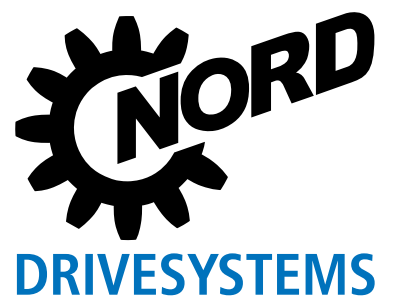


INTELLIGENT DRIVESYSTEMS, WORLDWIDE SERVICES

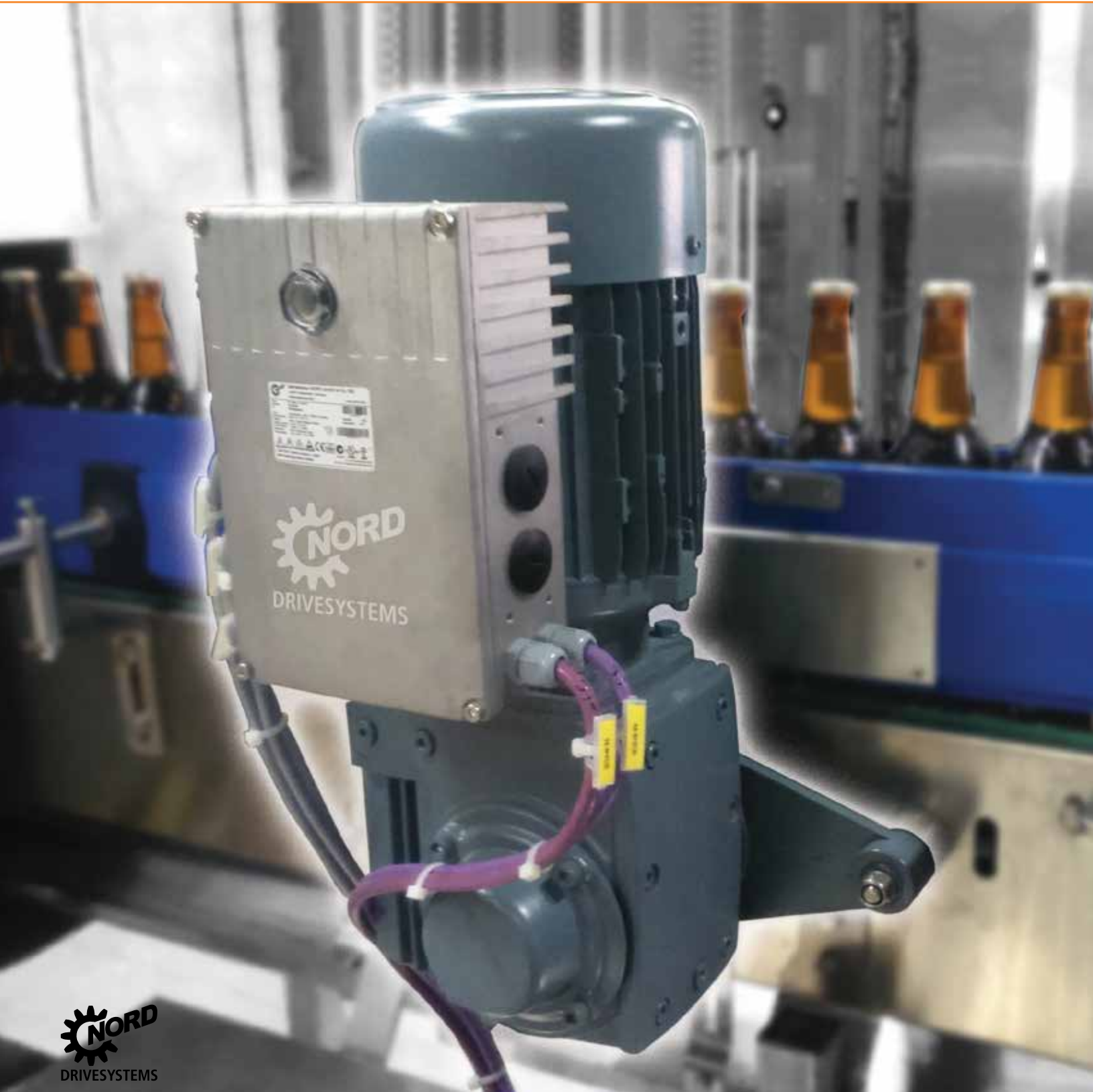


**DRIVE SOLUTIONS FOR
THE BEVERAGE INDUSTRY**



NORD DRIVESYSTEMS GROUP

SERVING THE BEVERAGE INDUSTRY





NORD Drivesystems - A Global Leader

Producing over 1 million reducers annually and employing 3000 people globally, NORD is constantly improving and expanding its products to meet the demands of the beverage industry.

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 units

Motors

Inverters & motor starters



Innovative drive solutions

- Products for many industries

DRIVE SOLUTIONS FOR THE BEVERAGE INDUSTRY

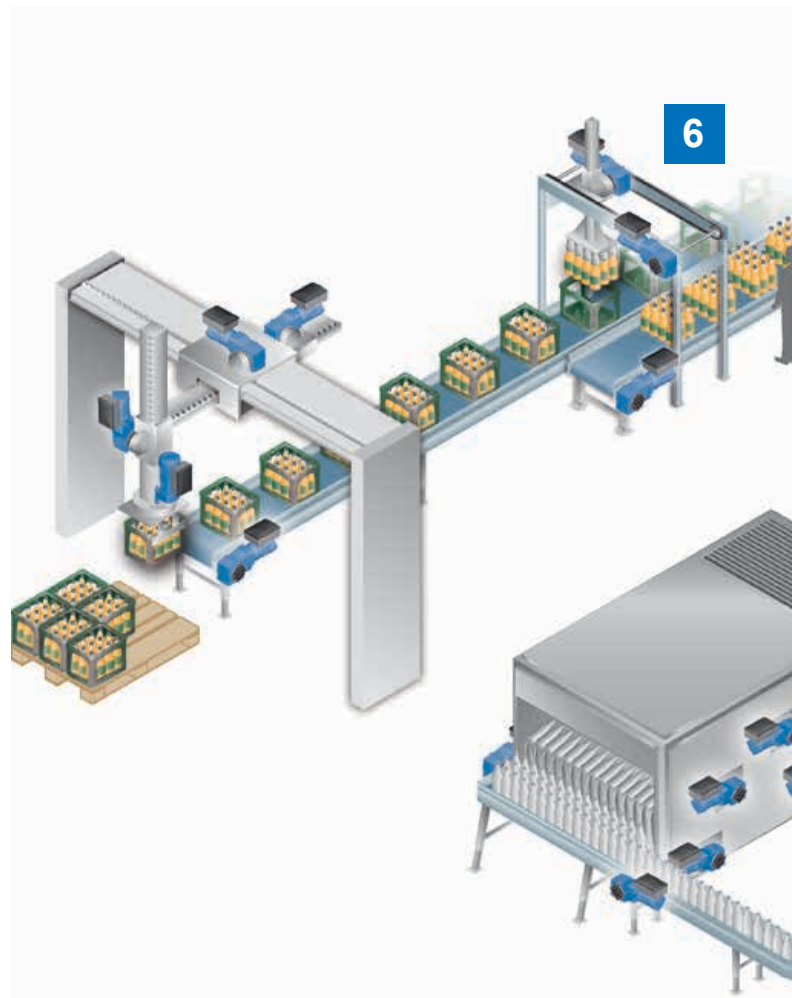
Complete Drive Solutions

NORD provides more than just the delivery of components. Drive solutions are created with close cooperation with the customer, therefore unnecessary options and special features are eliminated.

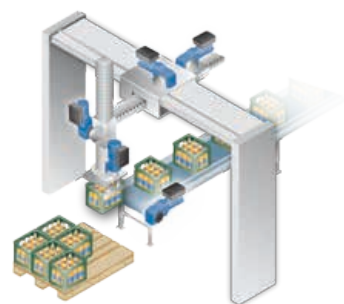
NORD drive solutions also contribute to an overall cost reduction by energy efficient operation, wear resistance and long service life.

From engineering & sales support to purchase & delivery, Nord helps you maximize your performance, productivity & profit.

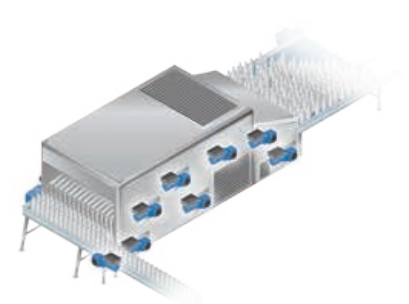
- Designed for maximum dependability
- Environmentally tough
- Built for dust & washdown operation under the most adverse conditions
- High quality gearing
- High Strength Gear Cases
- Rugged, Reliable & Dependable
- High Efficiency Bevel Gearing
- IE4 Super Premium Efficiency Motors Available
- Large operating range available
- Less Variants Needed
- Convenient Selection Kits Available
- Easy Commissioning
- Service Friendly Products - Gear Units, Motors & Inverters are separable



1 Palletizing 2 Washing / Rinsing 3



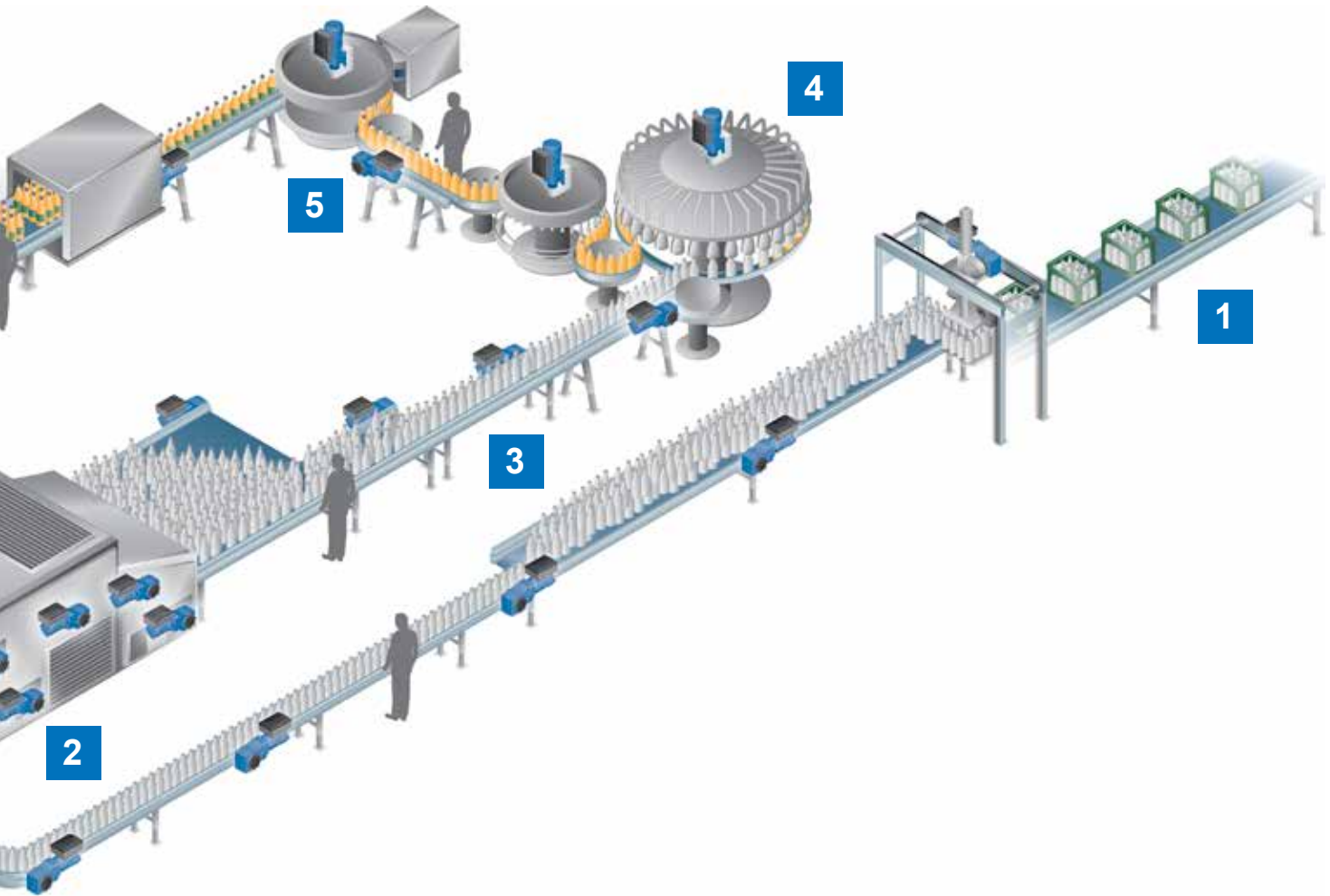
Palletizers are an automated way of stacking or unstacking goods onto pallets or into boxes. This shortens production time & alleviates unnecessary strain on employees.



Bottle washers & rinsers are used to thoroughly clean, drain & dry the container in a timely & efficient manner. This greatly reduces the possibility of contaminants in the end product.



NORD... of conv... the abil... beverag... & contro...

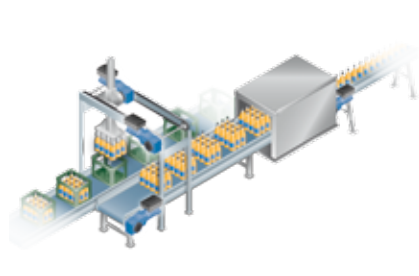
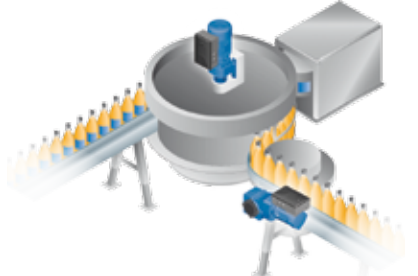
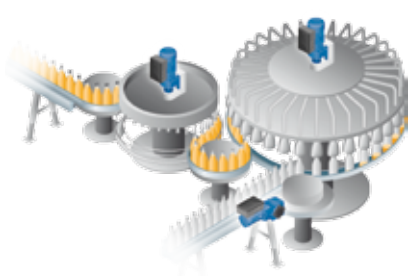
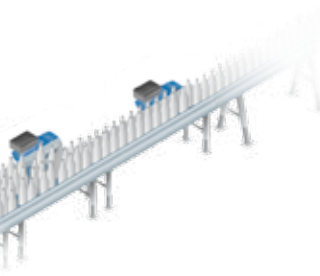


2 Conveying

4 Filling / Sealing

5 Labeling

6 Secondary Packaging



NORD specializes in many types of conveyor systems, offering you the ability to fully automate your production processes by powering and controlling your production line.

Automated filling and sealing equipment ensures the consistency of the sealing process, ensures safety and reassures the customer that their beverage is fresh & unopened before sale.

Whatever your container type, NORD powers a large variety of labeling equipment. From pressure sensitive labelers to hot glue labeling machines, we've got you covered.

Designed to protect both the product as well as its primary packaging. This process keeps the product visually appealing until it is placed on display.

APPLICATIONS FOR THE BEVERAGE INDUSTRY

Beverage Handling Application Chart

NORD designs and manufactures drive systems engineered for adaptability. NORD's innovative drive solutions are specified and utilized for a range of applications in nearly every industry throughout the world.

Plant & Facility Types

NORD Drivesystems can provide innovative products for your individual drive solutions to meet the requirements of a variety of beverage handling processes.

GLASS HOUSES

- Batch Mix
- Melt and Form
- Annealing and Inspection
- Packing

SODA, JUICES, SPORTS DRINKS, WATER, ALCOHOL, DAIRY

- Crushing and Pressing
- Bottle Wash / Rinse
- Filling
- Capping and Sealing
- Labeling
- Container Sterilizing
- Palletizing
- Depalletizers and Load

MANUFACTURERS OF CONVEYOR SYSTEMS AND MATERIAL HANDLING EQUIPMENT

- Palletizers and Depalletizers
- Spiral, Single File Spiral, Air, Belt and Cullet Conveyors
- Belt Spacers
- Continuous Motion Diverter
- Accumulators, Table top, Case Pack, Mat Top, Neck-Guided & Case Conveyors



Depalletizing / Palletizing

Palletizers and packaging machines require dynamic drive solutions and precise positioning on multiple axes simultaneously. NORD provides very reliable asynchronous/synchronous motor technology with centralized wall/motor-mounted inverters and closed-loop application, available in smooth body housings with heavy duty surface protection systems.

- Small drive footprint
- Super Premium Efficiency and IE4 PMSM technology available
- Servo mode control system with enclosed encoders for precision and energy savings
- Smooth body housings for gear unit, motor and inverter
- Washdown capable (nsd^{tupH})

Washing / Rinsing

Washing and Rinsing machinery is one of the most important processes in the beverage handling industry. You can rely on NORD products to be both precise and powerful enough to meet the demands of the task at hand.

- Washdown capable (nsd^{tupH})
- Smooth bodied self draining and easily cleanable housings
- Fanless smooth motor prevents the spread of bacteria
- Cost saving stainless steel alternative (nsd^{tupH})
- Surface protections that resist common cleaning chemicals
- Energy Efficient
- Washers / Rinsers / Dusters



Conveying

NORD offers an extensive product portfolio that will mount to your conveyor system properly and will perform to your applications spec. NORD gear units are used in a variety of conveying systems used in the beverage industry.

- Mass Flow Conveyors
- Accumulators
- Filling system conveyors
- Mergers
- Dividers
- Rinsing systems
- Many other common conveying needs

Filling / Sealing / Labeling

The stage of the beverage handling process right before packaging and the last palletizing operation.

Automated equipment ensures the consistency of the sealing process, ensures safety and reassures the customer that their beverage is fresh & unopened before sale.

- Proven durability
- Smooth body housings and severe duty surface protection against corrosive environments
- nsd^{tupH} doesn't corrode, propagate or flake in the case of damage
- Encapsulated encoders provide precise positioning
- low backlash gears and closed loop IE4 permanent magnet technology

Primary & Secondary Packaging

Primary packaging is the material that is used to package the product in an appealing manner. Secondary packaging is protective material that preserves the products appearance until it reaches the display.

- Efficient systems for continuous or intermittent operation.
- Compact size, with easy plug-and-play connection
- Decentralized or wall-mount AC Vector drive operation
- Encoders provide precise positioning
- Protective surface options for clean environments

CLEAN, SAFE, RELIABLE & EFFICIENT DRIVE SOLUTIONS FOR THE BEVERAGE INDU



Clean & Safe

From depalletizing to conveying to case packing, leading beverage manufacturer's are choosing NORD's efficient and reliable reducers, gearmotors, motors and AC vector drives for the 24/7 demands of the beverage handling process. For wet and demanding environments, NORD speaks 'hygienic' and 'washdown' so you don't have to. NORD's innovative solutions stand up to the rigorous demands and high washdown environments where only the toughest survive.

- Quadrilip Sealing -superior protection against leaks
- NSD+ and NSDx3 protective coatings or NSD tpuH Surface Conversion (cost effective savings versus stainless steel)
- GRIPMAXX Keyless Bushing System - a consistent mounting location; quick installation and easy removal

Reliable

Downtime. It's the last word you can afford to hear when you work in the beverage handling industry. Reliability is a direct result of NORD's unique design. Our components work in unison to keep key operations running smoothly in order to be profitable.

- An industry leading ratio range and mounting option flexibility.
- Unicast gear housings provide accurate positioning of bearings and shafts.
- AUTOVENT™ helps ensure a leak-free design.
- Infinite-life, high quality gearing, up to AGMA Class 13.
- Exceptional durability, quiet operation and long service life.

Efficient

Beverage manufacturing is highly competitive so efficiency matters. NORD is committed to reduce overall carbon emissions harmful to our environment. NORD motors offer superior insulating materials, including low temperature rise and voltage spike resistance.

- Up to 95-97 % efficient for select 2 and 3-stage NORD gearboxes.
- Low-inertia, inverter-rated motors that exceed the latest global energy requirements.
- Efficient operation and optimized motor performance.
- Reduced operating temperatures.
- Longer service life, lower total cost of ownership and proven ROI.
- IE3 asynchronous and IE4 synchronous technology.



NORD DRIVE SOLUTIONS FOR THE BEVERAGE INDUSTRY



SK 92.1 / 93.1 Helical-Bevel (Catalog G1014)



- Up to 97% efficiency
- Foot, flange or shaft mounted
- Hollow or solid shaft
- UNICASE™ housing

hp	0.16 - 250
lb-in	796 - 442,537
i	3.58:1 - 13,432.68:1

Right Angle Helical Worm (Catalog G1000)



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

hp	0.16 - 20
lb-in	407 - 27,585
i	4.40:1 - 300,000:1

MINICASE™ Worm (Catalog G1035)



- Foot, flange or shaft mounted
- Hollow or solid shaft
- Corrosion Resistant
- Paint Free

hp	0.16 - 5
lb-in	Up to 4,863
Ratios	5:1 - 10,000:1
Output	0.18 - 350 rpm
Efficiency	Up to 93%

CLINCHER™ gear units (Catalog G1000)



- Foot, Flange or Shaft Mounted
- Hollow or Solid Shaft
- UNICASE™ housing
- Short design

hp	0.16 - 200
lb-in	Up to 796,500
Ratios	4.03:1 - 300,000:1
Output	0.1 - 430 rpm
Efficiency	Up to 97%

Smooth Surface Motors (Catalog M7010)



- Inverter/Vector Duty
- Premium Efficiency Classes
- Super Premium Efficiency Classes
- Integral, NEMA or IEC models
- 0.5 to 1.5 hp motors available

hp	0.5 - 1.5
Hz	50 or 60 Hz operation

AC Vector Drive SK 180E (Catalog F3018)



- Stand alone operation
- 4 parameter sets (switch over online)
- Sensorless current vector control (ISD control)

U[V]	1~110 ... 120 ± 10%
	1~200 ... 240 ± 10%
	3~200 ... 240 ± 10%
	3~380 ... 480 -20% / +10%
P[hp]	0.33 - 3.0 hp

AC Vector Drive SK 200E (Catalog F3020)



- Energy saving function
- Integrated "Posicon" position control

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

Washdown Surface Protection



- NSD+ , NSDx3, and NSD^{tuph}
- Protective coatings or surface conversion systems available
- Cost effective solutions to stainless steel products
- Multi-layer corrosion protection
- Available with stainless steel shafts and assembly hardware



nsd^{tuph}

SEALED SURFACE CONVERSION SYSTEM

- Easy-to-clean surfaces
- Resistant to acids and alkalis (wide pH range)
- Cannot flake
- Corrosion-proof – no contact corrosion and no infiltration of corrosion even if surface is damaged
- Conforms to FDA Title 21 CFR 175.300
- Free from chromates
- IP69 - High pressure cleaning

Whether for bottle washers, depalletizers,
pastuerizers, or any type of conveyor system,
NORD DRIVESYSTEMS
provides the optimum drive solution
for every application.



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