power	0.12 – 37 kW
Torque	30 – 3,300 Nm
Speed ratio	1.07:1 – 456.77:1

UNIVERSAL SMI worm gear units (Catalogue G1035)



- ✓ Modular
- ✓ Universal mounting options
- ✓ Life-long lubrication
- ✓ IEC version

Power	0.12 – 4.0 kW
Torque	21 – 427 Nm
Speed ratio	5.00:1 – 3,000.00:1

UNICASE bevel gear units (Catalogue G1000)



- ✓ Foot, flange or hollow shaft mounted
- ✓ Hollow or solid shaft
- ✓ Various bearing concepts for high axial and radial load capacities

Power	0.12 – 200 kW
Torque	180 – 50,000 Nm
Speed ratio	8.04:1 – 13,432.68:1

Smooth motors (Catalogue M7010)



- ✓ Sizes 80, 90, 100
- ✓ IP66/IP69K (optional)
- ✓ Aluminium motors
- ✓ nsd tupH surface treatment (optional)

Power	0.12 – 2.2 kW
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NORDAC BASE frequency inverter SK 180E (Flyer F3018)



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

Voltage	1~ 110 – 120 V
	1~ 200 – 240 V
	3~ 200 – 240 V
	3~ 380 – 500 V

Power	0.25 – 2.2 kW
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NORDAC FLEX frequency inverter SK 200E (Flyer F3020)



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

Voltage	1~ 110 – 120 V
	1~ 200 – 240 V
	3~ 200 – 240 V
	3~ 380 – 500 V

Power	0.25 – 22 kW
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NORDAC PRO frequency inverter SK 500E (Flyer F3050)



- ✓ Energy-saving function
- ✓ Integrated POSICON positioning control
- ✓ Plug-on communication modules (field bus)

Voltage	1~ 110 – 120 V
	1~ 200 – 240 V
	3~ 200 – 240 V
	3~ 380 – 480 V

Power	0.25 – 160 kW
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Agitators, conveyors, weighing and filling plants: NORD DRIVESYSTEMS offers efficient and hygienic drive solutions for these and all other applications in the bakery industry.



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Member of the NORD DRIVESYSTEMS Group

