

# DRIVE SOLUTIONS FOR BUCKET ELEVATOR APPLICATIONS

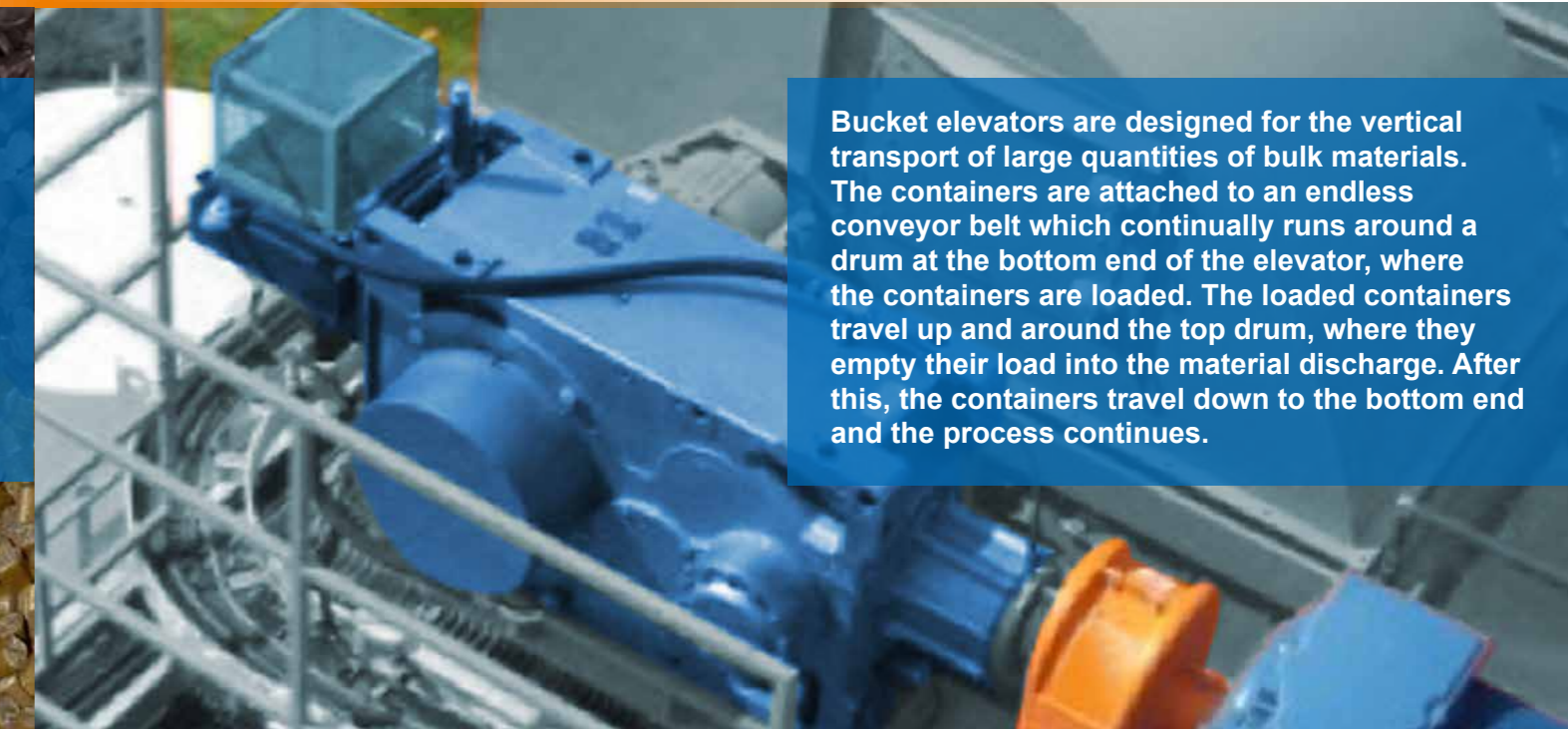


# DRIVE SOLUTIONS FOR BUCKET ELEVATOR APPLICATIONS




NORD drive solutions are used worldwide in industries which rely on bucket elevators.


- Food industry
- Mining industry
- Cement and mineral industry
- Fertilizer industry
- Chemical industry



Bucket elevators are designed for the vertical transport of large quantities of bulk materials. The containers are attached to an endless conveyor belt which continually runs around a drum at the bottom end of the elevator, where the containers are loaded. The loaded containers travel up and around the top drum, where they empty their load into the material discharge. After this, the containers travel down to the bottom end and the process continues.

## TYPICAL FEATURES OF LOW CAPACITY BUCKET ELEVATORS

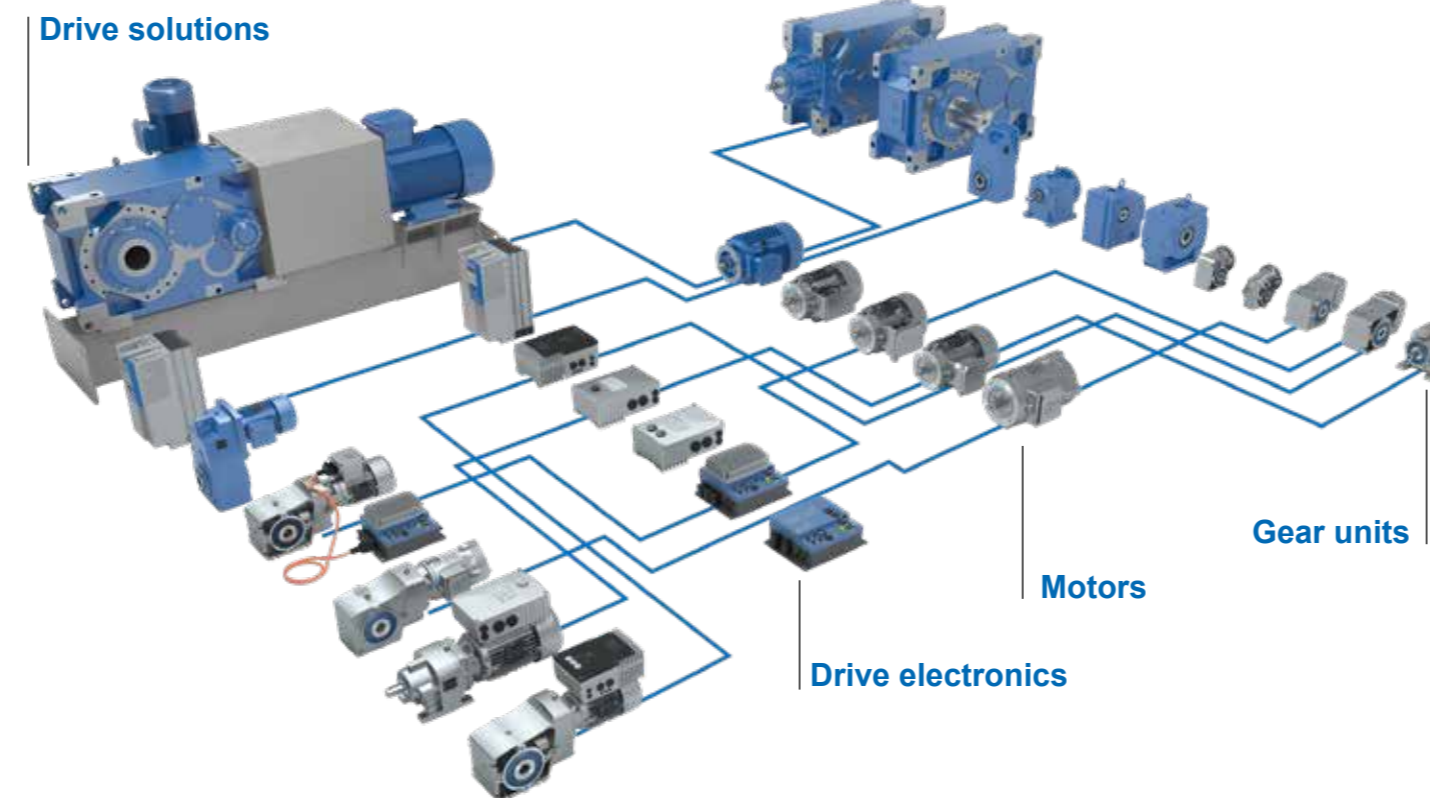
Bevel gear units (Catalogue G1000)	
	<ul style="list-style-type: none"> <li>✓ Foot mounted, flange mounted or hollow shaft mounted</li> <li>✓ Hollow or solid shaft</li> <li>✓ Long life, low maintenance</li> <li>✓ UNICASE housing</li> </ul>
Power	0.12 – 200 kW
Torque	180 – 50,000 Nm
Speed ratio	8.04:1 – 13,432.68:1

Parallel shaft gear units (Catalogue G1000)	
	<ul style="list-style-type: none"> <li>✓ Foot mounted, flange mounted or hollow shaft mounted</li> <li>✓ Hollow or solid shaft</li> <li>✓ Compact design</li> <li>✓ UNICASE housing</li> </ul>
Power	0.12 – 200 kW
Torque	110 – 100,000 Nm
Speed ratio	4.03:1 – 6,616.79:1

Gear unit options recommended by NORD	
Name	Meaning
A	Hollow shaft
AZ	Hollow shaft, B14 flange
AZD	Hollow shaft, flange B14, with torque arm
AZK	Hollow shaft, flange B14, with torque console
BH	Fastening element for hollow shaft with cover as a touch guard
G	Rubber buffer for torque arm (parallel shaft gear unit)
SH	Hollow shaft with shrink disc and cover as a touch guard

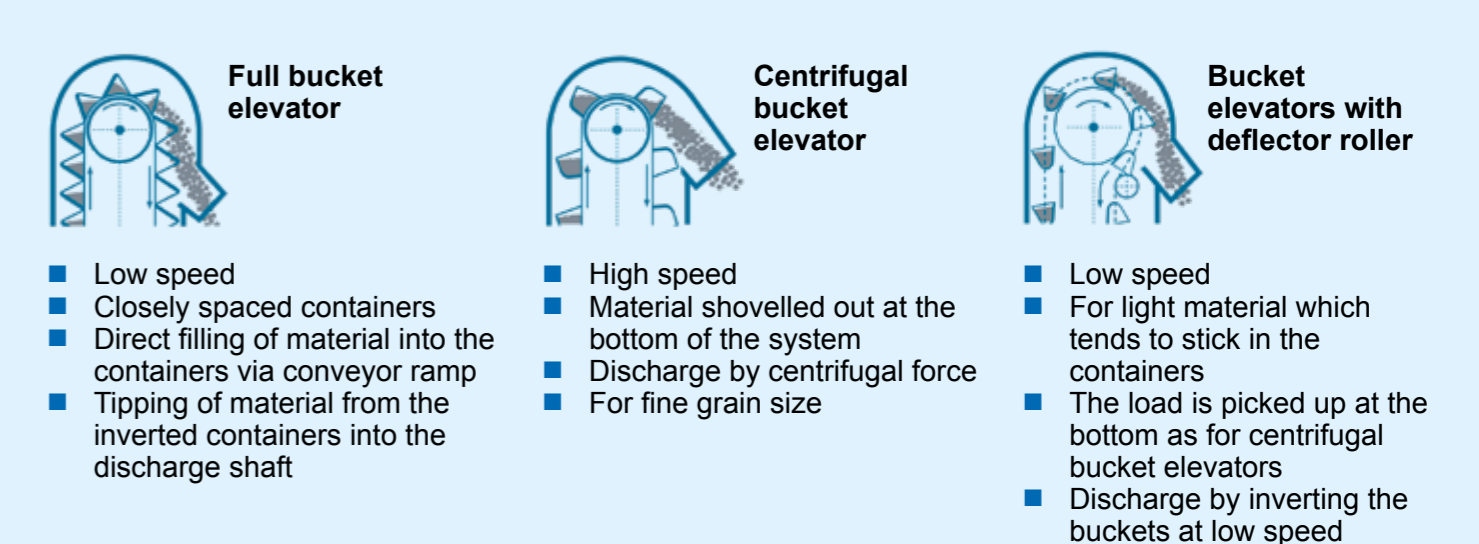
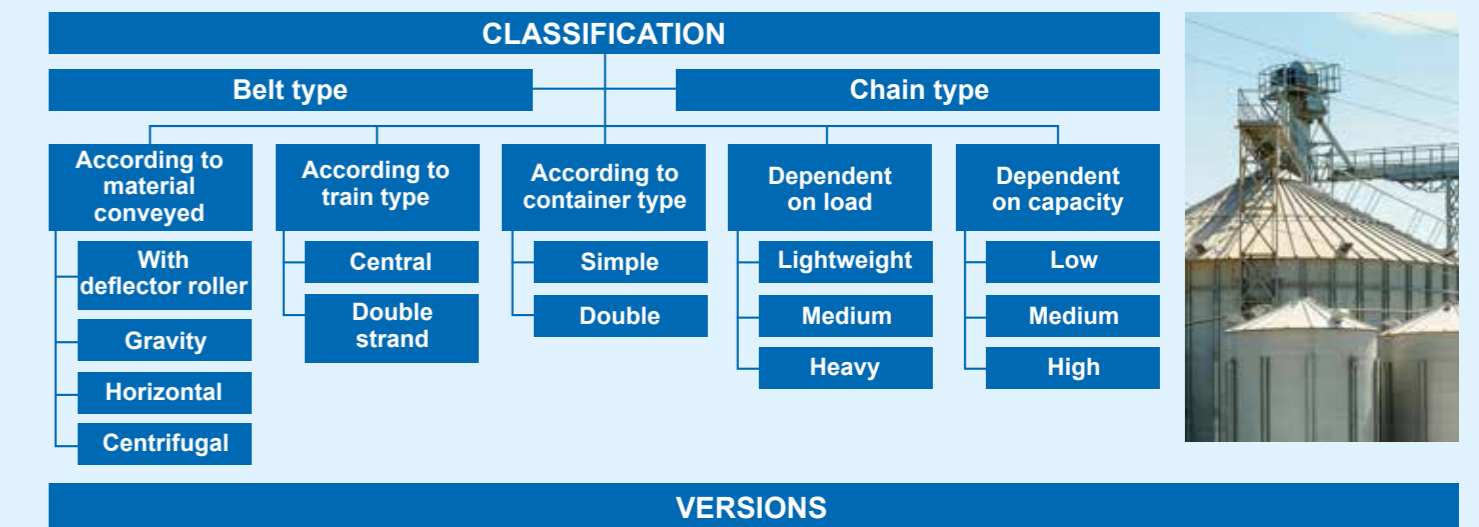
Motor options recommended by NORD	
RLS	Back stop
IP66	Protection against entry of water and dust
PTC / KTY / PT100	Temperature sensor
High-efficiency motors	
ATEX	Explosion protected motors for explosion hazard areas

## COMPLETE DRIVE SOLUTIONS FROM A SINGLE SOURCE



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Member of the NORD DRIVESYSTEMS Group



AS0010 Part No. 6045902 / 0318



## NORD EXPLOSION PROTECTED DRIVE SOLUTIONS

### Drive systems for explosion hazardous areas Zones 1, 2, 21, or 22

NORD supplies customised explosion protected motors and geared motors. Systems based on top quality components are designed according to application in compliance with specific customer requests.

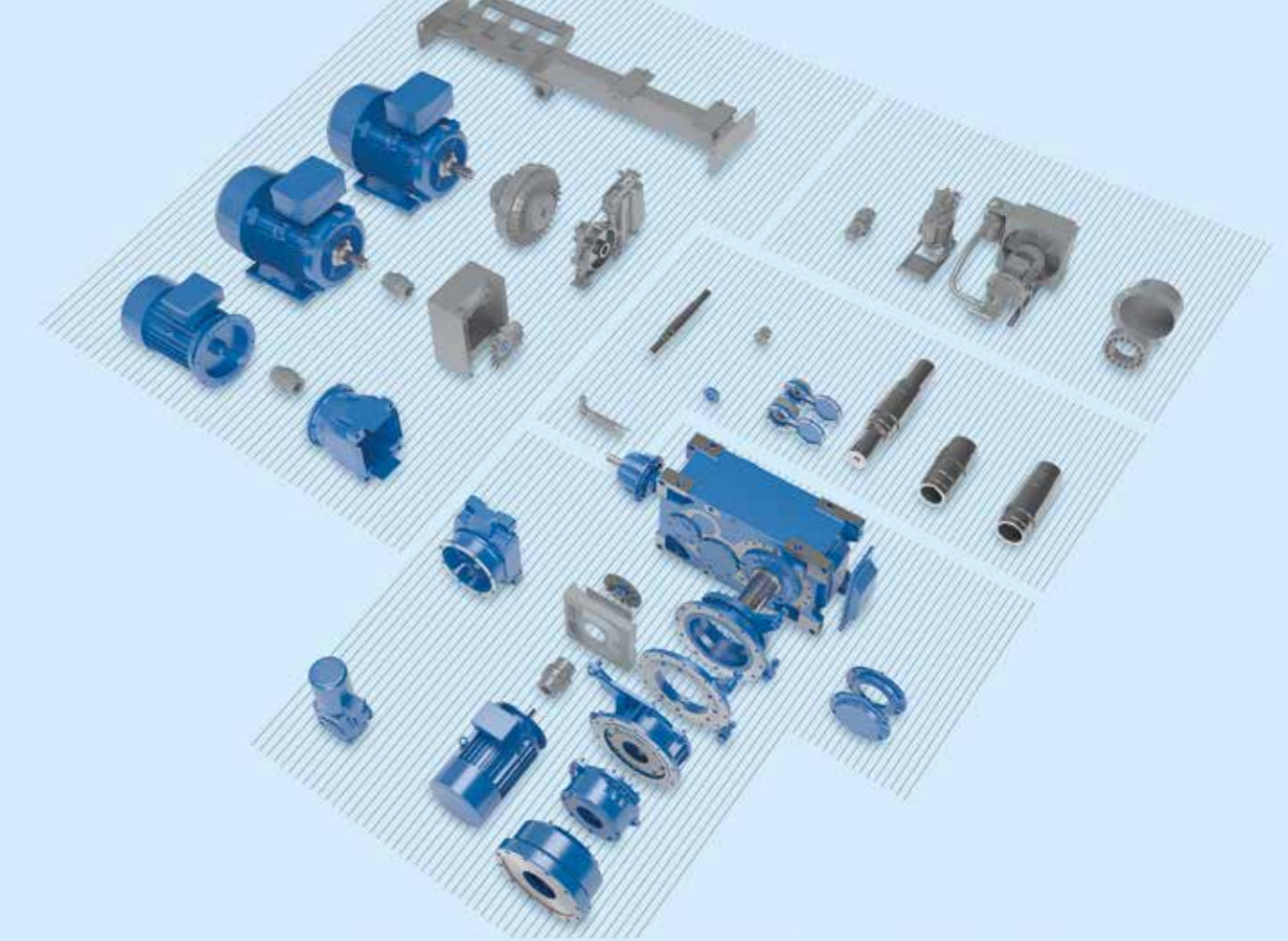
- Versions and equipment according to individual requirements
- Configuration processes validated according to ISO 9001
- Safe, SAP-supported modular system

### Dust explosion protected motors

- According to Category 2D or 3D
- For Zone 21 or 22
- According to EN 60079-31
- Ignition protection Ex t (protection by housing)

### Dust explosion protected gear units

- According to Category 2D or 3D
- For Zone 21 or 22
- According to EN 13463
- Ignition protection type c (Design safety)



## DRIVE SOLUTIONS FOR HIGH CAPACITY BUCKET ELEVATORS

### MAXXDRIVE™ industrial gear units (Catalogue G1050)

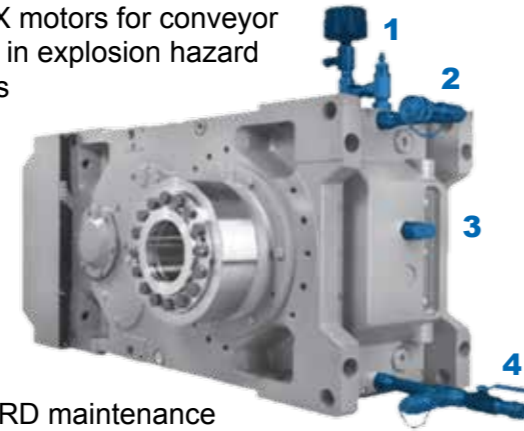
- ✓ All bearing points and sealing surfaces are machined in a single operation
- ✓ Foot mounted, flange mounted or hollow shaft mounted
- ✓ Long life, low maintenance
- ✓ Parallel axis and right-angled gear units
- ✓ UNICASE housing
- ✓ Helical and bevel gear units

Sizes	11
Power	2.2 – 4,000 kW
Torque	15 – 250 kNm
Speed ratio	5.54:1 – 30,000:1

### NORD Monitoring Systems

- ✓ Temperature
- ✓ Oil level
- ✓ Status monitoring
- ✓ Pressure
- ✓ Vents
- ✓ Wireless

- MAXXDRIVE™ industrial gear units (hollow or solid shaft)
- Foot-mounted motor (IEC B3)
- Hydraulic coupling
- Back stop
- Brake
- All components are mounted on a motor rocker or frame
- High efficiency IE3 motor
- ATEX motors for conveyor belts in explosion hazard areas



The NORD maintenance package is a combination of protective measures which ensures that your investment will continue to function for a long time to come.


- 1 Drying agent filter
- 2 Quick fit filter trolley connection
- 3 Oil inspection glass
- 4 Quick fit filter trolley connection & oil drain cock

## FREQUENCY INVERTER CONTROLLED BUCKET ELEVATORS


### Advantages

- Easy commissioning
- Variable speed
- Adjustable torque ramp
- Safety functions
- High efficiency
- Load-dependent speed control reduces wear
- Parameterisation according to process requirements

### NORDAC FLEX frequency inverter SK 200E (Catalogue F3020)

	✓ Energy-saving function	
	✓ Integrated "Posicon" positioning control	
	✓ Integrated PLC	
	Voltage	1~ 115 V 1~ 230 V 3~ 230 V 3~ 400 V
Power	0.25 – 22 kW	

### NORDAC PRO frequency inverter SK 500E (Catalogue F3050)

	✓ Stand-alone operation	
	✓ 4 parameter sets	
	✓ Sensorless current vector control (ISD control)	
	✓ Integrated PLC	
Voltage	1~ 115 V 1~ 230 V 3~ 230 V 3~ 400 V	
Power	0.25 – 160 kW	

## RECOMMENDED OPTIONS FOR HIGH CAPACITY BUCKET ELEVATORS



NORD MAXXDRIVE™ industrial gear units are based on the NORD modular system and provide many individual options such as:

### 1 Axial fans

The high performance axial fan is mounted directly on the drive shaft and provides a high cooling power and a thermal reserve.

### 2 Base frame / motor rocker

All mechanical and electrical components are mounted on a motor rocker or a motor frame, which simplifies the installation of the drive train.

### 3 Fluid coupling

The fluid coupling enables the conveyor belt to start gently and therefore prevents excessive tensile forces on the belt and high toques in the gear unit. In addition, it reduces the starting current.

### 4 Back stop

The back stop prevents run-back with inclined conveyor belts. All back stops are externally mounted and can be replaced without having to dismantle the gear unit. The back stops are also lubricated with the gear oil.

### 5 Auxiliary drive unit

Auxiliary Drive incl. overrunning clutch when it becomes necessary to operate the system at slow speed or "inch" the main reducer.

### 6 Taconite seal

The Taconite seal prevents damage to the shaft sealing rings in abrasive or dusty environments. It consists of a labyrinth seal which can be re-lubricated to keep abrasive dust away from the seal.