Contents






NORD®
DRIVESYSTEMS

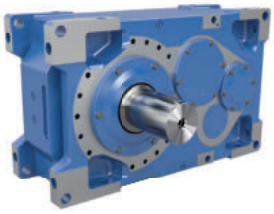
www.nord.com

NORD DRIVESYSTEMS GROUP

Headquarters and Technology Centre

- in Bargteheide, near Hamburg

Industrial gear units | **Gearmotors** | **Electronic products**



Frequency inverters, motor starters and field distributors

Innovative drive solutions

- for more than 100 branches of industry

Gear unit production

Motor production

Inverter production

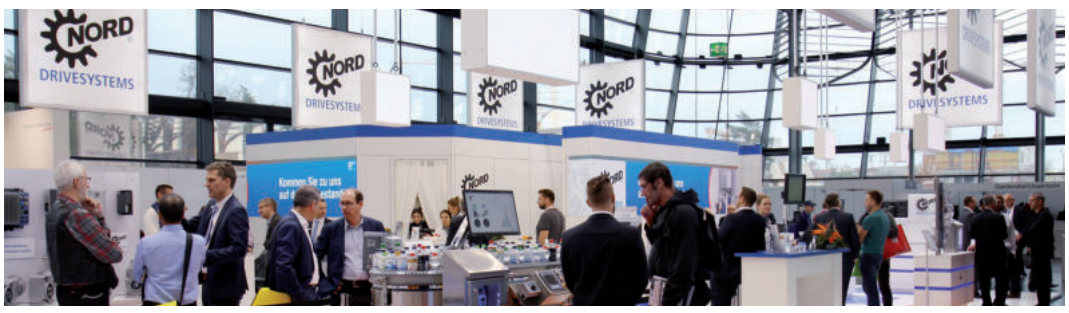
7 production locations with cutting edge technology

- Produce gear units, motors, inverters, etc. for complete drive solutions from a single source

The map shown above is for information only and does not claim to be created for or applicable to any legal purpose. For this reason, we do not assume any liability for legality, correctness and completeness.

Subsidiaries and sales partners in 98 countries on 5 continents

- Provide local supplies
- Assembly centres
- Technical support
- and customer service



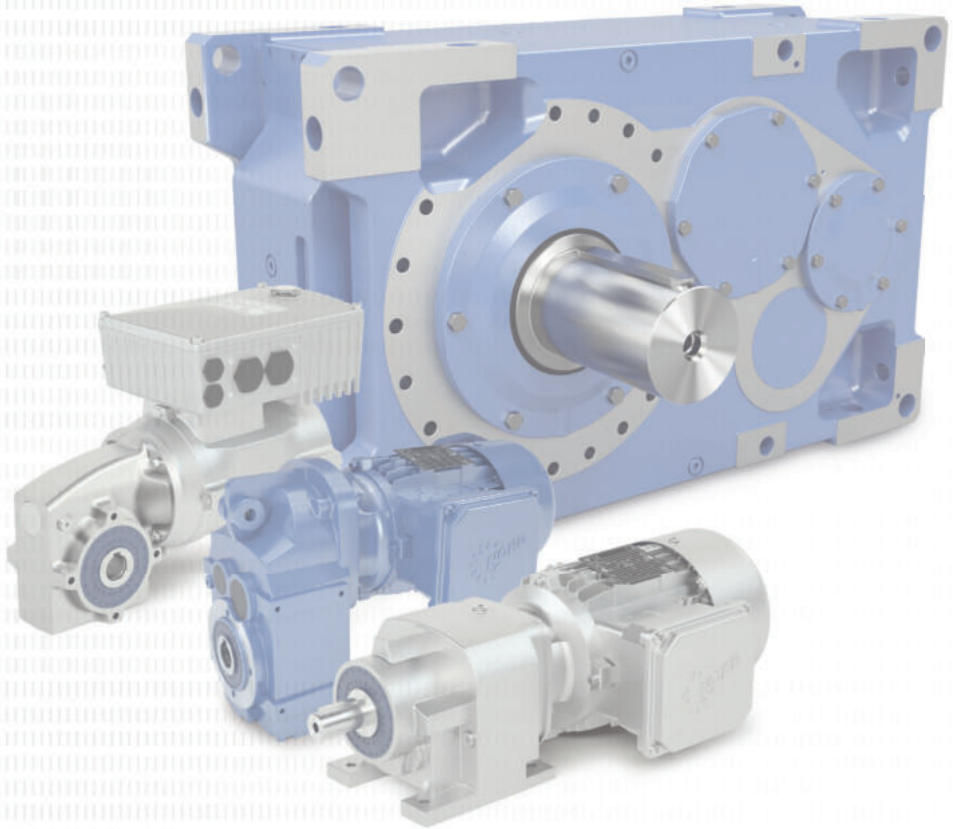
More than 4,000 employees worldwide

- Create customised solutions

Catalogue G1000 IE3 • 50 Hz
Introduction

Since 1965, our family business has developed into one of the world´s leading complete suppliers of mechanical and electronic drive technology. We supply individual drive solutions and our innovations setglobal standards.

Our focus is to provide you with added value.



Sinse 1965 we have developed and manufactured all the major components for our mechanical and electronic drive technologies (gear units, electric motors and drive electronics). this wide-rangig in-house design and production capability allows us to offer our customers individual drive solutions. Our extensive manufacturing, test and reearch facilities feature cutting-edge technology and equipment. With our know-how and experience, we meet the most stringent quality demands.

The UNICASE concept, which we developed in 1981 quickly became the international standard for the manufacture of gear unit housings.

Today, the focus of our innovation is on intelligent, functionally variable drive technology for Industry 4.0.

Please note that standards and directives are subject to constant change. Even though we make every endeavour to ensure that this information is correct, this document cannot provide a substitute for a study of the relevant directives or import regulations.

You can find the catalogues and brochures on the NORD homepage under www.nord.com - Heading: DOCUMENTATION

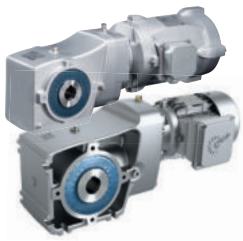
Product and catalogue overview

Helical gear unit (Catalogue G1000)

- Foot or flange mounted
- Long life, low-maintenance
- Optimum sealing
- UNICASE housing

Sizes	11
kW	0.12 – 160
Nm	10 – 26,000
i	1.35:1 – 14,340.31:1

2-stage bevel gear units (Catalogue G1000, G1014)



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

Sizes	6
kW	0.12 – 9.2
Nm	50 – 660
i	3.03:1 – 70:1

Parallel shaft gear units (Catalogue G1000)

- Foot mounted, flange mounted or face mounted
- Hollow or solid shaft
- Compact design
- UNICASE housing

Sizes	15
kW	0.12 – 200
Nm	110 – 100,000
i	4.03:1 – 6,616.79:1

3-stage bevel gear units (Catalogue G1000)

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

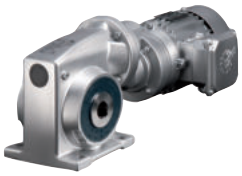
Sizes	11
kW	0.12 – 200
Nm	180 – 50,000
i	8.04:1 – 13,432.68:1

Helical worm gear units (Catalogue G1000)

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

Sizes	6
kW	0.12 – 15
Nm	94 – 3,090
i	4.40 :1 – 7,095.12:1

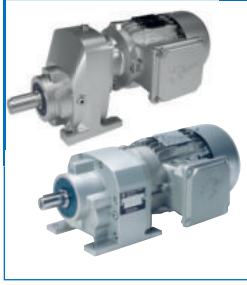
SMI worm gear units (Catalogue G1035)



- Smooth surfaces
- Lubricated for life

Sizes	4
kW	0.12 – 4.0
Nm	21 – 427
i	5.00:1 – 3,000.00:1

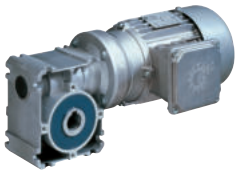
NORDBLOC.1 helical gear units (Catalogue G1000, G1012)



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

Sizes	13
kW	0.12 – 37
Nm	30 – 3,300
i	1.07 :1 – 456.77:1

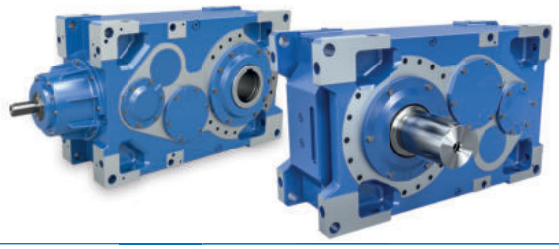
SI worm gear units (Catalogue G1035)



- Modular
- Universal mounting
- Lubricated for life

Sizes	5
kW	0.12 – 4.0
Nm	21 – 427
i	5.00:1 – 3,000.00:1

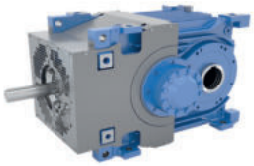
MAXXDRIVE® Industrial gear units (Catalogue G1050)



- All bearing points and sealing surfaces are machined in a single operation
- No separating joints in the housing, no sealing surfaces subject to torque
- High-precision axis alignment, quiet running
- Long life, low-maintenance
- Gear ratio range 5.54 to 400:1 with the same foot dimensions
- Parallel axis and right-angled gear units

Sizes	11
kW	1.5 – 4,000
kNm	15/20/25/30/40/50/75/110/150/190/280
i	5.54:1 – 30,000.00:1

MAXXDRIVE® XT Industrial gear units (TI60-0011)



Sizes	7
kW	1.5 – 1,500
kNm	15/20/25/30/40/50/75
i	6.14:1 – 22.91:1

Motors (Catalogue M7000, TI60-0001)

Energy-saving

Switchable Pole

Single-Phase

Smooth Surface

ATEX

Explosion Protection Gas-Environment

ATEX

Explosion Protection Dust-Environment

IE3 IE2 IE4

Special features

- Motors developed and produced by NORD
- We produce energy-efficient products for all parts of the world
- Products available at all international locations

Control cabinet inverter (Catalogue E3000)

NORDAC PRO SK 500E

The inverter for all drive applications.
Proven technology, large power range and capable of functional expansion with plug-in option modules.
Optimised heat dissipation thanks to the variable cooling concept.

NORDAC PRO SK 500P

The next generation of control cabinet inverters.
Compact size, innovative and extremely flexible communication and interface concept, functional expansion with optional modules.

Decentralised frequency inverter

NORDAC FLEX SK 200E

Decentralised drive unit with versatile installation options. Simple commissioning and maintenance through extensive plug-in capability and simple parameter transfer via EEPROM.

NORDAC BASE SK 180E

Economical decentralised version for simple drive applications.
Low installation costs as well as robust design for simple installation outside the control cabinet.

Motorstarter	Frequency inverter
SK 155E-FDS	**NORDAC LINK SK 250E-FDS**
	

The field distributor for flexible, decentralised installation. Flexibility of equipment and function – free configurability according to requirements and the application. Available as inverter and starter. Fast commissioning through high level of plug-in capability. Simple servicing of the system through integrated maintenance switch and local manual control facility.

Motorstarter

NORDAC START SK 135E

The decentralised starter for all types of soft starting. With integrated motor protection and reversing function for flexible integration into the system.

Description of gear units

NORD gear units

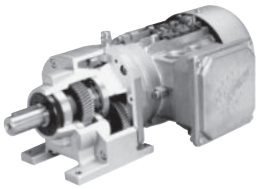
NORD gear units in the tried-and-tested Unicase series were developed according to the UNICASE principle. This applies to all versions, such as foot, flange and shaft mounted gear units.

“UNICASE” designates a single housing block into which all bearing mounts are integrated. The UNICASE is machined in a single setup on the very latest CNC machines. The unicase concept features extreme precision, rigidity and strength. There is no joint between the output side and the gear unit housing which is subject to radial forces or torque. The housings are made of cast iron or cast aluminium. Ductile cast iron housings are available on request.

The pinions and gears are made of the highest quality alloyed steel; the teeth are case-hardened (except for worm gear units).

Optimised geometries and precise shaft alignment due to the UNICASE provide excellent load-bearing capacity, long operating life and low noise. The gears, bearings and shafts are calculated according to DIN 3990, DIN ISO 281 or Niemann for all powers and speeds shown in the catalogue. All NORD gear units therefore provide the very highest levels of safety and reliability.

Bearings and gears run in an oil bath. In addition to the positive locking keyed connection, the gears in the gear unit also have a pressed connection between the shaft and hub.
Normally, shaft seals made of NBR material are used. Shaft seals made of FKM (Viton) are available as an option.



- From 0.12 - 37 kW
- Up to 3,300 Nm
- Available in 8 sizes

NORDBLOC.1 helical gear units

NORDBLOC helical gear units are available in 8 sizes. Sizes SK 072.1 und SK 172.1 always have 2 stages. Sizes SK 372.1 - SK 973.1 have optionally 2 or 3 stages in the same gear unit housing with the same dimensions.

The housings of the new NORDBLOC types are smooth and are made from die-cast aluminium up to and including size SK 673.1 The housings of the larger gear units SK 772.1 - SK 973.1 are made of cast iron.

The aluminium housing considerably reduces the weight and enables very economical series production. The smooth aluminium surfaces have a robust, natural corrosion protection (⇨🕮A80). Because of this, painting is not provided as standard, but is possible if required.

The NORDBLOC design enables the installation of stronger bearings in comparison with the previous series. This results in higher permissible radial and axial forces and a longer service life. As usual, geared motors can be implemented with economical direct attachment of the motor. For more information, please refer to ⇨🕮 Catalogue G1012.

Information for special gear unit versions

Gear unit	Information
SK 372.1 / SK 373.1 ⚠ ⇨🕮 B50-51, B80	Gear unit size SK 372.1 or 373.1 is available with a B5 Ø120 mm drive flange. For this version, the drive shaft is 28 mm longer. **The permissible radial forces are reduced by 30%.**
SK 572.1 / SK 573.1 ⚠ ⇨🕮 B52-53, B81	Drive unit size SK 572.1 or 573.1 with Ø35 mm drive shaft is available with a B5 Ø140 mm or Ø160 mm drive flange. For this version, the drive shaft is 33 mm longer. **The permissible radial forces are reduced by 30%.**
SK 572.1(*) / SK 573.1(*) ⚠ ⇨🕮 B54-55, B81-82	Gear unit size SK 572.1 or SK 573.1 is available with a Ø35x70 mm output shaft (standard) or with a Ø30x60* mm output shaft. The permissible radial forces which are stated in the power and gear ratio tables relate to a Ø35x70 mm drive shaft. **For a Ø30x60* mm shaft the permissible radial force is reduced by 30%.**

The required version must be stated in the order

Helical gear units

- From 0.12 - 200 kW
- Up to 23,000 Nm
- Available in 11 sizes

2-stage helical gear units with coaxial motor and drive shafts are available in 11 sizes (SK 02 ... SK102).

The 6 smaller versions can also be supplied as 3-stage gear units with an add-on housing (SK 03 ... SK 53) for higher gear ratios. The 5 larger sizes can be optionally supplied as 2- or 3-stage units in the same housing (SK 62/63 ... SK 102/103). Double gear units with 4- , 5- and 6-stages are available for very high gear ratios.

Helical gear units are available in both foot and flange versions. For flange version helical gear units, the flange is cast on; therefore there are no screw connections between the flange and the housing.

Parallel shaft gear units

- From 0.12 - 200 kW
- Up to 90,000 Nm
- Available in 12 sizes

2 new parallel shaft gear units SK10382.1 / SK11382.1

The parallel axle offset for parallel shaft gear units results in a shorter design in comparison with helical gear units. In push-on versions with a continuous hollow shaft, the gear unit can be mounted directly onto the drive shaft of the machine.

Sizes SK 1282 to SK 5282 are available as 2-stage versions.
SK 2382 to SK 5382 have a 3-stage design and can be used for higher gear ratios with the aid of an additional add-on housing. For parallel shaft gear unit sizes SK 6282/SK 6382 and above, the gear units are produced as 2- and 3-stage versions with the same housing.

The parallel shaft gear unit types SK10282 / SK 10382 and SK 11282 / SK 11382 have been replaced by the two new parallel shaft gear units SK 10382.1 and SK 11382.1.

The new parallel shaft gear unit models are always 3-stage. A NORD motor can be attached directly without a coupling. As an alternative to the more favoured direct motor attachment, adapters for IEC and NEMA motors and adapters for a free input shaft can be attached.

They cover the following range of outputs and speeds.

Parallel shaft gear unit type	Powers P_1	Max drive torque M_{2max}	Gear ratio range i_{ges}	Speed range n_2
SK 10382.1	5.5 - 160 kW	43 kNm	11.12 - 343.19	4.3 - 134 rpm
SK 11382.1	22 - 200 kW	73 kNm	8.13 - 167.17	8.8 - 134 rpm

These gear units have a cast iron housing with an extremely smooth surface in which the NORD block housing principle has been used. This means that robustness is incorporated right from the start.

As standard, the housings have a cast torque support, an output-side B14 flange and machined foot surfaces with threaded attachment holes. Screw-on B5 flanges and mounting feet are optionally provided.

At the output side, full shafts, hollow shafts with feather keys, hollow shafts with shrink disks and hollow shafts with splined brake drive dogs are provided as standard.

Adapting the axis height

It is possible to adapt the axis height of the SK 11382.1 gear unit to the dimensions of the old gear unit types SK 11282 / SK 11382. Spacers for this are available as options. The axis height is the measurement from the foot plate to the drive shaft.

Description of gear units

Bevel gear units

3 and 4-stage bevel gear units

- From 0.12 - 200 kW
- Up to 50,000 Nm
- Available in 16 sizes

Bevel gear units are angular gear units in which the motor shaft and the output shaft form a 90° angle. This results in a favourable spatial arrangement of the drive unit.
NORD bevel gear units always have multiple gear stages.

The configuration of stages is as follows:

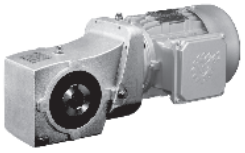
	2-stage	3-stage	4-stage
Helical gear stage	–	–	1st stage
Helical gear stage	1st stage	1st stage	2nd stage
Bevel gear stage	2nd stage	2nd stage	3rd stage
Helical gear stage	–	3rd stage	4th stage

Bevel gear units are available with an integrated backstop.
The bevel gear can be placed to the left or right of the bevel pinion, in order to reverse the direction of rotation between the drive shaft and output shaft.

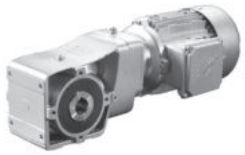
Efficiency η:

The great advantage of a bevel gear unit is its almost constant efficiency over the entire gear ratio range, which practically equals that of helical and parallel shaft gear units.

2-stage bevel gear units



SK 93072.1 - SK 93772.1



SK 92072.1 - SK 92772.1

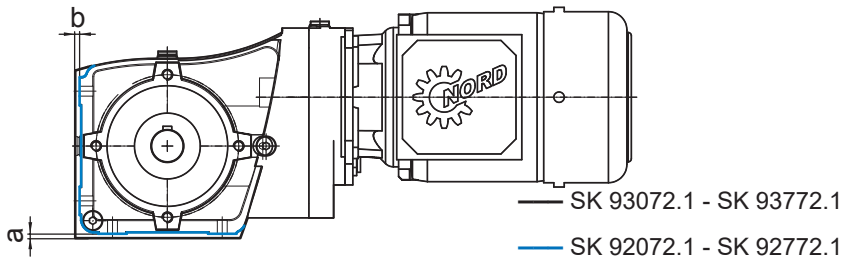
- From 0.12 - 9.2 kW
- Up to 660 Nm
- Available in 5 sizes

The new optimised performance two-stage bevel helical gear units are an innovative NORD design with a high-strength die-cast aluminium housing.

In addition, NORD offers the gear unit series **SK 93072.1 - SK 93772.1** with cast aluminium housings, which is suitable for use in the food industry because of its especially smooth surface. **If you are interested, please contact us.**

Because the power data for the gear unit series **SK 93072.1 - SK 93772.1** are identical to those for the SK 92072.1 - SK 92772.1 gear unit series, for reasons of clarity, this catalogue only contains selection lists for the gear unit series SK 92072.1 - SK 92772.1.

Please note that for the SK 93072.1 - SK 93772.1 gear unit series, only flange mounting is available as standard. The flange mounts of both series are identical. The outline contours of both series of gear units only differ slightly as follows:

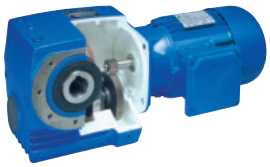


Size		SK 93072.1	SK 93172.1	SK 93372.1	SK 93672.1	SK 93772.1
a	[mm]	3	2	4	4.5	5
b	[mm]	3	2	4	4.5	5

nsd tupH surface treatment

For the gear unit types NORDBLOC.1 helical gear units and 2-stage bevel helical gear units, there is the option of treating the die-cast aluminium housing or the cast aluminium housing with **nsd tupH**. **This surface treatment provides special protection against corrosion.**

Helical worm gear units



- From 0.12 - 15 kW
- Up to 3,000 Nm
- Available in 6 sizes

Helical worm gear units are angular gear units in which the motor shaft and the output shaft form a 90° angle. This often results in a favourable spatial arrangement of the drive unit. The helical worm gear units listed in this catalogue have multiple stages. NORD also supplies single-stage worm gear series which are listed in catalogue G1035. **Please request our catalogue G1035.**

The helical gears of helical worm gear units are made of highly alloyed steel with case-hardened teeth. Optimised geometries and precise shaft alignment due to the UNICASE principle provide excellent load-bearing capacity, long operating life and low noise.

The worm stage has a hardened cylinder worm as well as a worm gear with a welded-on rim made of special bronze. This combination ensures a long operating life. We provide the highest possible and constantly high quality thanks to the use of the very latest CNC machine tools and continuous monitoring.

The helical worm gear unit series is lubricated for life at the factory with a high-quality, synthetic long-life lubricant with a polyglycol base. This synthetic lubricant prevents friction and provides a very high degree of efficiency and a long service life.
The helical worm gear units SK 02050 - SK 42125 are available as 2-stage versions and can also be produced with add-on housings as SK 13050 ... SK 43125 with 3-stages for higher gear ratios.

Efficiency η:

NORD worm gear units achieve efficiencies up to 92%.

Because the worm gear set in new gear units must be run in, the friction coefficient is larger before running in than it is afterwards. Because of this, the efficiency is slightly lower before running in. This effect is increased at lower incline angles, i.e. with a lower number of starts in the worm.

Based on experience, the following allowances should be made:

- Single start up to approx. 12%
- 2-start up to approx. 6%
- 3-start up to approx. 3%
- 6-start up to approx. 2%

The number of worm threads is listed in the output and gear ratio tables. The run-in procedure is completed after approx. 25 hours operating time at maximum load.

The following conditions must be met in order to achieve the efficiencies shown in the tables:

- Gear unit is fully run-in
- Gear unit has reached steady state temperature
- The gear unit is filled with the specified lubricant
- The gear unit outputs the rated torque