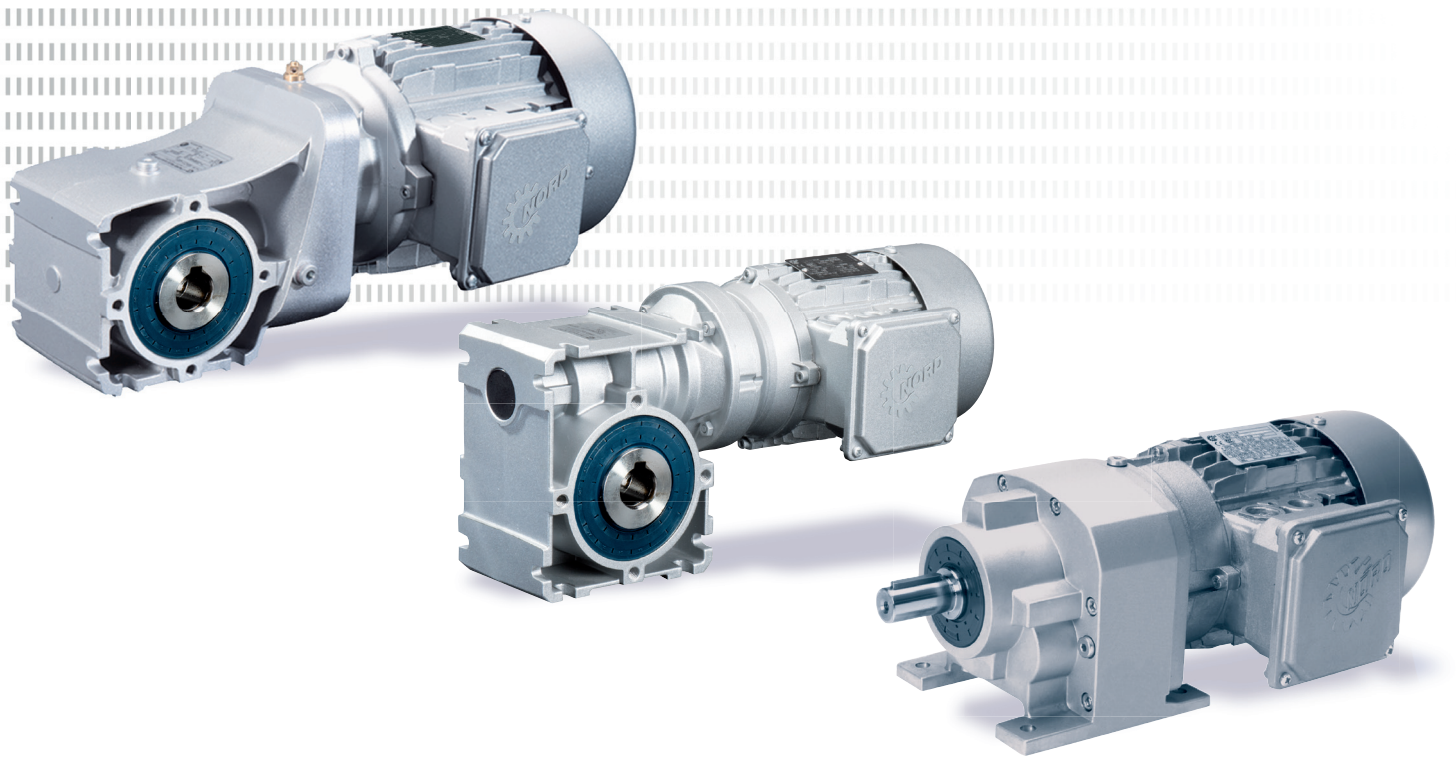
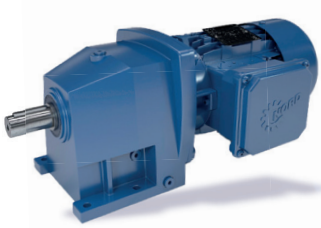
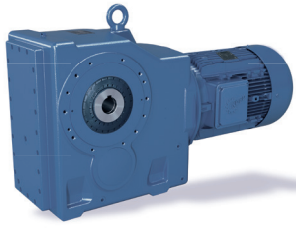
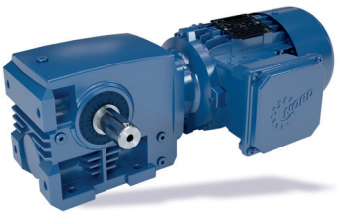








en-GB

Constant Speed Drives

50 Hz Metric

G1000

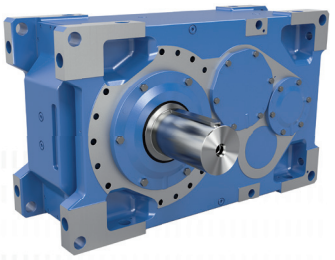
NORD® DRIVESYSTEMS

NORD DRIVESYSTEMS

Complete Drive Solutions From a Single Source

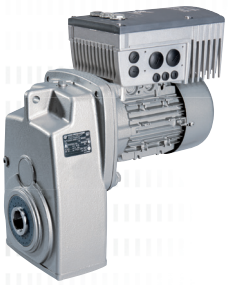
NORD Delivers

NORD offers first-class customer service and support along with full-featured drive solutions that can tackle the toughest requirements. All components are carefully selected and precisely configured to meet your exact specifications. In the rare case that standard components won't meet your needs, our in-house engineering team will work with you to design custom components or a complete customized system.



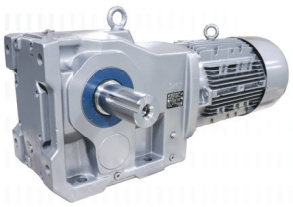
Reduce Lead Times and Decrease Inventory

- Fastest lead times in the industry with NO expedite fees
- Over 20,000,000 standard configurations to reduce or eliminate the need for custom components
- Modular drives, motors, and electronic controls minimize inventory of replacement units and parts



Global Product Designs, Standards, and Support

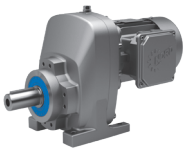
- Innovative, industry-standard products to support a wide range of applications
- Global sales and support network
- Dedicated mechanical and electrical application engineers ready to assist you
- Online resources available to you any time
- 24/7/365 emergency breakdown service



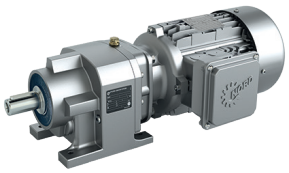
Increase Efficiency and Reduce Operation Costs

- myNORD online tools for fast selection, configuration, ordering, and tracking of your drive units
- Drive systems that are perfectly matched to your application for optimum performance and energy efficiency
- Program personalization, such as weekly shipment schedules and custom nameplates
- Partner with a company that is easy to do business with and wants to see you succeed!

NORDBLOC.1® Helical Inline Gear Units

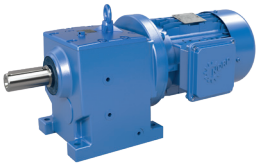


SK 5 7 1 .1
- .1 — No options (solid shaft, foot mounting)
- 1 — New design
- 7 — Gear stages
- 5 — NORDBLOC design
- SK 5 — Housing size



SK 8 7 2 .1 XF
- XF — Foot mount, flange B5
- .1 — New design
- 2 — Gear stages
- 7 — NORDBLOC design
- SK 8 — Housing size

UNICASE™ Helical Inline Gear Units

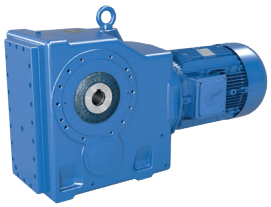


SK 3 2
- 2 — No options (solid shaft, foot mounting)
- 3 — Gear stages
- SK 3 — Housing size

SK 9 3 / 4 2 VL
- VL — Heavy duty bearings
- 2 — Gear stages – 2nd unit (5-stages total)
- 4 — Housing size – 2nd unit
- 3 — Gear stages – 1st unit (5-stages total)
- SK 9 — Housing size – 1st unit

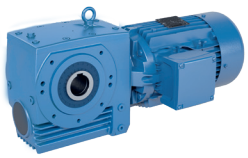
UNICASE™ Helical Bevel Gear Units

SK 90 4 2 .1 AZ B
- B — Fixing element kit
- AZ — Hollow shaft / flange B14
- .1 — New design
- 2 — Gear stages: 2 helical & 1 bevel
- 4 — Housing size
- 90 — 90 series



SK 90 5 3 .1
- .1 — Solid shaft, foot mount
- 3 — New design
- 5 — Gear stages: 3 helical & 1 bevel
- 90 — Housing size
- SK 90 — 90 series

UNICASE™ Worm Gear Units



SK 1 2 080
- 080 — Worm gear size
- 2 — Gear stages: 1 helical & 1 worm
- SK 1 — Housing size

SK 4 3 125 AZ H
- H — Hollow shaft cover
- AZ — Hollow shaft / flange B14
- 125 — Worm gear size
- 3 — Gear stages: 2 helical & 1 worm
- SK 4 — Housing size

Nomenclature

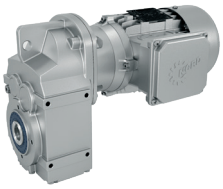
UNICASE™ Parallel Shaft Gear Units

SK 9 3 82 AZ SH

- SH – Shrink disc / cover
- AZ – Hollow shaft / flange B14
- 82 – Parallel shaft gear unit
- 3 – Gear stages
- 9 – Housing size

SK 1 2 82 .1 VX

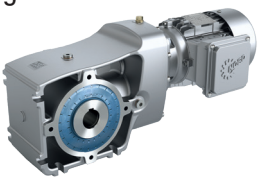
- VX – Solid shaft / foot mount
- .1 – New design
- 82 – Parallel shaft gear unit
- 2 – Gear stages
- 1 – Housing size



NORDBLOC.1® Helical Bevel Gear Units

SK 92 3 7 2 .1 AZ

- AZ – Hollow shaft / flange B14
- .1 – New design
- 2 – Gear stages: 1 helical & 1 bevel
- 7 – NORDBLOC design
- 3 – Housing size
- 92 – 92 series



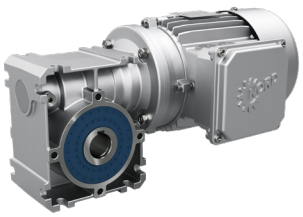
SK 93 6 7 2 .1 AZ

- AZ – Hollow shaft / flange B14
- .1 – New design
- 2 – Gear stage: 1 helical & 1 bevel
- 7 – NORDBLOC design
- 6 – Housing size
- 93 – 93 series

UNIVERSAL SI Worm Gear Units

SK 1 SI 31 AZ

- AZ – Hollow shaft / flange B14
- 31 – Worm gear size
- SI – SI design
- 1 – Gear stages



SK 1 SI 75 /H10

- /H10 – Helical 10:1 input stage
- 75 – Worm gear size
- SI – SI design
- 1 – Gear stages

UNIVERSAL SMI Worm Gear Units

SK 1 SMI 31 VF

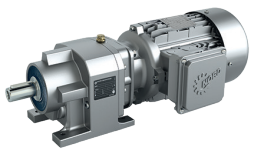
- VF – Solid shaft / flange mount
- 31 – Worm gear size
- SMI – SMI design
- 1 – Gear stages

SK 2 SMID 50 LX

- LX – Double solid shaft / foot mount
- 50 – Worm gear size
- SMID – SMID integral design
- 2 – Gear stages: 1 helical & 1 worm

Description of Gear Units

NORDBLOC.1® Helical Inline Gear Units



Case Sizes: 16

Gear Unit	Stages	Housing Design	Housing Material
SK 071.1 – SK 771.1	1	Standard housing	Aluminum
SK 871.1 – SK 1071.1	1	Standard housing	Cast iron
SK 072.1 – SK 172.1	2	Standard housing	Aluminum
SK 372.1 – SK 673.1	2 and 3	Standard housing	Aluminum
SK 772.1 – SK 973.1	2 and 3	Standard housing	Cast iron

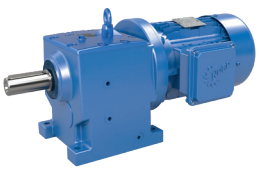
The NORDBLOC.1 design features strong bearings, enabling higher permissible radial and axial forces and a longer service life. Gear motors that utilize the helical inline design can be implemented with direct motor attachment.

The aluminum housing is lightweight and its smooth surfaces have inherent corrosion protection even without paint, although paint is offered as an option.

Special gear unit versions

Gear Unit	Information
SK 372.1, SK 373.1	Gear unit sizes SK 372.1 and 373.1 are available with a 120 mm drive flange B5. Output shaft is 28 mm longer. Permissible radial forces are reduced by 30%.
SK 572.1, SK 573.1	Gear unit sizes SK 572.1 and 573.1 are available with a 30x60 mm output shaft or a 35x70 mm output shaft with a 140 mm or 160 mm drive flange B5. Output shaft is 33 mm longer. Permissible radial force is reduced by 30% for a 30x60 mm shaft. Permissible radial forces stated in the power and gear ratio tables are listed for both dimensions (smaller value for 30x60 mm shaft).

UNICASE™ Helical Inline Gear Units



Case Sizes: 11

Gear Unit	Stages	Housing Design	Housing Material
SK 02 – SK 102	2	Standard housing	Cast iron
SK 03 – SK 53	3	Standard housing plus add-on housing	Cast iron
SK 63 – SK 103	3	Standard housing	Cast iron

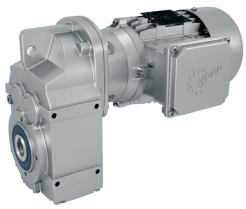
UNICASE Helical Inline Gear Units have solid shafts and are available in both foot and flange mounted versions. For flange mounted units, the flange is cast on with no screw connections between the flange and the housing. Double gear units with 4, 5, and 6 stages are available for high gear ratios.

UNICASE™ Parallel Shaft Gear Units

Case Sizes: 15

Gear Unit	Stages	Housing Design	Housing Material
SK 0182.1			
i: 4.85 – 16.24	2	Standard housing	Aluminum
i: 19.83 – 153.54	3	Standard housing	Aluminum
SK 0282.1			
i: 4.79 – 18.24	2	Standard housing	Aluminum
i: 18.96 – 247.02	3	Standard housing	Aluminum
SK 1282.1, SK 1382.1	2 and 3	Standard housing	Aluminum
		Optional housing	Cast iron
SK 1282 – SK 5282	2	Standard housing	Cast iron
SK 2382 – SK 5382	3	Standard housing plus add-on housing	Cast iron
SK 6282 – SK 9382	2 and 3	Standard housing	Cast iron
SK 10382.1, SK 11382.1	3	Standard housing	Cast iron

Cast iron parallel shaft gear units



Aluminum parallel shaft gear units

The axle offset for parallel shaft gear units results in a more compact design when compared to helical gear units. In shaft mount versions with a continuous hollow shaft, the gear unit can be mounted directly onto the drive shaft of the machine.

NORD motors can be attached to these units directly without a coupling. IEC and NEMA adapters are also available or a free input shaft can be attached.

Aluminum housing

Parallel shaft gear units SK 0182.1 – SK 1382.1 feature a standard die-cast aluminum housing. These aluminum housings are lightweight, cost-effective, and dissipate heat efficiently.

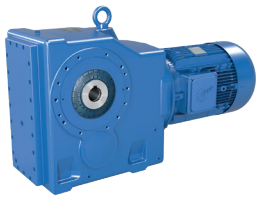
Cast iron housing

Parallel shaft gear units SK 1282.1 and above feature cast iron, single piece UNICASE housings with smooth surfaces, making them extremely robust. As a standard, the housings have a cast torque support and an output-side flange B14. Machined foot surfaces with threaded attachment holes, screw-on flange B5, and mounting feet are available.

At the output side, solid shafts, hollow shafts with keys, hollow shafts with shrink disks, and splined hollow shafts are provided as standard.

Description of Gear Units

UNICASE™ Helical Bevel Gear Units



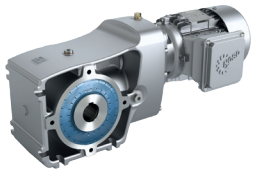
SK 9012.1 - SK 9096.1
UNICASE helical bevel gear units

Case Sizes: 11

Gear Unit	Stages	Housing Design	Housing Material
SK 9012.1 – SK 9096.1	3 and 4	Standard housing	Cast iron

UNICASE Helical Bevel Gear Units are angular gear units where the motor shaft and output shaft form a 90° angle, providing flexible installation options where a compact footprint is required. These gear units are built with robust, cast iron housings that require low maintenance, deliver long service life, and provide high axial and radial load capacities. Helical bevel gear units also offer a variety of shaft and mounting options and are available with an integrated backstop.

NORDBLOC.1® Helical Bevel Gear Units



SK 920072.1 - SK 92772.1
NORDBLOC.1 helical bevel gear units

SK 930073.1 - SK 93772.1
NORDBLOC.1 helical bevel gear units

Case Sizes: 6

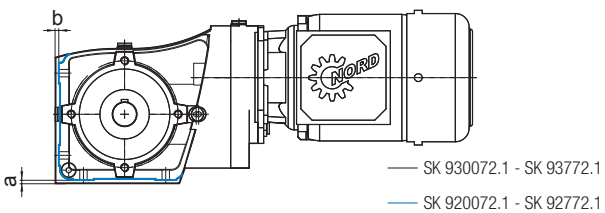
Gear Unit	Stages	Housing Design	Housing Material
SK 920072.1 – SK 92772.1	2	Standard housing	Aluminum
SK 930072.1 – SK 93772.1	2	Standard housing	Aluminum

NORDBLOC.1 Helical Bevel Gear Units are built to optimize system performance and efficiency. NORD's manufacturing precision also ensures an accurate alignment of all bearing seats, internal shafts, and gears for a long, reliable operation.

NORD additionally offers helical bevel gear units SK 930072.1 – SK 93772.1 with closed housings that are suitable for use in the Food & Beverage industry due to their hygienic smooth surfaces. The power data for the gear unit series SK 930072.1 – SK 93772.1 are identical to those for the SK 920072.1 – SK 92772.1 gear unit series, so this catalog only contains selection lists for the SK 920072.1 – SK 92772.1 series.

Mounts and housings

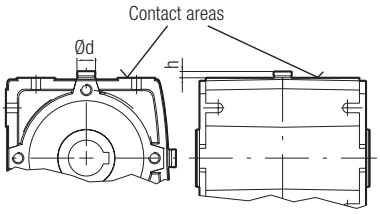
Flange mounting is standard for the helical bevel series and the mounts for both the open and closed housings are identical. The housing contours differ slightly as follows:



		SK 930072.1	SK 93072.1	SK 93172.1	SK 93372.1	SK 93672.1	SK 93772.1
a	[mm/in]	1 / 0.04	3 / 0.12	2 / 0.08	4 / 0.16	4.5 / 0.18	5 / 0.20
b	[mm/in]	2.5 / 0.10	3 / 0.12	2 / 0.08	4 / 0.16	4.5 / 0.18	5 / 0.20

Vent plug mounting

Due to the structure of SK 92x72.1 gear units, the vent plug can only be mounted on the side opposite to the motor and protrudes beyond the footprint. Refer to the table below for the required clearances, **ød** and **h**, for the particular gear unit size. Allowances for this protrusion should be addressed during design.



Gear Unit	Vent plug	ød		h	
		[mm]	[in]	[mm]	[in]
SK 92072.1	M8 x 1.0	15	0.59	12	0.47
SK 92172.1	M10 x 1.0	17	0.67	15	0.59
SK 92372.1	M12 x 1.5	21	0.83	15	0.59
SK 92672.1	M12 x 1.5	21	0.83	15	0.59
SK 92772.1	M12 x 1.5	21	0.83	15	0.59

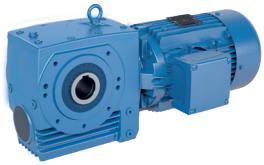
Efficiency η:

The advantage of a bevel gear unit is nearly constant efficiency over the entire gear ratio range – practically equal to that of helical and parallel shaft gear units.

NORD bevel gear units are available with multiple gear stages:

	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

UNICASE™ Worm Gear Units



UNICASE worm gear units

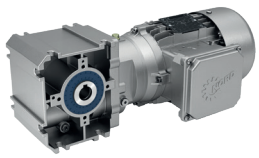
Case Sizes: 6

Gear Unit	Stages	Housing Design	Housing Material
SK 02040.1	2	Standard housing	Aluminum
SK 02050 – SK 42125	2	Standard housing	Cast iron
SK 13050 – SK 43125	3	Standard housing plus add-on housing	Cast iron

UNICASE Worm Gear Units are angular gear units available in multiple stages where the motor shaft and the output shaft form a 90° angle. This allows for flexible mounting options where installation space is limited.

The helical gears of UNICASE worm gear units are made of high alloy steel with case-hardened teeth. Optimized geometries and precise shaft alignment provide excellent load-bearing capacity, long operating life, and quiet operation. The worm stage has a hardened cylinder worm as well as a worm gear with a special bronze rim welded to it. This combination ensures ultimate reliability.

UNICASE worm gear units are factory lubricated with high-quality, synthetic lubricant. This lubricant prevents friction, provides a high degree of efficiency, and further increases the life of these gear units.



SK 02040.1 UNICASE worm gear units

Made from high-strength aluminum or die-cast aluminum, these units guarantee maximum strength and rigidity in a lightweight, compact unit. Their universal mounting design offers significant customer advantages, including fast installation.

Efficiency η:

NORD UNICASE worm gear units achieve efficiencies of up to 93%. Approximate efficiency per case size and ratio is provided in the gear unit rating tables. New worm gear units need to run approximately 25 – 48 hours at full rated load to allow the teeth of the worm gear set to mesh cleanly, reduce friction, and optimize both the gear mesh contact pattern and operating efficiency.

The gear unit rating tables list the ratio of worm wheel teeth divided by the number of starts on the worm pinion (Z_2/Z_1). Single start worms offer a higher total reduction ratio and slower output speeds while multiple start worms generally provide lower reduction ratios, faster output speeds, and higher operating efficiencies.

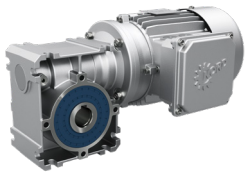
The following conditions must be met to achieve maximum efficiencies values:

- Gear unit must be fully conditioned
- Gear unit must reach steady-state operating temperature
- Gear unit must be filled with a NORD approved or specified lubricant at the quantity specified by NORD
- Gear unit must be operated at rated speed and load conditions

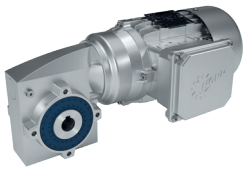
UNIVERSAL SI and SMI Worm Gear Units

Case Sizes: 10

Gear Unit	Stages	Housing Design	Housing Material
SK 1SI31 – SK 1SI75	1	Standard housing	Aluminum
SK 1SMI31 – SK 1SMI75	1	Standard housing	Aluminum
SK 1SI40/H10 – SK 1SI75/H10	2	Standard housing plus add-on housing	Aluminum
SK 1SMI40/H10 – SK 1SMI75/H10	2	Standard housing plus add-on housing	Aluminum



SI gear unit series



SMI gear unit series

The SI gear unit series is a modular family that utilizes a universal housing. The basic gear unit is supplemented with a range of easily configured components that are either supplied as assembled units by NORD or supplied loose and assembled by the customer. These standard modular components provide maximum flexibility for a wide range of applications, and due to the global availability of the individual components, are also able to be delivered very quickly. Visit shop.nord.com to order modular components.

The SMI series is characterized by a smooth surface design that makes it specially suitable for wash-down environments and applications in the Food & Beverage industry. SMI units can either be supplied with direct motor mounting without a coupling or with an IEC/NEMA motor. A differentiation is made between the foot-mounted version and the flange-mounted version.

SI and SMI gear unit series are available in case sizes 31, 40, 50, 63, and 75.

Nomenclature

Gear Unit	IEC / NEMA input	Integral Motor
Worm gear unit	SK 1S(M)Ixx	SK 1S(M)IDxx
Worm gear unit with H10 input stage	SK 1S(M)Ixx/H10	
Worm gear unit with helical input stage		SK 2S(M)IDxx
Double worm gear	SK 1S(M)Ixx/xx	

Speed Ratios

Standard speed ratios

The worms of all worm gear units in the NORD UNIVERSAL range have a right-handed helix from which the rotation direction results. See ⇨🕮 A64 for more information on direction of rotation.

- 5
- 7.5
- 10
- 12.5
- 15
- 20
- 25
- 30
- 40
- 50
- 60
- 80
- 100

The speed ratios of the single-stage gear units cover a wide range and are the same for all sizes.

H10 input stage

SK 1S(M)I40, SK 1S(M)I50, SK 1S(M)I63, and SK 1S(M)I75 can be extended to form a 2-stage worm gear unit by fitting them with an H10 helical gear adapter. The speed ratio of the H10 input stage is $i_{H10} = 10$.

Helical input stage

A highly compact first stage with a speed ratio of $i_{vor} = 5$ with integral motor mounting is available for SK 2S(M)I40, SK 2S(M)I50, and SK 2S(M)I63.

Double worm gear

The double worm gear adapter allows for the combination of two worm gear units. The following double worm gear units are available:

- SK 1S(M)I40/31
- SK 1S(M)I50/31
- SK 1S(M)I63/31
- SK 1S(M)I75/40

Self-locking

Self-locking NORD UNIVERSAL worm gear units disable the stationary gear unit from rotating, even with large torques at the output (worm gear shaft). When running, the drive automatically comes to rest when the motor is switched off. With a mass-acceleration factor of $m_{af} > 1$, (see the section 'Gear Unit Selection') the self-locking can result in sudden blocking of the drive or rattling vibrations in case of load reversals in thrust operation (see VDI 2158). Gear units that are not self-locking should be selected for these fields of application.

Self-locking and self-braking depends on the speed ratio in the worm stage.

Worm Ratio = 5 – 10	Worm Ratio = 12.5 – 40	Worm Ratio = 50 – 80	Worm Ratio = 100
No self-locking	No specific statement regarding self-locking	Self-locking at rest and with no vibration	Self-locking
No self-braking	No self-braking	No specific statement regarding self-braking	Self-braking at $n_1 < 1500$ r/min for: SK 1S(M)I31, SK 1(M)I40, SK 1S(M)I50

Efficiency

With new worm gear units, the efficiency is increased by running-in the worm gear meshing during the initial phase of normal operation. The output torques and powers stated in the tables take the efficiency during the run-in state into account.

The efficiency of worm gear units increases with the input speed thanks to hydrodynamic lubrication of the teeth. When starting from standstill, there is initially a lower start-up efficiency that must be considered for the motor torque if the unit is started under load. The following tables give guidelines for the starting efficiency depending on the worm gear ratio.

Efficiency η [%] at η_1 = 1,500 r/min

Ratio	SK 1S(M)I31	SK 1S(M)I40	SK 1S(M)I50	SK 1S(M)I63	SK 1S(M)I75	Start-Up
5	86	88	90	92	93	72
7.5	82	85	87	89	91	67
10	79	83	85	88	89	62
12.5	76	80	84	86	88	59
15	71	75	79	82	84	53
20	66	72	76	79	82	47
25	62	68	73	77	80	43
30	54	60	65	69	78	36
40	49	55	60	65	69	31
50	44	51	56	61	66	27
60	41	47	53	58	63	25
80	35	41	47	52	57	20
100	31	36	42	47	53	17

Efficiency η [%] at η_1 = 1,800 r/min

Ratio	SK 1S(M)I31	SK 1S(M)I40	SK 1S(M)I50	SK 1S(M)I63	SK 1S(M)I75	Start-Up
5	87	89	91	92	93	72
7.5	82	85	88	90	91	67
10	80	83	86	88	90	62
12.5	77	81	84	87	89	59
15	72	76	80	83	85	53
20	67	73	77	80	83	47
25	63	69	74	78	81	43
30	55	61	66	70	79	36
40	50	56	62	66	70	31
50	46	52	58	63	67	27
60	42	48	54	59	64	25
80	36	42	48	54	59	20
100	32	38	44	49	54	17

Notes On Gear Units and Geared Motors

Vertical mounting positions

Gear units and gear motors may be mounted in positions with vertical solid and hollow shafts. For these versions, the gear units are filled with additional lubricant to ensure gear pairings remain properly lubricated during operation. Some gearbox types are also equipped with specially sealed grease-lubricated bearings. With these versions, there are higher oil losses due to splashing which causes greater heating of the gear unit (contact NORD for evaluation).

Oil expansion tank

For vertical and top-mounted motors (installation position M4) and gear ratios i < 20, oil expansion chambers are strongly recommended to prevent the escape of oil through the air vent. Contact NORD so we can generate a solution for your specific drive application.

Special ambient conditions

When gear units are installed outdoors, in damp rooms, or when used in tropical environments, special seals and anti-corrosion measures are necessary. Other ambient conditions, such as during transport or storage prior to installation, may also require additional measures to protect the units and should be considered in the planning stage of the project. If the following conditions apply, contact NORD during the project planning phase for a detailed examination of the application.

These conditions include:

- Aggressive or corrosive materials in the environment (contaminated air, gases, acids, bases, salts, etc.)
- High relative humidity or contact between the geared motor and liquids
- Severe dirt, dust, or sand deposits on the geared motor
- Severe air pressure fluctuations
- Radiation
- Extreme ambient temperatures or significant temperature changes
  - **Helical inline, helical bevel, and parallel shaft gear units:** > 40°C / 104°F or < -20°C / -4°F
  - **Worm gear units:** > 40°C / 104°F or < 0°C / 32°F
- Vibrations, accelerations, shocks, impacts, or other abnormal ambient conditions.
  The limit values of DIN ISO 20816, Zones A and B must be observed.

Storage before commissioning

Prior to installation, gear units and gear motors should only be stored in dry rooms. For longer periods of storage, special measures are necessary. Please download the manual B1000 at www.nord.com.

Ventilation

NORD gear units have a vent plug that compensates for differences in air pressure between the interior of the gear unit and the environment. This vent is closed on delivery to avoid oil leakage during transport and must be activated prior to installation by removing the sealing plug.

Double gear units

With 4-, 5- and 6-stage double gear units, there is minimum load loss due to the many rotating parts and the small drive input power. A no-load loss of approx. 40 watts for 4-pole motors up to 0.75 kW / 1.0 hp is considered in the performance tables.

Notes On Gear Units and Geared Motors

Drives for blowers, agitators, mixers and fans

Drives for ventilators, agitators, and mixers in wastewater treatment plants, in anaerobic digesters for biogas, and in process engineering and fan drives (e.g., in cooling towers) are normally subject to extremely harsh operating conditions such as:

- 24-hour continuous operation at nominal torque or nominal power
- Large inertia at the output with low gear ratios
- Vibrations in the drive chain
- High oscillating bending moments and forces on the drive shaft (with direct positioning of the mixer or ventilator shaft in the gear unit)
- Vertical Installation
- Outdoor installation including humidity and aggressive media, as well as severe changes in temperature that form condensation

High environmental protection is required in these instances and typically includes complete sealing and safe oil servicing.

Special measures

NORD has developed a package of special measures to cater to these demanding conditions and highly recommends taking these into account during the planning stage of the project.

Service factor f_B

A minimum service factor of $f_B = 1.7$ must be selected for agitator and mixer drives due to the heavy loads. NORD recommends a service factor greater than $f_B = 2.0$. For drives running on frequency inverters, care must be taken so that no control-induced vibrations are generated, e.g. via slip compensation. Please note that a speed increase via frequency inverter will increase absorbed power by a power of three.

The service factor f_B must always be determined with reference to the maximum speed.

Designs & Options

Abbreviation	Meaning	UNICASE™ / NORDBLOC.1® Helical Inline Gear Units	UNICASE™ Parallel Shaft Gear Units	UNICASE™ / NORDBLOC.1® Helical Bevel Gear Units	UNICASE™ Helical Worm Gear Units	UNIVERSAL SI / SMI Worm Gear Units	⇨📖
Housing Design							
X	Foot-mounted housing	●		●	●		22
F	B5 flange	●	●	●	●	●	22
Z	B14 flange	●	●	●	●	●	22
XF	Foot-mounted housing with B5 flange			●		●	22
XZ	Foot-mounted housing with B14 flange			●		●	22
Shaft Design							
V	Solid shaft	●	●	●	●	●	23
L	Double solid shaft			●	●	●	23
VF	Extended solid shaft		●	●			23
A	Hollow shaft		●	●	●	●	23
B	Fastening element		●	●	●	●	23
EA	Hollow shaft with internal spline		●	●			23
Torque Transmission Options							
S	Shrink disc		●	●	●		24
VS	Reinforced shrink disc		●	●			24
M	GRIPMAXX		●	●	●		24
MM	Symmetrical GRIPMAXX		●	●	●		24
Shaft Cover Options							
H	Hollow shaft cover		●	●	●	●	24
SH	Shrink disc cover		●	●	●		24
H66	IP66 hollow shaft cover		●	●	●		24
Bearing Design							
VL	Reinforced output bearings	●	●	●	●		25
VL2	Spread bearing design		●	●[1]			25
VL3	Spread bearing design with oil safe dry cavity		●	●[1]			25
Mounting Options							
D	Torque arm			●	●	●	26
K	Bottom mount torque arm			●			26
G	Rubber buffer		●				26
VG	Reinforced rubber buffer		●				26
SCP	Screw conveyor package (SCP)		●	●			27
Sealing Options							
VI	Fluoro-rubber seals (FKM)	●	●	●	●	●	27
2WD	Double-output shaft seals	●	●	●	●		27

● Available

[1] Only available for UNICASE helical bevel gear units.

Abbreviation	Meaning	UNICASE™ / NORDBLOC.1® Helical Inline Gear Units	UNICASE™ Parallel Shaft Gear Units	UNICASE™ / NORDBLOC.1® Helical Bevel Gear Units	UNICASE™ Helical Worm Gear Units	UNIVERSAL SI / SMI Worm Gear Units	⇨📖
Breathers and Plugs							
OV	Open vent	●	●	●	●	●	28
DR	Spring-loaded breather / AUTOVENT™	●	●	●	●	●	28
FV	Filtered vent	●	●	●	●	●	28
MGP	Magnetic drain plug	●	●	●	●	●	28
Further Options							
R	Backstop			●			29
OSG	Oil sight glass	●	●	●	●		41
OC	Oil cooler	●	●	●	●		41
OA	Oil expansion chamber	●	●	●	●		42
OT	Oil reservoir tank	●	●	●			44
Input Adapters							
W	Solid input shaft	●	●	●	●	●	45
RLS	Input backstop	●	●	●			45
BRG1	Regreasing of bearings	●	●	●			45

● Available

Drive Types

The modular NORD concept enables gear units to accomodate all types of drives. All drives are bolted on and have turned mating surfaces for simple, precise mounting.

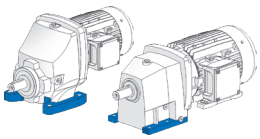
NORD supplies the following drive types:

- Gear motor
- Gear unit with free input shaft
- Gear unit with IEC or NEMA motor adapter

Among others, NORD provides the following mounting options:

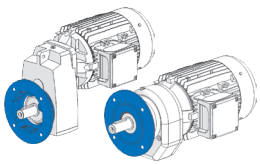
- Foot (X)
- Flange B5 (F)
- Flange B14 (Z)
- Hollow shaft (A)
- Foot, flange B5 (XF)
- Foot, flange B14 (XZ)

Housing Design



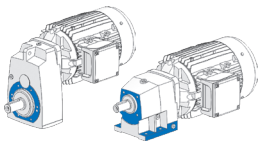
Foot-Mounted Housing (X)

Gear units are typically designed for foot mounting utilizing a mounting plate with bolts or studs. They are equipped with mounting feet with through holes.



Flange B5 (F)

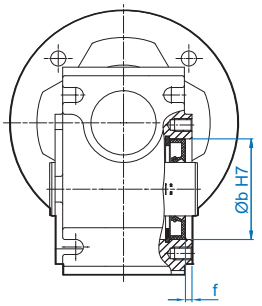
A flange B5 is a simple mounting flange with a large diameter, through holes, and a centered mating surface that secures the gear unit to the application. The flange B5 has standard metric dimensions and is available for all NORD gear motors.



Flange B14 (Z)

A flange B14 has threaded holes and a centered mating surface in the housing of the gear unit. It is a compact method commonly used to attach the gear motor to the base of the application or to attach a wide range of add-on components such as a flange B5, torque arm, or shaft cover. The flange B14 has standard metric dimensions.

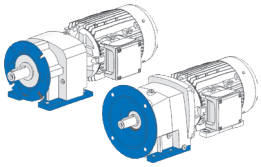
The standard output flanges of UNIVERSAL SI and SMI worm gear units enable centering.



Centering of Output Flange B14

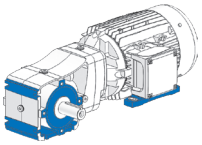
UNIVERSAL Worm Gear Unit Size	øb H7 [mm]	f [mm]
31	47	3
40	62	3
50	80	3
63	100	4
75	120	4

Foot-Mounted Housing, Flange B5 (XF)



NORD offers a wide range of gear units with a foot-mounted housing and flange B5. This flange is intended for mounting auxiliary equipment on the gear unit and an additional support must be used if the flange is used to attach the gear unit to the application. The XF types of UNICASE™ Helical Bevel Gear Units are designed for foot mounting. The XF types of all other gear unit series can either be foot or flange mounted.

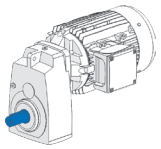
Foot-Mounted Housing, Flange B14 (XZ)



NORD can supply some foot mounted gear units with a face flange B14 as well. These XZ units are designed to be foot and not flange mounted. The flange B14 is intended for mounting auxiliary equipment on the gear unit and an additional support must be used if the flange is used to attach the gear unit to the application.

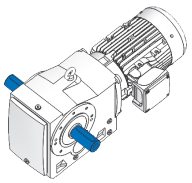
Shaft Design

Solid Shaft (V)



NORD standard shafts with parallel keys have a threaded hole in the face side. These shafts are available in metric or imperial dimensions.

Double Solid Shaft (L)

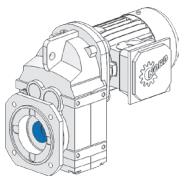


The standard solid shaft end is projected out of both sides of the gear unit. This option is commonly used to transfer torque out of both sides of the NORDBLOC.1 helical bevel gear units or to mount a speed-monitoring device, such as an encoder, on one of the shaft ends. Keyway alignment must be specified when ordering.

Solid Shaft, Flange B5 (VF)

NORD offers optional solid shafts for UNICASE™ parallel shaft, helical bevel, and UNICASE worm gear units with a mounting flange. This option provides additional shaft length past the mounting flange surface. Contact NORD for further details.

Hollow Shaft (A)



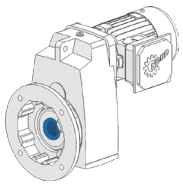
Standard hollow shafts with parallel keys are made from high-quality carbon steel. NORD gear motors are available with various shaft diameters upon request.

Fixing Element (B)

As small vibrations occur with all shafts, NORD supplies an optional fixing element kit. This prevents the gear motor from changing its position in an axial direction during use.

See 🕮⇨ A89 for fixing element kit engineering information.

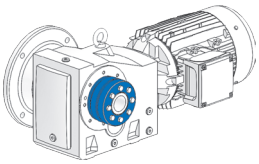
Splined Hollow Shaft, DIN 5480 (EA)



Hollow shafts with metric spline profiles as per DIN 5480 are available for select NORD gear motors. These splined shafts are often used for crane travel drives.

Torque Transmission Options

Shrink Disc (S)



The shrink disc is based on a clamping principle which enables torque transfer via friction by converting the tightening force of the clamping screws into a radial pressure between the shaft and the hub, allowing shrinking onto the shaft. Shrink discs enable a force fit which is completely free of play and can transfer large torques in contrast with other types of mounting. Shrink discs do not wear, even with frequent changes of load or direction of rotation.

Shrink discs provide the following advantages:

- Reduced mating surface corrosion in contrast to key connections
- Easy assembly and dismantling
- Larger hollow bore diameters possible than keyed hollow shafts

See ⇨🕮 A78 for engineering information on shrink disks.

Heavy-Duty Shrink Disc (VS)

The NORD heavy-duty shrink disc provides greater clamping force and greater safety for demanding applications.

GRIPMAXX™ (M)

GRIPMAXX is an innovative hollow shaft bushing clamping system for friction-locked torque transmission between the gearbox shaft and the driven machine's shaft.

GRIPMAXX uses the proven NORD shrink disk system and a unique, patented hollow shaft and clamping bush design which provides both high strength and flexibility to accommodate a wide range of inch and metric bushing inserts.

GRIPMAXX offers several advantages:

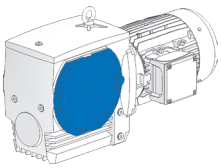
- **Bore size flexibility** – a single gear unit can be supplied with multiple bore sizes/bushing options
- **No special shaft tolerances** – readily available, keyless, and cold-finished shaft stock can be used since the bushing absorbs the extra clearance in the system
- **Easy installation and removal** – The loose tolerance requirements of the driven machine shaft and generous assembly clearances help ensure easy installation

Symmetrical GRIPMAXX™ (MM)

The GRIPMAXX bushing system is also available as a symmetrical version and allows the shrink disk to be mounted on the A or B side of the gearbox.

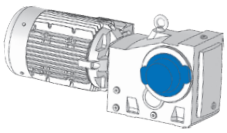
See ⇨🕮 A84 for engineering information on GRIPMAXX.

Shaft Cover Options



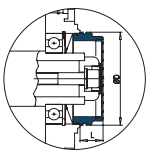
Hollow Shaft Cover (H)

An optional cover for the rotating hollow shaft is available. This also protects the output shaft against dust and dirt.



Shrink Disc Cover (SH)

A shrink disc cover is required for all shrink disc gear units and provides protection from the rotating shrink disk. This cover is included with all shrink disc selected options.



IP66 Hollow Shaft Cover (H66)

NORD supplies hollow shaft covers in protection class IP66 (protection against dust and splashed water). The rotating hollow shaft is completely sealed against humidity and foreign bodies.

Bearing Design

Reinforced Output Bearings (VL)

The use of reinforced output bearings with increased load bearing capacity enables higher external loads (radial/axial) to be absorbed. Contact NORD in case of greater axial or radial loads than shown in the rating tables.

Spread Bearing Design (VL2)

NORD offers reinforced output shaft bearings with increased bearing distance. The lower bearing is an oversized, double row spherical bearing that absorbs high overhung and thrust loads while providing a longer bearing life. The VL2 spread bearing design is commonly used for shredders, mixers, overhead conveyors, or applications requiring increased bearing load carrying capacities. Included with the VL2 design is a grease fitting for the lower bearing and a removable plug to allow excess grease to purge from the bearing cavity.

Spread Bearing Design with DRYWELL (VL3)

The VL3 DRYWELL design adds additional oil leak protective measures to the VL2 spread bearing design. When using a vertical output shaft, NORD's sealing system prevents oil from leaking from the gear unit into the flange. If any oil were to leak past the seals, it would flow down to the oil slinger mounted onto the shaft. As the shaft rotates, the oil will sling off into the dry cavity. If oil leaks past the seals into the dry cavity, the seals must be replaced to prevent futher leakage. A sight tube is provided for dry cavity inspection. At the bottom of the spread bearing flange is a grease packed, shaft seal with an additional dust lip.

The VL3 DRYWELL design is intended for UNICASE Parallel Gear Units in mounting position M4 and UNICASE Bevel Gear Units in mounting positions M5 and M6. For operation in other mounting positions, please contact NORD.

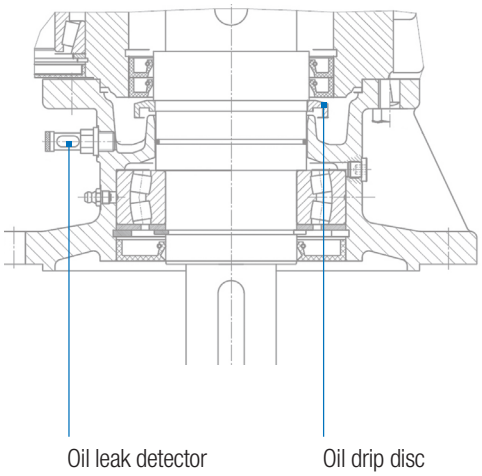
VL3 DRYWELL design

- UNICASE Parallel Gear Units
- UNICASE Helical Bevel Gear Units

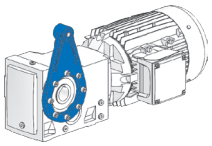
Calculation of bearing life

NORD can calculate the bearing service life upon request. The following values are required for calculation:

- P [kW / hp] Rated power
- n_2 [r/min] Output speed
- $F_{A2,req}$ [N / lb] Axial force
- $F_{R1,req}$ [N / lb] Radial force
- C [mm / in] Distance of point of action of the force from the contact surface of the flange
- Lh [h] Bearing life
- $M_{B2,req}$ [Nm] Bending torque

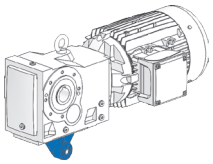


Mounting Options



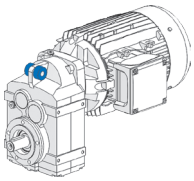
Torque Arm (D)

A torque arm is a compact, simple solution to secure a hollow shaft mounted gear motor. It is bolted to the gearbox's flange B14 and includes a rubber bushing at the attachment hole that acts as a shock absorber to dampen any load impacts.



Torque Bracket (K)

A torque bracket is used to secure a shaft mounted gear motor. It is bolted to the underside of the gear unit and includes a rubber bushing at the attachment hole to absorb shock loads.

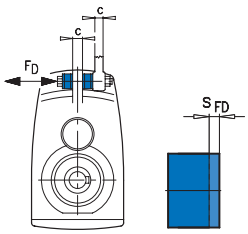


Rubber Buffer (G)

Two rubber buffers are mounted on the torque tab of the UNICASE™ parallel shaft gear units. They are used to dampen torsional load shocks that act on the gear motor. As the rubber buffers reduce the overall torsional load shocks, their use can increase the service life of the gear motor and the dampening effect can be increased using several buffers in a row. The permissible temperature range for the use of rubber buffers is from -40°C / -40°F to 80°C / 176°F.

Total distance buffers compress at force: $S_{FDtot} = n \times S_{FD}$

- S_{FD} Distance buffers compress at force [mm]
- n Number of rubber buffers used in series



Reinforced Rubber Buffer (VG)

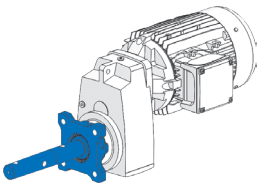
Rubber buffers are optionally available as reinforced VG versions for UNICASE parallel shaft gear units with face mounted designs. Rubber buffers are always supplied in pairs.

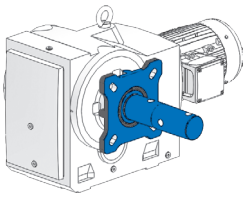
- FD Compressive force acting on rubber buffer [kN]
- c Width
- S_{FD} Distance buffers compress at force

See 🕮⇨ D148 for UNICASE parallel shaft gear unit dimensions.

Screw Conveyor Package (SCP)

The NORD screw conveyor package provides a complete power transmission for screw conveyor applications. Increased efficiency comes from the elimination of costly V-belt drives and by providing integral gear motors or direct coupled motors. The SCP package also features a superior sealing system and flexible mounting features.





Optimized Sealing System

- Dual (VI) lip seals
- Grease impregnated packing seal
- Dual gap seals (excludes particles)
- Material evacuation ports
- Shaft material ditch

Mounting

- Standard CEMA mounting
- Versatile flange – multiple bolt patterns
- 3-hole tapered CEMA drive shaft (easy mounting and removal)
- Reduced bearing loads – tapered shaft allows for screw pipe misalignment
- Quick external removal feature

See ⇨🕮 A70 for Screw Conveyor Package engineering information.

Sealing Options

(FKM) Fluoro-Rubber Seals (VI)

Fluoro-rubber elastomer (FKM) output shaft sealing rings, also known by the trade name Viton, can be supplied for almost all types of gear units. FKM seals have a higher resistance to heat and chemicals and are recommended in place of the standard NBR shaft sealing rings when temperatures are above 85°C (185°F) for mineral oil lubrication and 80°C (176°F) for synthetic lubrication. For applications in which the shaft sealing ring encounters chemicals from the outside, e.g. when cleaning the plant, the compatibility of the shaft sealing ring material must be checked, both for NBR and FKM.

Double Output Shaft Seals (2WD)

Increased reliability is provided by the double shaft seal on the output side consisting of two shaft sealing rings. Substances acting on the seal from the outside must overcome additional barriers before they can reach the inner sealing lip and cause leakage.

In the event of damage from the outside, the second shaft seal provides additional leakage safety. The double shaft seal has an inner shaft seal without a protective lip and an outer shaft seal with protective lip.

Breathers and Plugs

Open Vent (OV)

An open vent is available for NORD gear units. The open vent equalizes air pressure differences between the inner space of the gear unit and the outer environment. Open vents are closed upon delivery to prevent oil leakage. Before the gear unit is put in service, the open vent should be activated by removing the sealing plug.

Spring-Loaded Breather / AUTOVENT™ (DR)

The AUTOVENT™ limits excessively high internal pressures and helps prevent bearing and gear damage by behaving like a check valve to block the entry of foreign material and prevent lubrication contamination from dust particles, moisture, and air-borne process chemicals. The breather opens if the internal pressure rises during operation and closes tightly as the gearbox cools. This is optimal for humid conditions and wash-down environments, helping to maintain proper oil cleanliness while reducing foaming and oxidation.

UNIVERSAL SI Worm Gear Units

Worm gear units can be supplied with a vent for most installation positions. The installation position must be stated for vented gear units.

	Installation Positions					
Gear Unit	M1	M2	M3	M4	M5	M6
SK 1SI31		●	●	●		●
SK 1SI40		●	●	●		●
SK 1SI50	●	●	●	●		●
SK 1SI63	●	●	●	●	●	●
SK 1SI75	●	●	●	●		●

Filtered Vent (FV)

A filtered vent allows gases to permeate but does not allow dust and debris to pass through the vent. Contact NORD to discuss if a filtered vent is possible for your application.

Magnetic Drain Plug (MDP)

Magnetic drain plugs attract and hold ferrous metal particles that may circulate inside the gear unit's lubrication system. These potentially abrasive particles may cause excessive wear in the gear unit if they remain circulating.

Further Options

Backstop (R)

Grease-lubricated backstop

Backstops are available as an option to prevent the shaft from rotating in the opposite direction. Three-phase AC-motors in case size 80 or larger and mounting adapters with free input shafts may be equipped with a grease-lubricated backstop. These backstops lift off due to centrifugal force at a rotation speed (n_1) greater than approx. 900 r/min and then run without wear.

Integrated backstop

Bevel gear units SK 9012.1, SK 9022.1, ... SK 9096.1 are available with a standard backstop that is integrated into the gear unit. For these, the backstop is lubricated via the gear unit oil filling.

Special version with backstop

The motor adapters AI160 – AI315 and AN210TC – AN400TC for gear units of size SK 62/6282/9072.1 and above can be equipped with a backstop as a special option. Smaller gear units with smaller IEC adapters are available as special versions with a backstop in the motor adapter upon request.

For drive units with a backstop, the direction of rotation for the output shaft must be stated. The direction of rotation is defined from the viewpoint of the drive shaft. Please reference the drawings below.

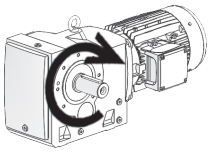
Danger of fracture

Notice! Danger of fracture. Check the direction of rotation of the motor and the gear unit before starting up the system. Arrows on the gear unit indicate the direction of rotation.

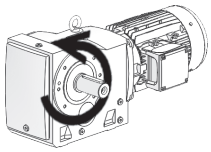
- CW Clockwise rotation, rotation to right
- CCW Counterclockwise rotation, rotation to left

See table of rotation ⇨🕮 A64.

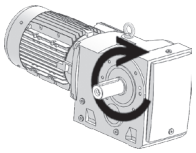
UNICASE™ Helical Bevel Gear Units



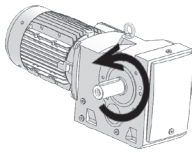
A-side CW



A-side CCW

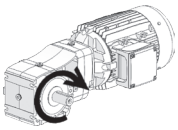


B-side CW

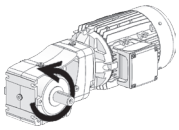


B-side CCW

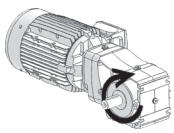
NORDBLOC.1® Helical Bevel Gear Units



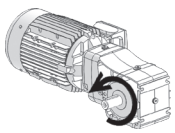
A-side CW



A-side CCW

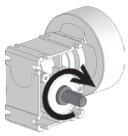


B-side CW

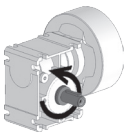


B-side CCW

UNIVERSAL SI Worm Gear Units



A-side CW

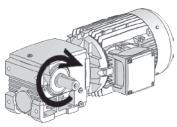


A-side CCW

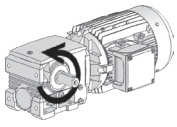
B-side CW

B-side CCW

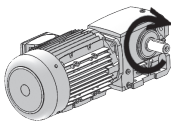
UNICASE™ Helical Worm Gear Units



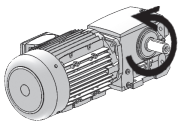
A-side CW



A-side CCW



B-side CW



B-side CCW

Lubrication

The following tables show standard and optional lubricant types for NORD gear units. For details on NORD approved lubricants, see manual B1000. NORD selects the optimum oil type based on application data.

Oil Fill Quantities

All relevant, up-to-date oil fill quantities can be checked online via the myNORD online customer portal.

Oil Type	Details on Nameplate	Gear Unit Type			
		Helical Inline	Helical Bevel	Parallel Shaft	Worm Gear
Mineral oil	CLP 220	●	●	●	
Synthetic oil - polyalphaolefin (PAO)	CLP HC 220	●	●	●	
	CLP HC 680				●
Synthetic oil - polyglycol (PG)	CLP PG 220	●	●	●	
	CLP PG 680				●
Food grade oil - polyglycol (PG)	CLP PG H1 220	●	●	●	
	CLP PG H1 680				●
Bio-degradable oil	CLP E 220	●	●	●	
	CLP E 680				●
Mineral oil - VCI long-term storage*	CLP 220 VCI	❍	❍	❍	
Synthetic oil - polyalphaolefin (PAO) - VCI long-term storage*	CLP HC 220 VCI	❍	❍	❍	

● Default offering
● Optional offering
❍ Long term storage

* NORD recommends the long-term storage option for storage or downtimes of more than 9 months. We offer standard mineral oils and PAO-HC synthetic oils with a VCI additive. If these lubricants are used, the gear units can be filled with the standard amount of oil (no overfiling necessary) and stored for up to 2 years.

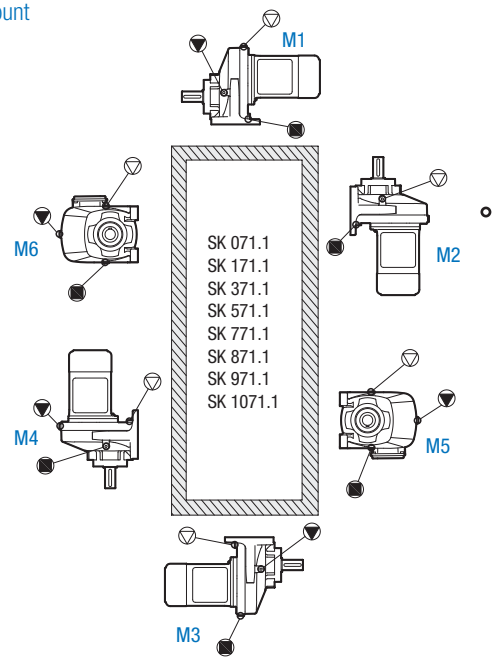
See manual B1000 for details on NORD approved lubricants. NORD selects the optimum oil type based on application data.

NORDBLOC.1® Helical Inline Gear Unit Oil Plug Locations

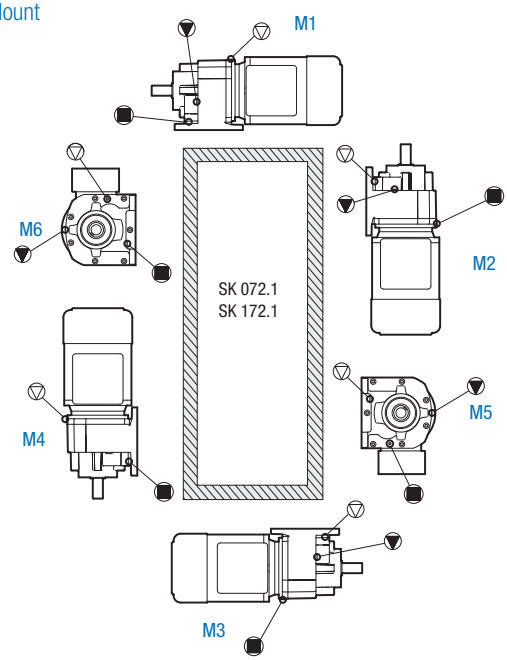
Prior to commissioning, check the oil fill level using the gear unit's oil level plug and drain. Add additional oil as needed. The correct oil level is located at the lower edge of the oil level hole. For mounting orientations other than those shown, contact NORD as new plug locations may be required.

▽	▼	■
Vent	Oil level	Oil plug

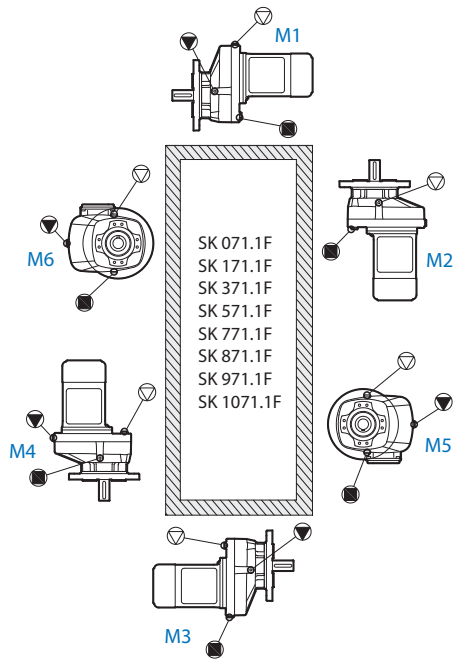
Foot Mount



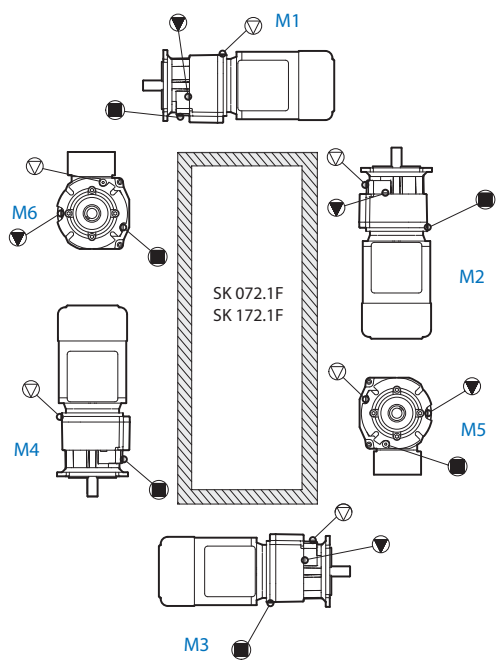
Foot Mount



Shaft / Flange Mount



Shaft / Flange Mount

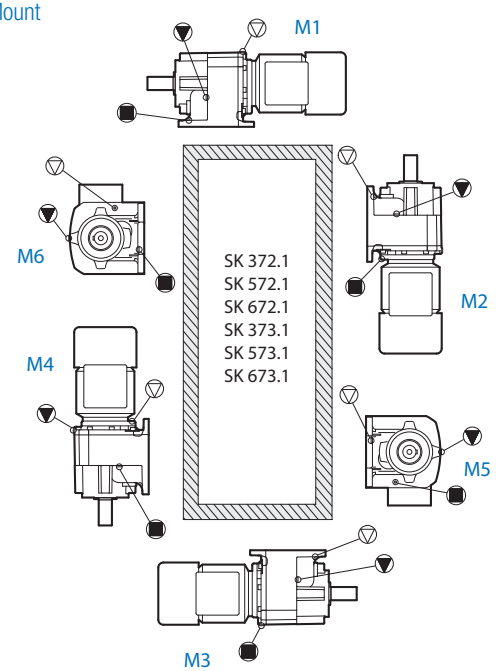


NORDBLOC.1® Helical Inline Gear Unit Oil Plug Locations

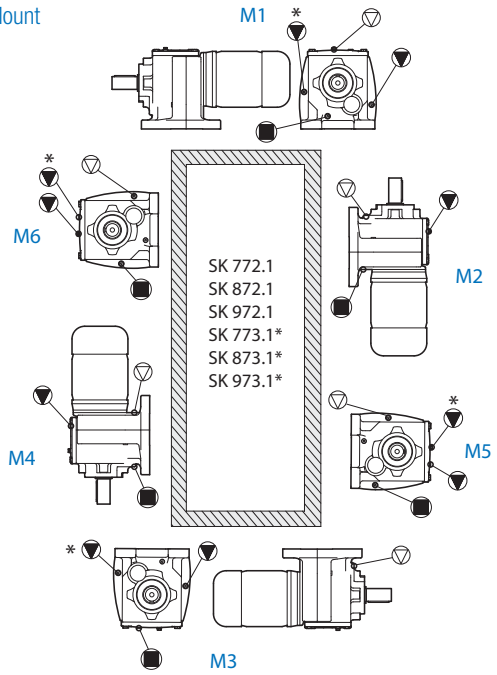
Prior to installation, check the oil fill level using the gear unit's oil level plug and drain. Add additional oil as needed. The correct oil level is located at the lower edge of the oil level hole. For mounting orientations other than those shown, please consult NORD as new plug locations may be required.

▽	▼	■
Vent	Oil level	Oil plug

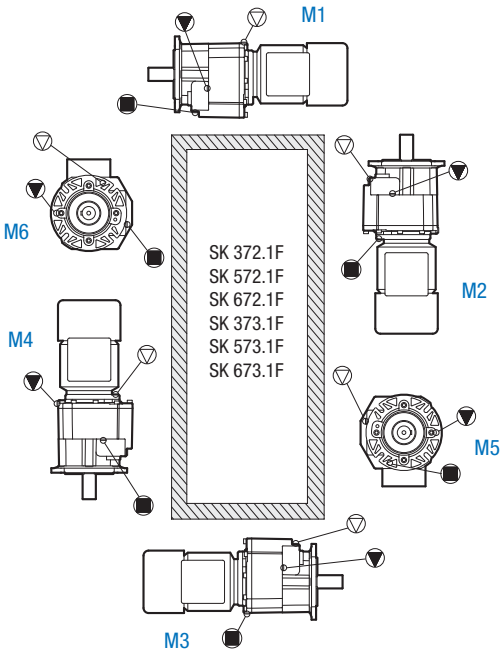
Foot Mount



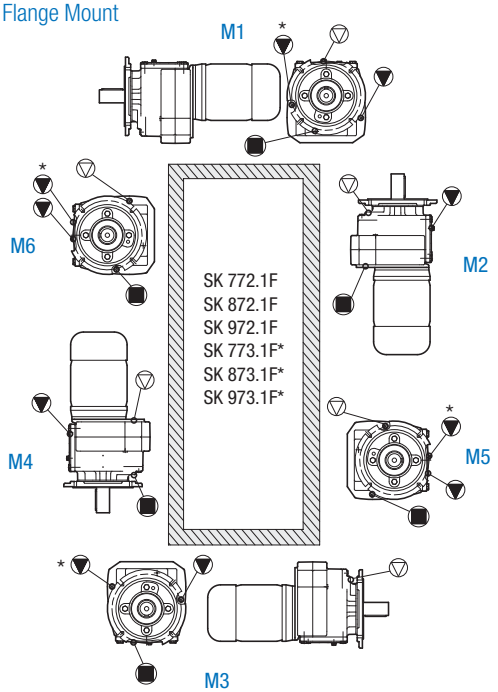
Foot Mount



Shaft / Flange Mount



Shaft / Flange Mount

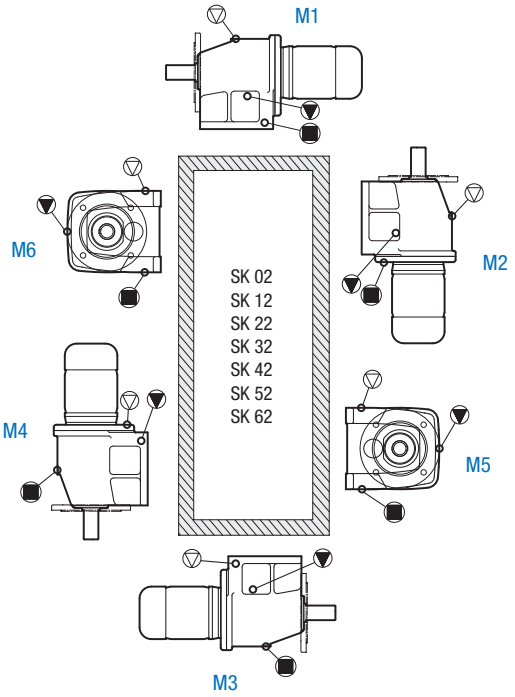


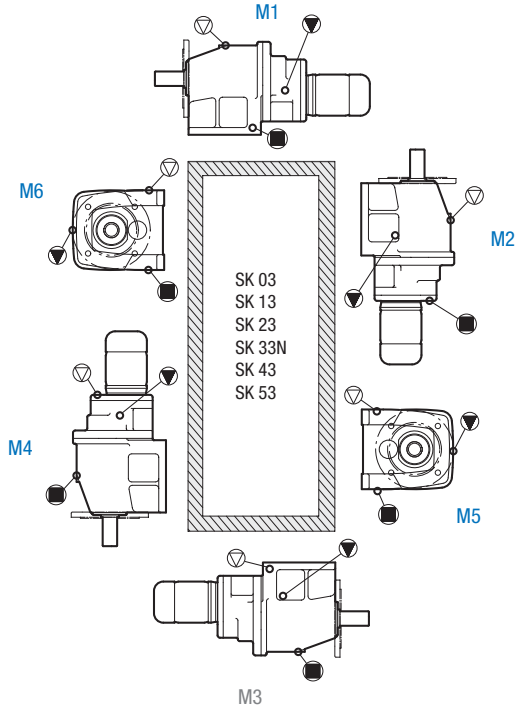
* Oil fill level for three stage gear units

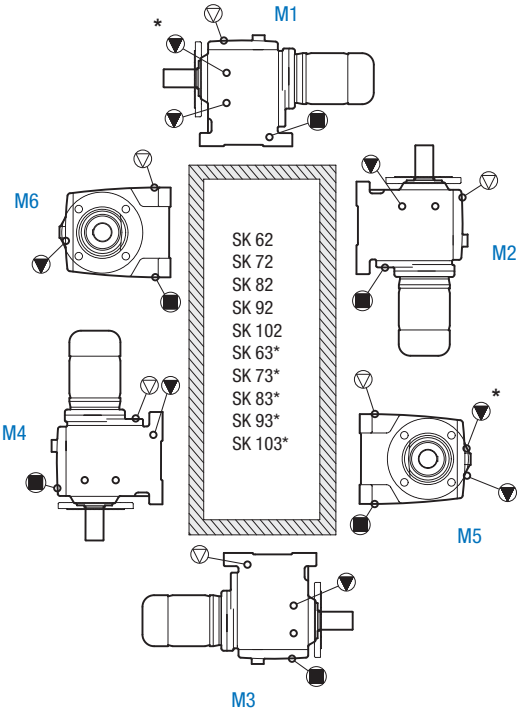
UNICASE™ Helical Inline Gear Unit Oil Plug Locations

Prior to installation, check the oil fill level using the gear unit's oil level plug and drain. Add additional oil as needed. The correct oil level is located at the lower edge of the oil level hole. For mounting orientations other than those shown, please consult NORD as new plug locations may be required.

▽	▼	■
Vent	Oil level	Oil plug



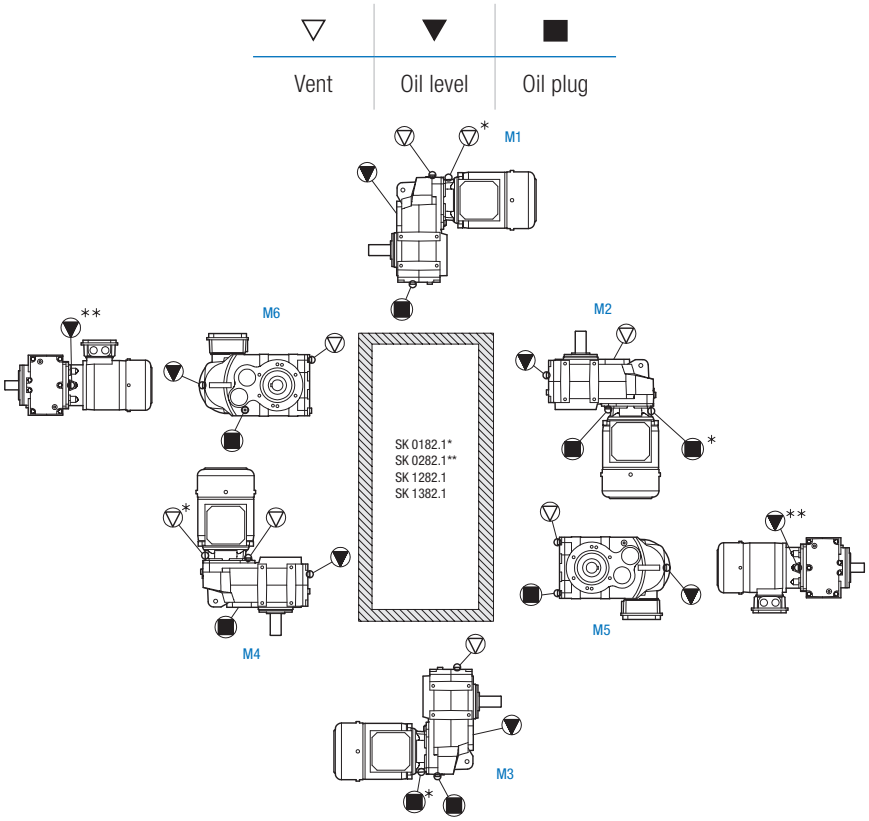


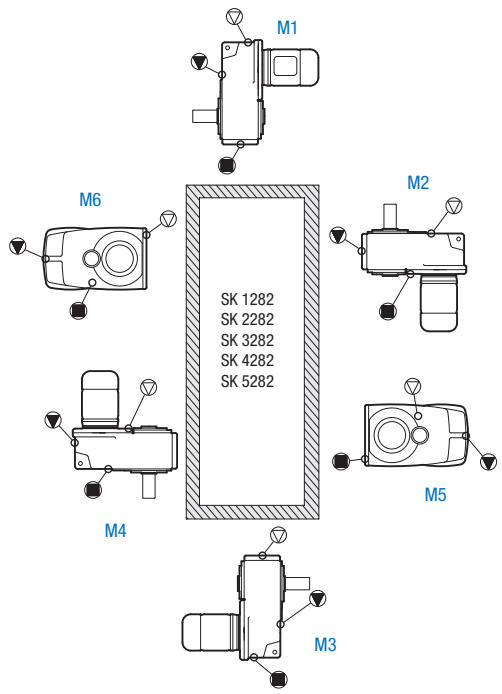


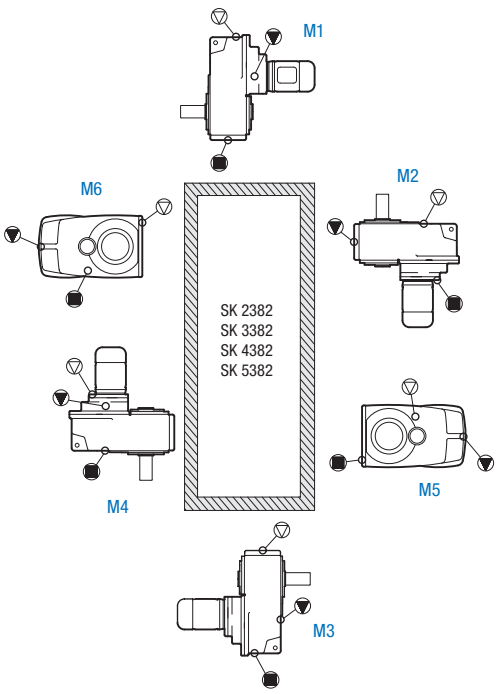
* Oil fill level for three stage gear units

UNICASE™ Parallel Shaft Gear Unit Oil Plug Locations

Prior to installation, check the oil fill level using the gear unit's oil level plug and drain. Add additional oil as needed. The correct oil level is located at the lower edge of the oil level hole. For mounting orientations other than those shown, please consult NORD as new plug locations may be required.



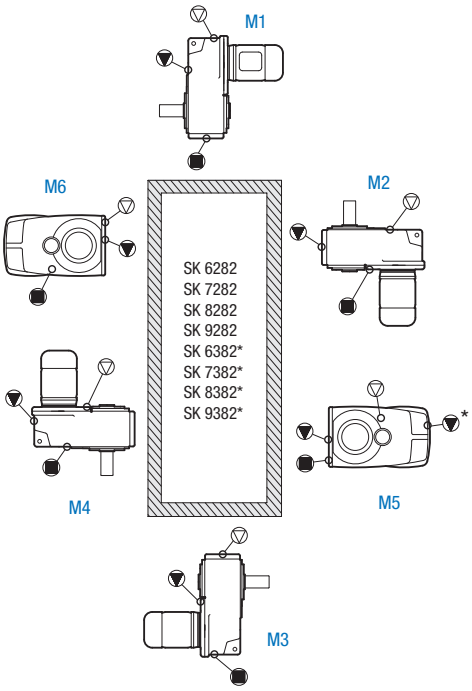


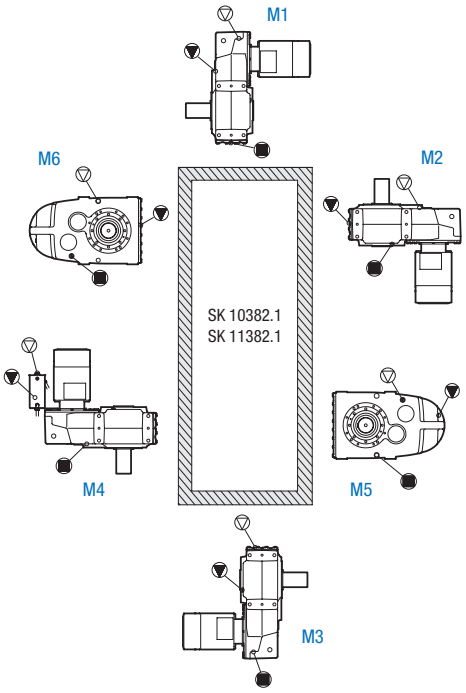


UNICASE™ Parallel Shaft Gear Unit Oil Plug Locations

Prior to installation, check the oil fill level using the gear unit's oil level plug and drain. Add additional oil as needed. The correct oil level is located at the lower edge of the oil level hole. For mounting orientations other than those shown, please consult NORD as new plug locations may be required.

▽	▼	■
Vent	Oil level	Oil plug





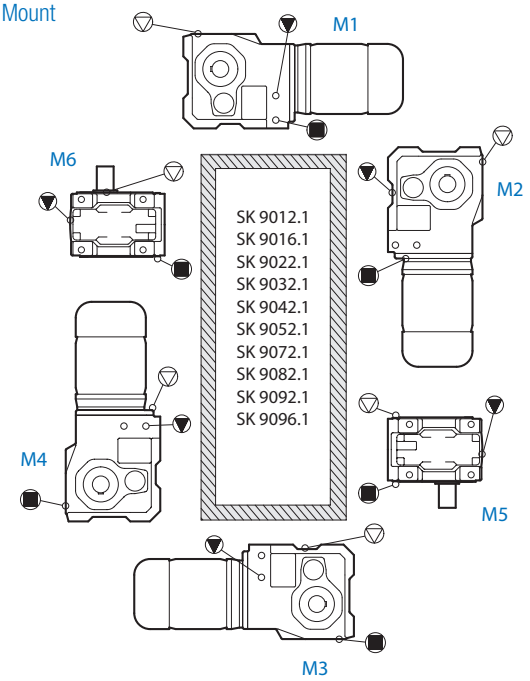
* Oil fill level for 3-stage gear units

UNICASE™ Helical Bevel Gear Unit Oil Plug Locations

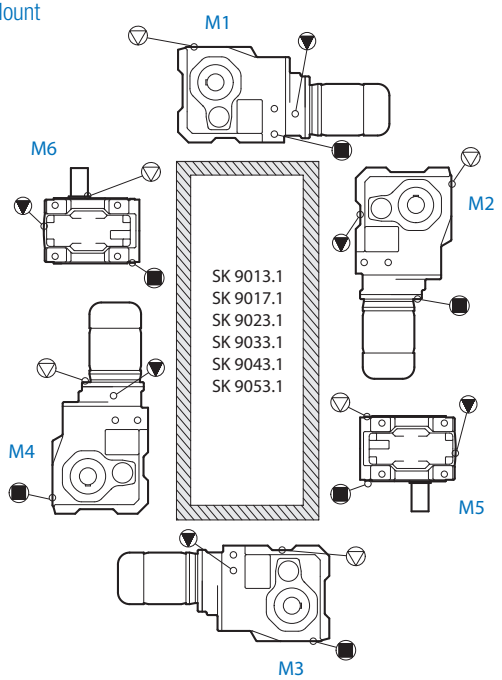
Prior to installation, check the oil fill level using the gear unit's oil level plug and drain. Add additional oil as needed. The correct oil level is located at the lower edge of the oil level hole. For mounting orientations other than those shown, please consult NORD as new plug locations may be required.

▽	▼	■
Vent	Oil level	Oil plug

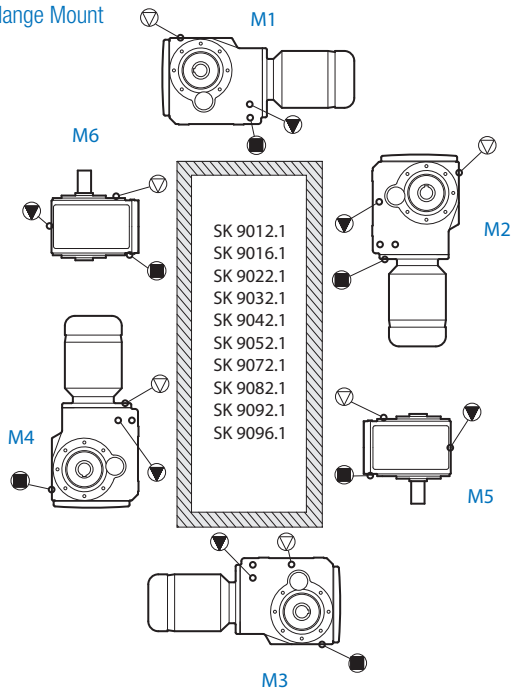
Foot Mount



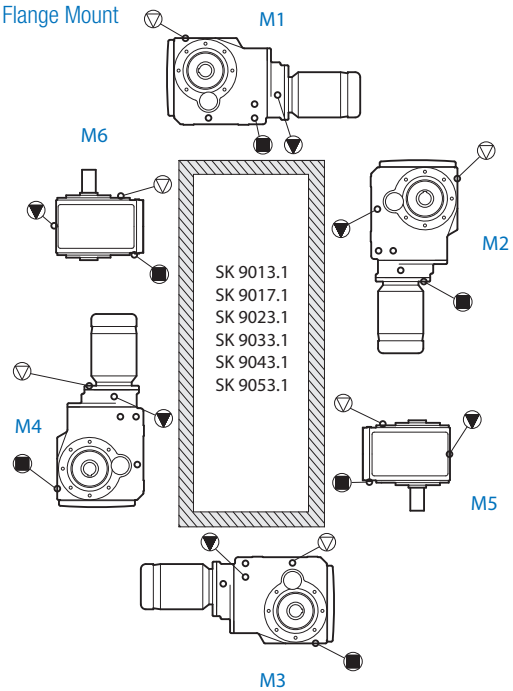
Foot Mount



Shaft / Flange Mount



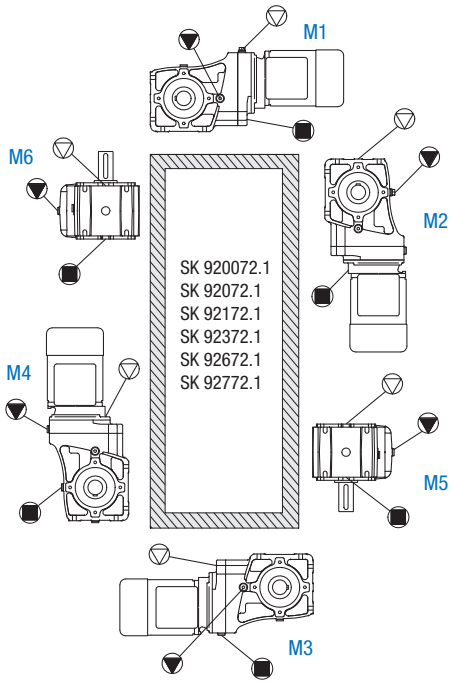
Shaft / Flange Mount

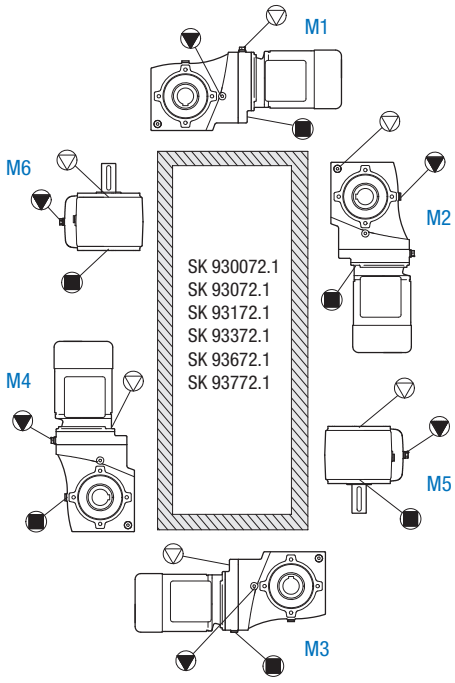


NORDBLOC.1® Helical Bevel Gear Unit Oil Plug Locations

Prior to installation, check the oil fill level using the gear unit's oil level plug and drain. Add additional oil as needed. The correct oil level is located at the lower edge of the oil level hole. For mounting orientations other than those shown, please consult NORD as new plug locations may be required.

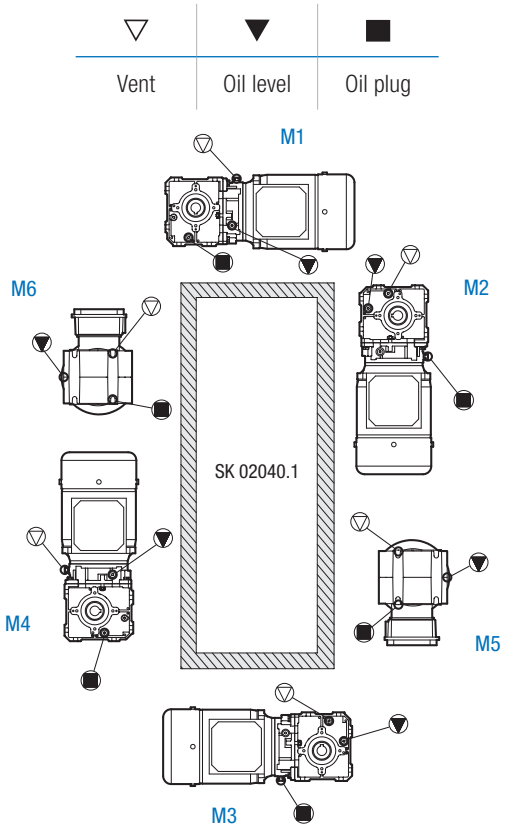
▽	▼	■
Vent	Oil level	Oil plug





UNICASE™ Worm Gear Unit Oil Plug Locations

Prior to installation, check the oil fill level using the gear unit's oil level plug and drain. Add additional oil as needed. The correct oil level is located at the lower edge of the oil level hole. For mounting orientations other than those shown, please consult NORD as new plug locations may be required.

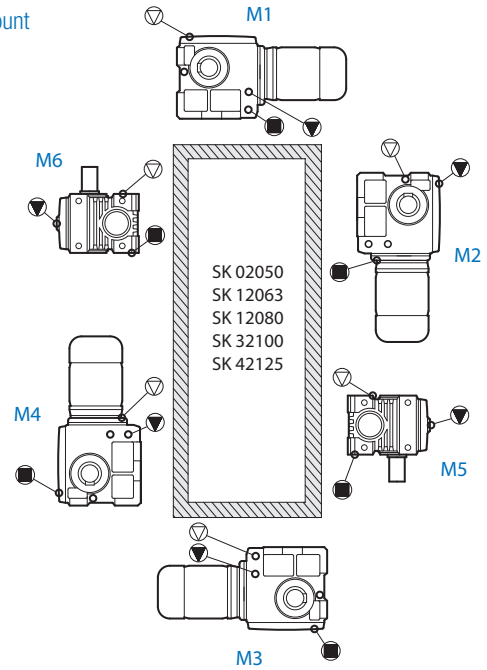


UNICASE™ Worm Gear Unit Oil Plug Locations

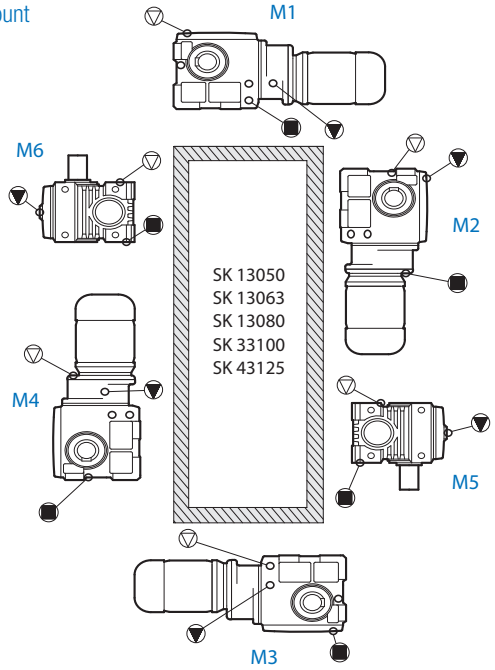
Prior to installation, check the oil fill level using the gear unit's oil level plug and drain. Add additional oil as needed. The correct oil level is located at the lower edge of the oil level hole. For mounting orientations other than those shown, please consult NORD as new plug locations may be required.

▽	▼	■
Vent	Oil level	Oil plug

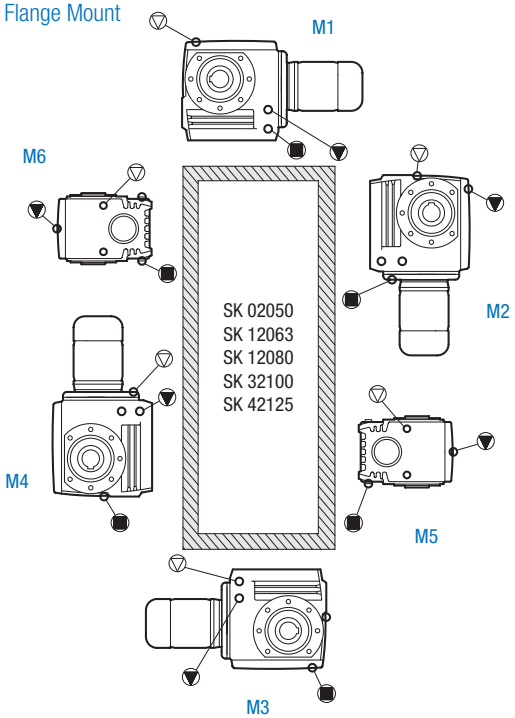
Foot Mount



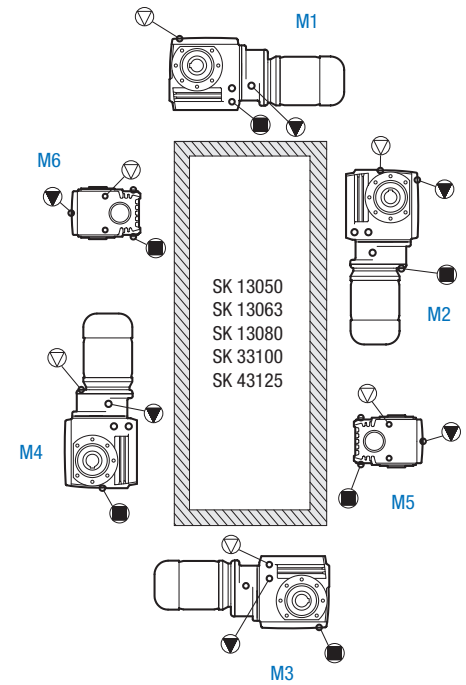
Foot Mount



Shaft / Flange Mount

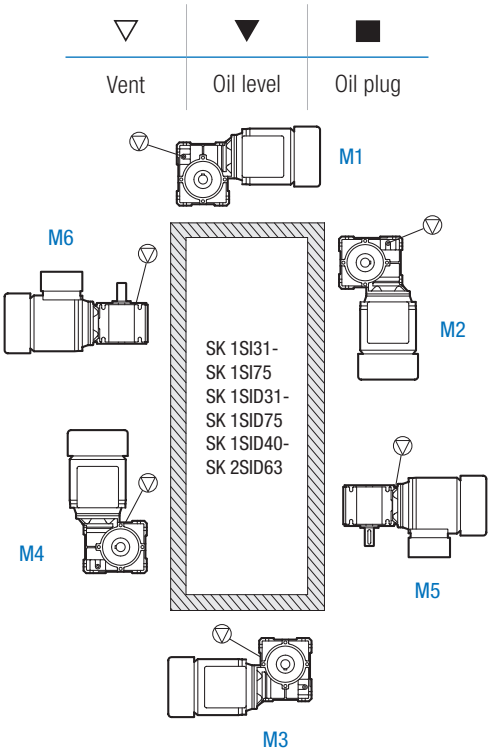


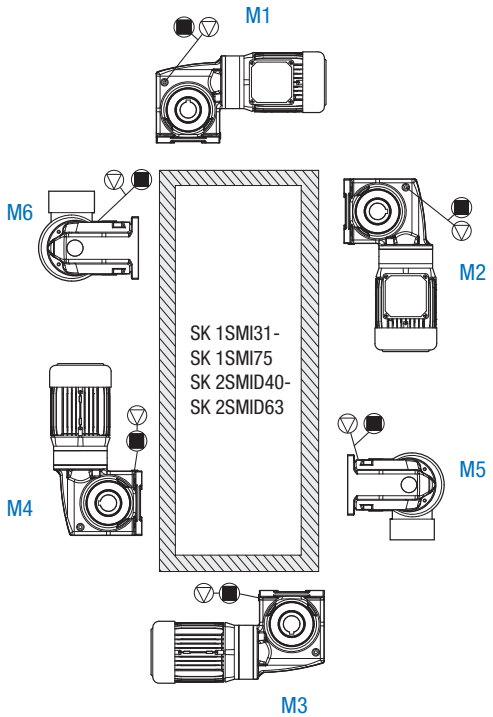
Shaft / Flange Mount

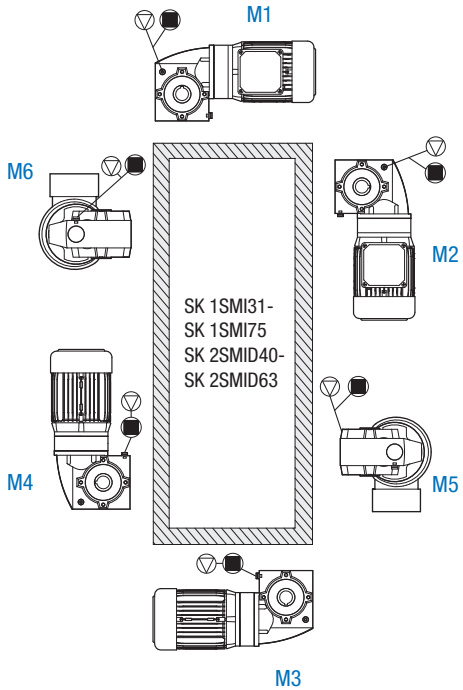


UNIVERSAL SI and SMI Worm Gear Unit Oil Plug Locations

NORD SI and SMI worm gear units are suitable for all installation positions and have an oil filling which is independent of the mounting position. These units can be equipped with an optional vent screw and must be installed in the stated mounting position. Types SI and SMI as 2-stage gear unit types and as worm gear units for direct motor mounting have an oil filling requirement that depends on the mounting position and must be installed in the stated position.



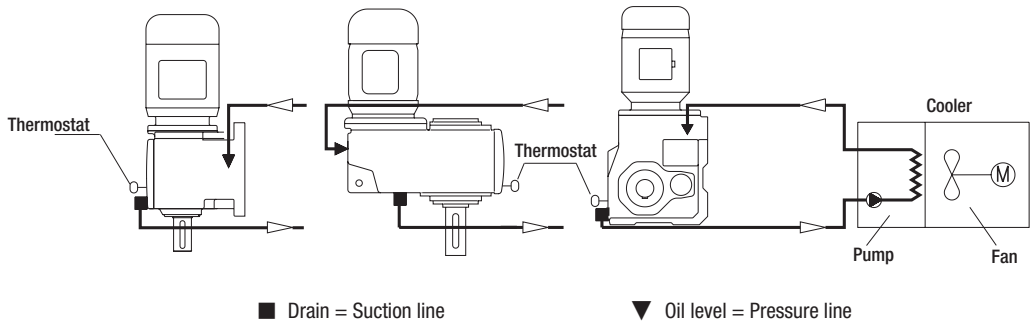




Oil Sight Glass (OSG)

The oil sight glass provides a visible oil level indication on the gear unit. The sight glass replaces the standard screw plug and consists of a sealed clear porthole centered in the middle of a brass plug. The sight glass allows for quick oil level and oil condition inspection. To use the oil sight glass, it may be necessary to adjust the lubricant quantity. For detail information, see manual B1000.

Oil Cooler (OC)



To prevent overheating, an oil cooler may be required. With an oil cooler, the gear unit oil is drawn in by a pump and flows through a heat exchanger. The oil is cooled by an air stream which is generated by a fan and is returned to the housing. Temperature is controlled by a thermostat andt temperature monitoring is recommended.

Oil Expansion Chamber (OA)

Gear units with a motor or input shaft mounted vertically require a higher oil level for lubricating the 1st gear unit stage. The use of an optional oil expansion chamber for the vertical mounting position M4 is recommended and prevents the possible leakage of oil from the vent plug if oil foaming occurs.

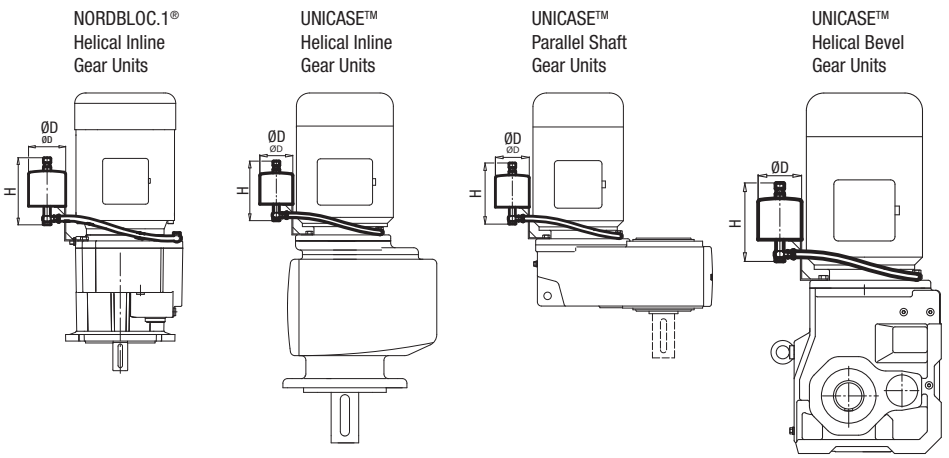
During operation, the oil expansion chamber provides a safe overflow area for the expanded oil-air mixture, reducing excessive pressure build-up, minimizing the formation of foam, and preventing oil loss through the breather, oil seals, gaskets, etc. As heat is released from the expanded air-oil mixture contained within the overflow chamber, gravity allows the oil to be returned to the primary gear sump supply, eliminating a critical loss in oil level.

Application considerations

NORD strongly recommends the use of an oil expansion chamber when it meets any of the criteria listed below. If no oil expansion chamber is selected, warranty may not be applicable.

- NORDBLOC.1® Helical Inline Gear Units
  - SK 071.1 and SK 171.1 with ratio i < 20 or input speed n1 > 1,800 r/min in M4 mounting position
  - SK 072.1 – SK 973.1 with ratio i < 20 or input speed n1 > 1,800 r/min in M4 mounting position
- UNICASE™ Helical Inline Gear Units
  - SK 42 – SK 103 with ratio i < 20 or input speed n1 > 1,800 r/min in M4 mounting position
- UNICASE™ Parallel Shaft Gear Units
  - SK 0182.1 – SK 1282.1 with ratio i < 20 or input speed n1 > 1,800 r/min in M4 mounting position
  - SK 1282.1 with ratio 4.04, 5.22, 6.38 or input speed n1 > 1,800 r/min in M2 mounting position
  - SK 4282 – SK 8382 with ratio i < 20 or input speed n1 > 1,800 r/min in M4 mounting position
- NORDBLOC.1® Helical Bevel Gear Units
  - SK 920072.1 – SK 92172.1 with ratio i < 20 or input speed n1 > 1,800 r/min in M4 mounting position
- UNICASE™ Helical Bevel Gear Units
  - SK 9042.1 – SK 9096.1 with ratio i < 20 or input speed n1 > 1,800 r/min in M4 mounting position
- UNICASE™ Helical Worm Gear Units
  - SK 02040.1 with any ratio in M4 mounting position

NORD also recommends the use of the oil expansion chamber for smaller gearbox sizes and other types of gearboxes for ratios i < 20 and input speeds n1 > 1,800 r/min in M4 mounting position.



Oil Expansion Chamber (OA) Dimensions

Helical Inline Gear Units	Parallel Shaft Gear Units	Helical Bevel Gear Units	Worm Gear Units	Size	D	H	Weight
SK 071.1 SK 072.1 SK 172.1		SK 920072.1 SK 92072.1	SK 02040.1	0A	65 mm 2.56 in	136 mm 5.35 in	0.25 kg 0.55 lbs
SK 171.1 SK 372.1 SK 373.1 SK 02 SK 12	SK 0182.1 SK 0282.1 SK 1282.1 SK 1382.1 SK 1282 SK 1382	SK 92172.1 SK 9012.1	SK 02050 SK 13050 SK 12063 SK 13063 SK 13080	0B	65 mm 2.56 in	136 mm 5.35 in	0.25 kg 0.55 lbs
SK 371.1 SK 571.1 SK 771.1 SK 871.1 SK 971.1 SK 1071.1 SK 572.1 SK 573.1 SK 672.1 SK 673.1 SK 772.1 SK 773.1 SK 872.1 SK 873.1 SK 972.1 SK 973.1 SK 42 SK 43 SK 52 SK 53 SK 63	SK 2282 SK 2382 SK 3282 SK 3382 SK 4282 SK 4382 SK 5282 SK 5382 SK 6382	SK 92372.1 SK 92672.1 SK 92772.1 SK 9022.1 SK 9032.1 SK 9042.1 SK 9043.1 SK 9052.1 SK 9053.1	SK 12080 SK 32100 SK 33100 SK 42125 SK 43125	I	100 mm 3.94 in	180 mm 7.09 in	5 kg 11 lbs
SK 62 SK 72 SK 73	SK 6282 SK 7282 SK 7382	SK 9072.1 SK 9082.1		II	150 mm 5.91 in	300 mm 11.81 in	6 kg 13 lbs
SK 82 SK 83 SK 92 SK 93 SK 102 SK 103	SK 8282 SK 8382	SK 9086.1 SK 9092.1 SK 9096.1		III	180 mm 7.09 in	300 mm 11.81 in	7 kg 15 lbs

External Oil Tank (OT)

The external oil tank is located above the gear unit and increases the oil level so that the oil level in the tank is always above that of the gear unit. During operation, all parts are submerged in oil, especially the high-speed gear set, to prevent the formation of oil foam and ensure that all bearings are properly lubricated.

External oil tanks are larger than oil expansion chambers and vented. They have two flexible oil hoses connected to the gear unit to ensure proper ventilation and passive oil circulation.

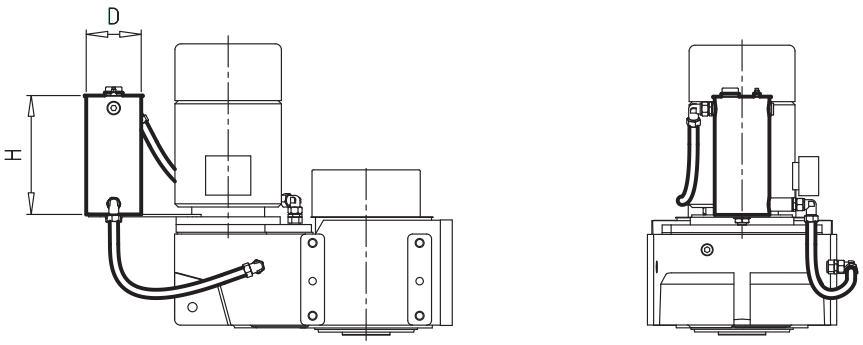
Upon installation, the oil tank must be filled to the level shown on the dipstick located inside the tank. The user is responsible to add this additional oil, however, the oil can be supplied by NORD for an additional charge.

Application considerations

NORD strongly recommends the use of an external oil tank when the following conditions apply:

- Gear ratios $i \leq 24$ or output speed $n_2 \geq 75$ r/min
- Installations with motor mounted vertically or when the parallel shaft gear unit mounting position is M4
- Parallel shaft gear units sizes SK 9282 – SK 11382.1 when its mounting position is M4

If no oil reservoir tank is selected, warranty may not be applicable.



Gear Unit	Size	D	H	Additional Oil Quantity	Tank Volume
SK 9282, SK 9382, SK 10382.1	I	185 mm 7.28 in	390 mm 15.35 in	~ 30 L ~ 32 qts	10 L 10.5 qts
SK 11382.1	II	320 mm 12.60 in	390 mm 15.35 in	~ 40 L ~ 42 qts	30 L 32 qts

Input Adapters

NORD's modular design allows for many different types of inputs to be added to gear units. All inputs are bolted on and include machined pilots to ensure fast, accurate assembly.

Solid Input Shaft (W)

Solid input shafts are designed to mount couplings, sheaves, or sprockets which transfer torque from the prime mover. The maximum power for gear units with a solid input shaft is indicated in the output and gear ratio tables.

Automatic lubricators and fans on the input shaft for cooling are available upon request.

Gear units with a solid input shaft must regularly have the input shaft bearing relubricated for two-stage gear units size SK 62 or SK 6282 and larger and for three-stage gear units size SK 73, SK 7382, or SK 9072.1 and larger.

NORD recommends relubricating the outer roller bearing of the input shaft using the grease nipple provided. Reference manual B1000 for further instruction.

Radial load

Contact NORD if there is radial load on the input shaft or for speeds greater than those stated in the power and ratio tables as special measures may be necessary.

Backstop (RLS)

A backstop can be mounted directly on the shaft between the bearing on AI160 – AI315 and AN250TC – AN400TC.

Regreasing of Bearings (BRG1)

Option BRG1 is an open bearing that can be greased by hand and available for AI and AN adapters. The relubrication point and inspection opening are located under the inspection cover. The gear unit seal is located between the bearings.

The maximum permissible motor speed with option BRG1 is limited to 1,800 r/min.

Lubrication

Please note that the standard bearing version is already lubricated and manual relubrication is not possible. NORD recommends using the already lubricated standard version.

IEC and NEMA Adapters

IEC and NEMA motor adapters allow for easy installation and removal of industry standard IEC and NEMA motors. These adapters have an additional shaft coupling and bearing seats in contrast to directly mounted motors, resulting in greater no-load losses. NORD recommends direct mounting of the motor as this not only provides technical advantages, but also offers price advantages. For gear units with IEC adapters, the standard power for each size according to DIN EN 50347 applies, but will not exceed the maximum power specified in the output and gear ratio tables.

Permissible Motor Weights for IEC Adapters

IEC Size		63	71	80	90	100	112	132	160	180	200	225	250	280	315
Max Weight	[kg]	25	30	50	50	80	80	100	250	250	350	500	1000	1000	1500
	[lbs]	55	66	110	110	176	176	220	551	551	772	1102	2205	2205	3307
SK 32, SK 3282, SK 9032.1, SK 32100, SK 772.1, SK 773.1						100 kg 220 lbs	100 kg 220 lbs								
SK 42, SK 4282, SK 9042.1, SK 42125						100 kg 220 lbs	100 kg 220 lbs	130 kg 287 lbs	200 kg 441 lbs						
SK 52, SK 63, SK 5282, SK 6382, SK 9052.1, SK 872.1, SK 873.1, SK 972.1, SK 973.1						100 kg 220 lbs	100 kg 220 lbs	130 kg 287 lbs							
SK 62, SK 73, SK 83, SK 6282, SK 7382, SK 8382, SK 9072.1						100 kg 220 lbs	100 kg 220 lbs	130 kg 287 lbs							
SK 72, SK 82, SK 93, SK 103, SK 7282, SK 8282, SK 9382, SK 10382.1, SK 9082.1, SK 9086.1, SK 9092.1, SK 9096.1								130 kg 287 lbs							
SK 920072.1, SK 92072.1, SK 0, SK 071.1, SK 0182.1, SK 930072.1, SK 93072.1, SK 93372.1				40 kg 88 lbs											
SK 1382NB, SK 1382.1, SK 92372, SK 92372.1, SK 12063, SK 372.1, SK 371.1, SK 1382.1 GJL						60 kg 132 lbs									
SK 971.1*											250 kg 552 lbs				
SK 1071.1**												350 kg 772 lbs			

* For motor size 200, the maximum motor weight in mounting positions M1, M2, M4 and M6 is 350 kg / 772 lbs. For all other mounting positions, the value in the table applies.
** For motor size 250, the maximum motor weight in mounting positions M1, M2, M4, M5 and M6 is 500 kg / 1102 lbs. For all other mounting positions, the value in the table above applies.

Permissible Motor Weights for NEMA Adapters

NEMA Size		56C	140TC	180TC	210TC	250TC	280TC	320TC	360TC	400TC
Max Weight	[kg]	30	50	80	100	200	250	350	700	700
	[lbs]	66	110	176	220	441	551	772	1543	1543
SK 62, SK 72, SK 73, SK 83, SK 93, SK 9072.1, SK 6282, SK 7282, SK 7382, SK 8382, SK 9382									500 kg 1102 lbs	500 kg 1102 lbs

The coupling for adapter sizes IEC 63 – 132 and NEMA 56C – 210TC are not fail-safe. With hoists, lifts, and other applications where there is a danger of personal injury, special measures are required. Contact NORD for more information.

Direction of Rotation

Direction of rotation of the motor looking towards the fan cover or the input shaft looking towards the input shaft journal.

Gear Unit Type	Rotation of Output Shaft – CW	Rotation of Output Shaft – CCW
Single stage NORDBLOC.1 gear units SK 071.1 – SK 1071.1	Motor Rotation – CW	Motor Rotation – CCW
2-stage NORDBLOC.1 helical gear units SK072.1 – SK972.1	Motor Rotation – CCW	Motor Rotation – CW
3-stage NORDBLOC.1 helical gear units SK373.1 – SK973.1	Motor Rotation – CW	Motor Rotation – CCW
2-stage helical gear units SK02 – SK102	Motor Rotation – CCW	Motor Rotation – CW
3-stage helical gear units SK 03 – SK 103	Motor Rotation – CW	Motor Rotation – CCW
2-stage parallel shaft gear units SK 0182.1 – SK 9282	Motor Rotation – CCW	Motor Rotation – CW
3-stage parallel shaft gear units SK 0182.1 – SK 11382.1	Motor Rotation – CW	Motor Rotation – CCW
2-stage bevel gear units SK 9x0072.1 – SK 9x772.1 Output shaft position A	Motor Rotation – CCW	Motor Rotation – CW
* 3-stage bevel gear units SK9012.1 – SK9096.1	Motor Rotation – CW	Motor Rotation – CCW
* 4-stage bevel gear units SK9013.1 – SK9053.1	Motor Rotation – CCW	Motor Rotation – CW
2-stage helical worm gear units SK 02040.1 – SK 42125 Output shaft position A or shrink disc at B	Motor Rotation – CW	Motor Rotation – CCW
2-stage helical worm gear units SK 02040.1 – SK 42125 Output shaft position B or shrink disc at A	Motor Rotation – CCW	Motor Rotation – CW
3-stage helical worm gear units SK 13050 – SK 43125 Output shaft position A or shrink disc at B	Motor Rotation – CCW	Motor Rotation – CW
3-stage helical worm gear units SK 13050 – SK 43125 Output shaft position B or shrink disc at A	Motor Rotation – CW	Motor Rotation – CCW
UNIVERSAL SI and SMI Worm Gear Units SK 1S(M)I31 – SK 1S(M)I75	Motor Rotation – CW	Motor Rotation – CCW

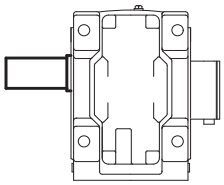
* If required, in deviation from the standard designs listed in the table above, the direction of rotation of the output shaft in bevel gear units may be changed as the bevel gear may be mounted left or right of the bevel pinion. To do this, a special output shaft is required for one-sided solid shaft designs and shrink disc designs.

Position of the Shafts, Flanges, Torque Arms, and Shrink Discs for Right Angle Gear Units

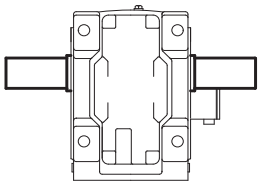
For bevel gear units and helical worm gear units, the position of the output shaft, the B5 flange, the torque arm, and the shrink disc are defined as follows:

Output shaft at B

B

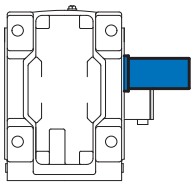


Output shaft at A and B



Output shaft at A

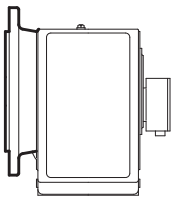
(standard version)



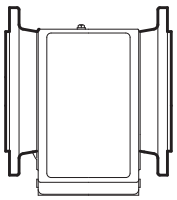
A

Flange at B

B

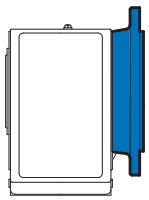


Flange at A and B



Flange at A

(standard version)

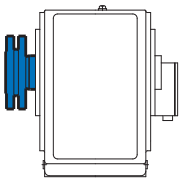


A

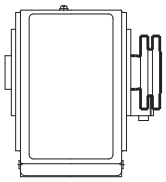
Shrink disc at B

(standard version)

B



Shrink disc at A

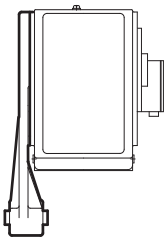


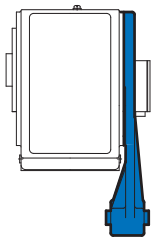
A

Torque arm at A

(standard version)

B

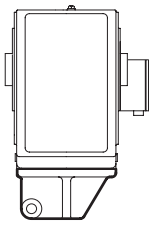




A

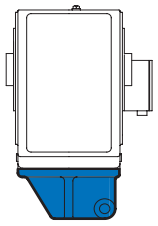
Torque bracket at B

B



Torque bracket at A

(standard version)



A

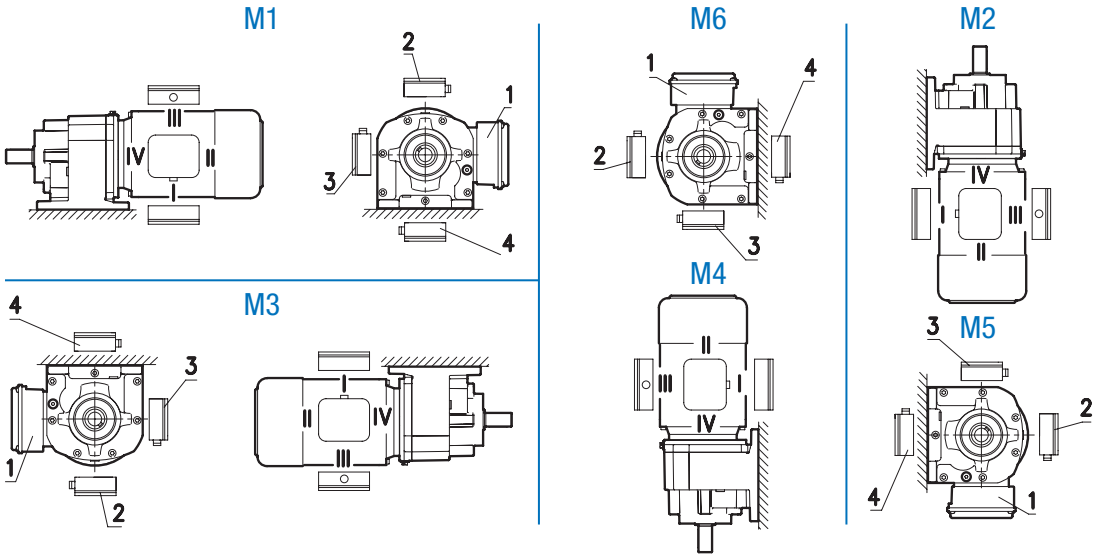
The definitions of sides A and B relate to the M1 mounting position. For details of positions M1- M6 please refer to ⇨🕮 A68.

Terminal Box and Cable Gland Location

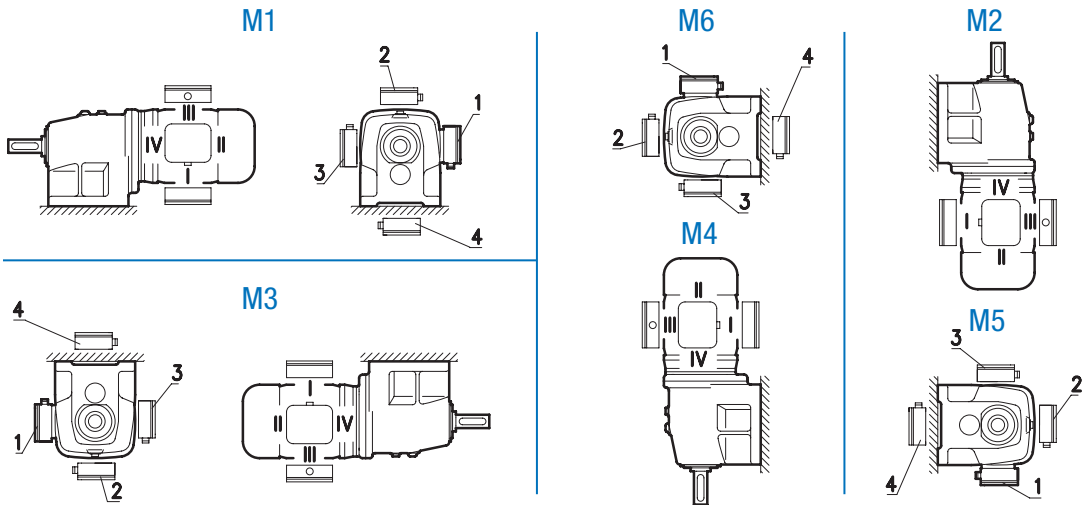
The standard position is terminal box at 1 and cable gland at I. If a different configuration is required, please state explicitly in the order and always inquire about the cable gland for IV.

For size 63 – 132 brake motors, the cable gland at I and III are standard.

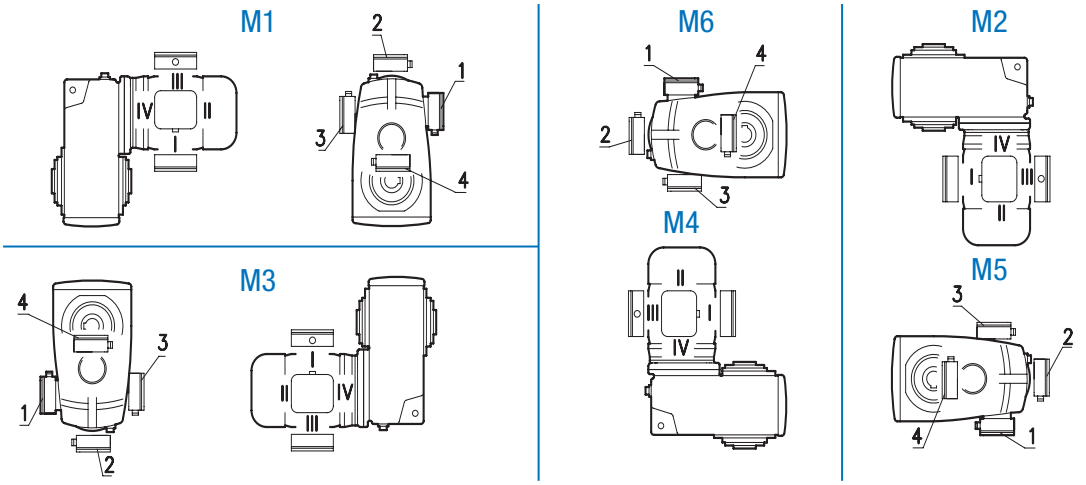
NORDBLOC®.1 helical inline gear units



UNICASE™ helical inline gear units



UNICASE™ parallel shaft gear units

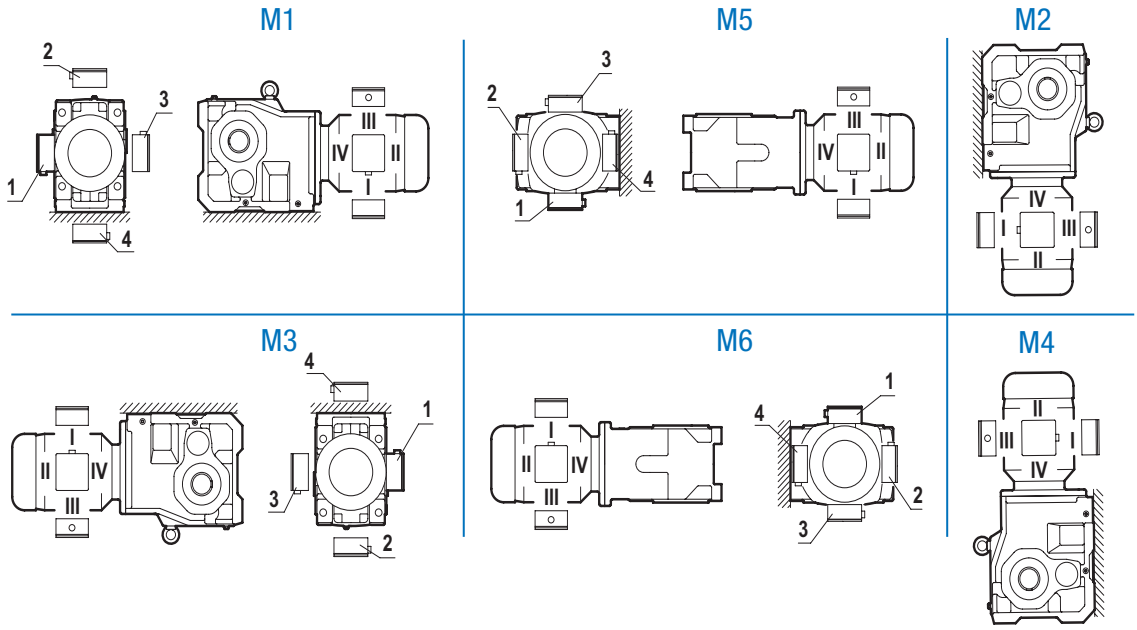


Terminal Box and Cable Gland Location

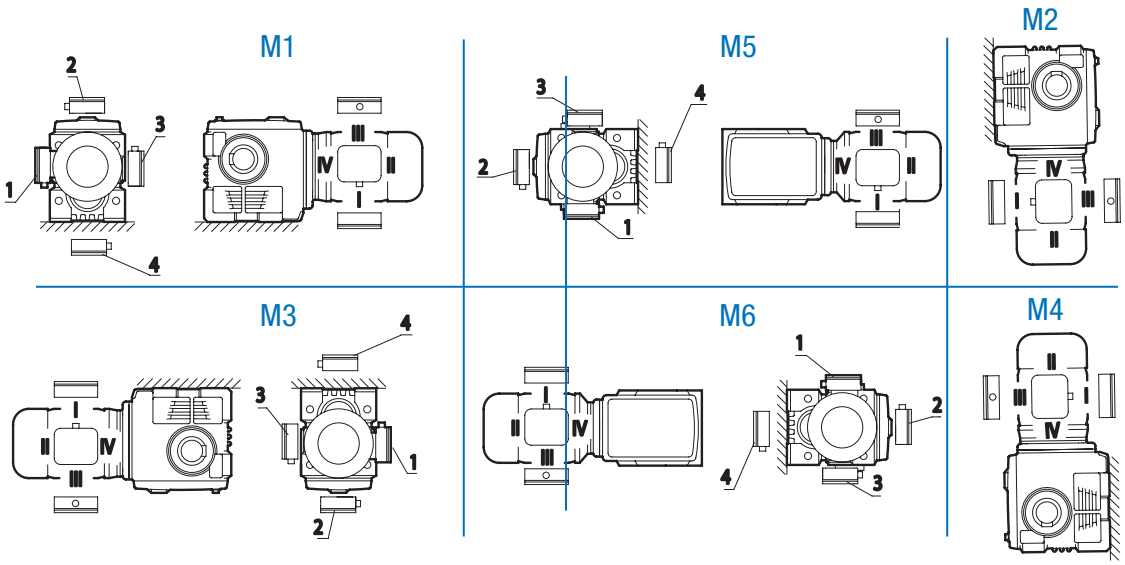
The standard position is terminal box at 1 and cable gland at I. If a different configuration is required, please state explicitly in the order and always inquire about the cable gland for IV.

For size 63 – 132 brake motors, the cable gland at I and III are standard.

Helical bevel gear units



UNICASE™ worm gear units



Installation Positions

Standard installation positions M1 – M6

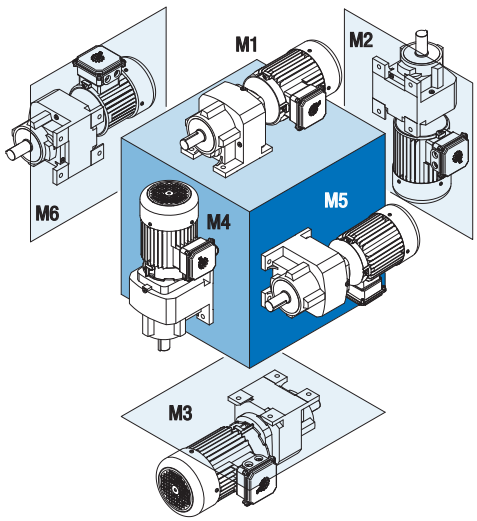
For gear units and gear motors, NORD specifies six installation positions from M1 – M6 as shown in the following diagrams. The installation position must be stated when ordering to ensure proper locations of vents and plugs.

Changes to the installation position require adjustment of the oil quantity and often other measures such as the installation of encapsulated roller bearings. Damage may result if the necessary measures are not taken. Tilted installation positions between the six basic positions are also possible, please contact NORD for more information.

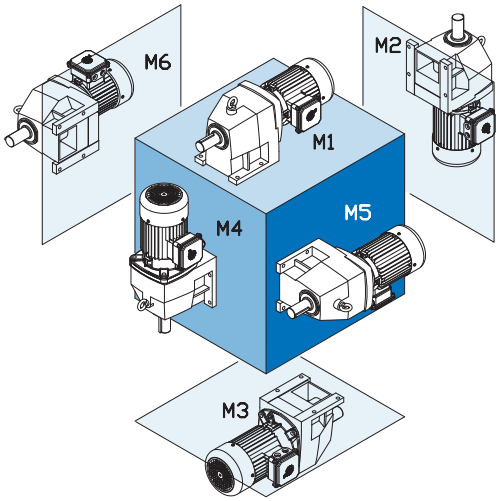
Lubricant quantities

Lubricant quantities and all versions with the position of the oil level plug, the vent plug, and the oil drain plug can be found online at myNORD.

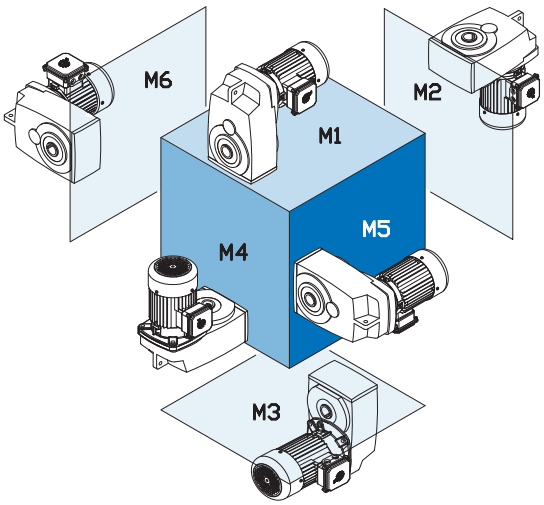
NORDBLOC.1® Helical Inline Gear Units



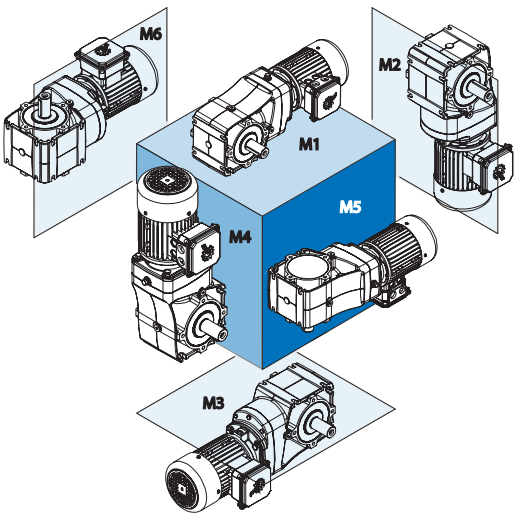
UNICASE™ Helical Inline Gear Units



UNICASE™ Parallel Shaft Gear Units



NORDBLOC.1® Helical Bevel Gear Units



Installation Positions

For gear units and gear motors, NORD specifies six installation positions from M1 – M6 as shown in the following diagrams. The installation position must be stated when ordering to ensure proper locations of vents and plugs.

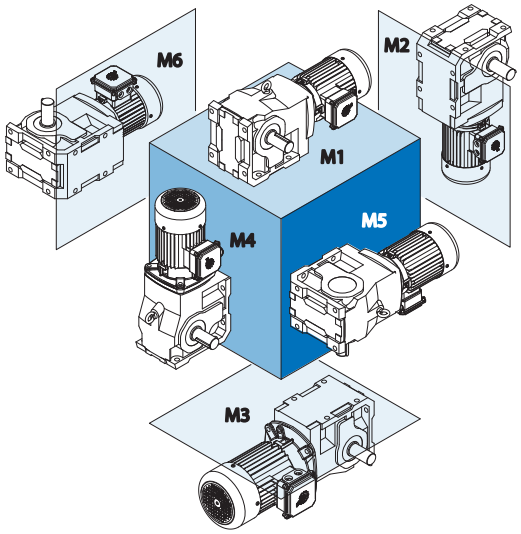
Standard installation positions M1 – M6

Changes to the installation position require adjustment of the oil quantity and often other measures such as the installation of encapsulated roller bearings. Damage may result if the necessary measures are not taken. Tilted installation positions between the six basic positions are also possible, please contact NORD for more information.

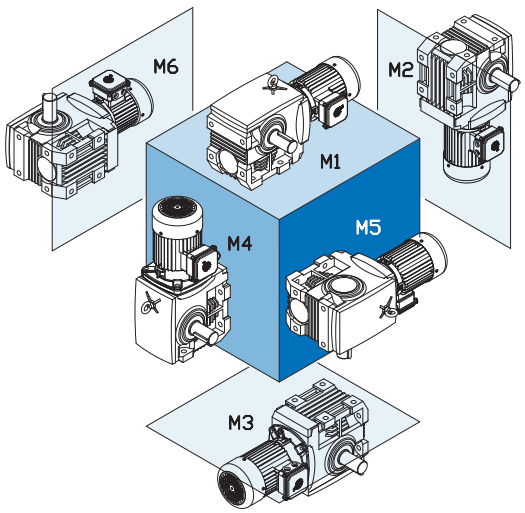
Lubricant quantities and all versions with the position of the oil level plug, the vent plug, and the oil drain plug can be found online at myNORD.

Lubricant quantities

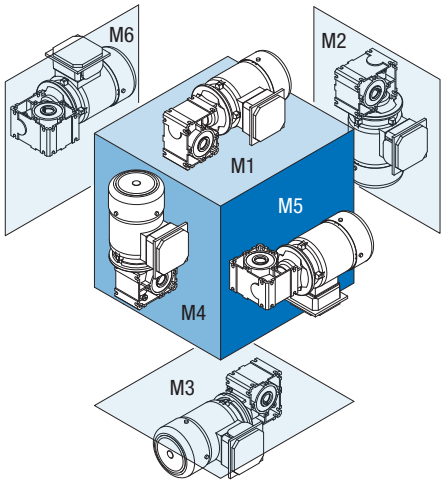
UNICASE™ Helical Bevel Gear Units



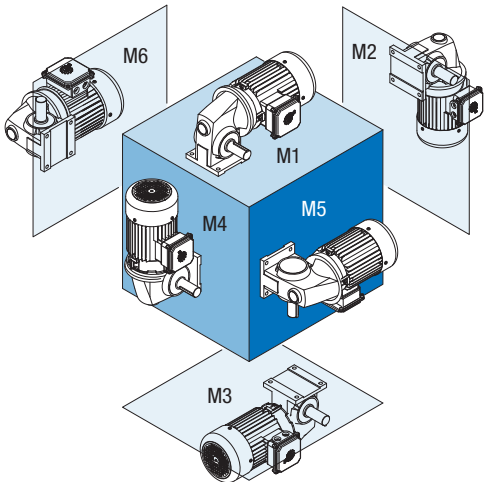
UNICASE™ Helical Worm Gear Units



UNIVERSAL SI Worm Gear Units



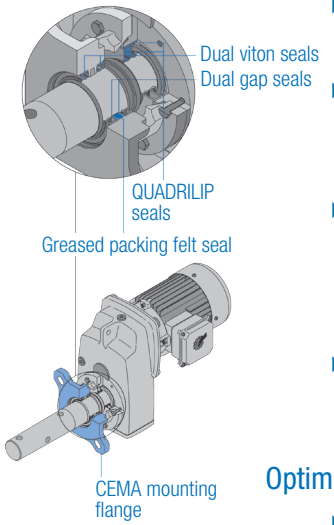
UNIVERSAL SMI Worm Gear Units



Screw Conveyor Package

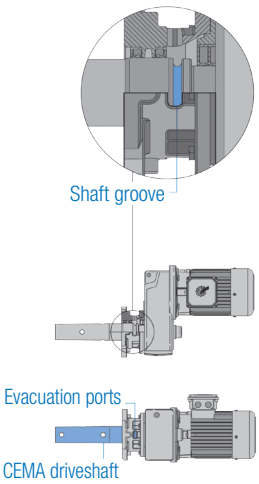
NORD offers a unique mounting solution for screw conveyor drives. The SCP options offers superior durability in the most severe load and service conditions.

CEMA Flange and Shafts



- **Standard CEMA mounting**
  NORD SCP drives adhere to CEMA standard mounting dimensions.
- **Versatile flange – multiple bolt patterns**
  The SCP mounting flanges often accommodate more that one CEMA bolt pattern. This allows one drive to be used on different screw sizes simply by switching out the drive shaft.
- **3-Hole tapered CEMA drive shaft**
  The CEMA drive shaft is a standard 3-hole shaft. This allows for mounting to either 2-bolt or 3-bolt connections. The drive shaft is tapered for easier mounting and removal. The taper also reduces shaft loading due to misalignments.
- **High strength cast iron**
  Screw conveyor flanges are made from high strength cast iron.

Optimized Sealing System



- **FKM seals**
  The SCP mounting flanges contain double FKM shaft seals for improved sealing. The FKM seals provide higher chemical and thermal resistance.
- **Dual gap seals**
  The SCP mounting flange and CEMA drive shaft are designed to provide a mechanical barrier effect referred to as a gap seal. The flange has a clearance of 0.8 mm (approx. 0.03") at two points on the shaft. This forms a mechanical block for large particles and prevents them from entering the gear unit.
- **Greased packing felt seal**
  Provides protection for small objects. If materials work their way past the first fluropolymer lip seal and gap seal it will be trapped within the grease felt sealing ring.
- **Shaft groove**
  If materials pass through the FKM, gap, and greased felt seals, the shaft groove forms an additonal barrier.
- **Evacuation ports**
  Provides an exit for any foreign material that infiltrates the external sealing system and provides a way to clean out the sealing system.

UNICASE™ Parallel Shaft Gear Units

Unit Type	Max Torque [lb-in]	Ratio Range [x:1]	Speed Range [r/min]	Max Thrust Load Standard Bearings [lbs]	Max Thrust Load HD Bearings [lbs]	Gear Stages	Shaft Size [in]				
							1.50	2.00	2.4375	3.00	3.4375
SK 1282 SCP	2620	4.79 – 109.50	365 – 16	1609	1609	2	●	●	●		
SK 1382 SCP	2425	87.94 – 624.45	20 – 2.8	1609	1609	3	●	●	●		
SK 2282 SCP	4611	4.51 – 127.51	388 – 14	2700	3375	2	●	●	●		
SK 2382 SCP	4983	82.22 – 763.41	21 – 2.3	2700	3375	2	●	●	●		
SK 3282 SCP	8983	4.48 – 112.23	391 – 16	3263	4500	2	●	●	●	●	
SK 3382 SCP	9195	89.60 – 1022.42	20 – 1.7	3263	4500	3	●	●	●	●	
SK 4282 SCP	16089	4.70 – 155.40	372 – 11	4950	6750	2		●	●	●	
SK 4382 SCP	18381	86.83 – 1585.08	26 – 1.1	4950	6750	3		●	●	●	
SK 5282 SCP	28630	4.32 – 134.03	405 – 13	7200	9000	2		●	●	●	●
SK 5382 SCP	28320	82.72 – 1367.08	21 – 1.3	7200	9000	3		●	●	●	●
SK 6282 SCP	40152	4.39 – 80.33	399 – 22	10463	13500	2				●	●
SK 6382 SCP	53100	24.42 – 551.58	72 – 3.2	10463	13500	3				●	●

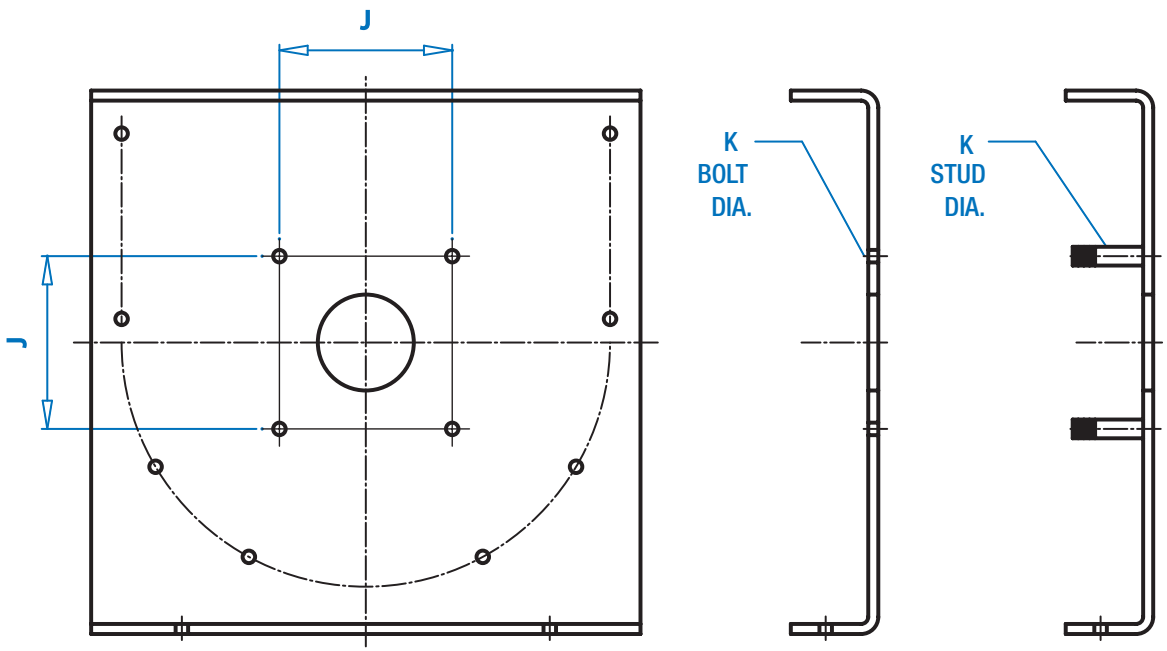
● Available

UNICASE™ Helical Bevel Gear Units

Unit Type	Max Torque [lb-in]	Ratio Range [x:1]	Speed Range [r/min]	Max Thrust Load Standard Bearings [lbs]	Max Thrust Load HD Bearings [lbs]	Gear Stages	Shaft Size [in]				
							1.50	2.00	2.4375	3.00	3.4375
SK 9012.1 SCP	3540	8.09 – 332.37	5.3 – 216	4500	4500	3	●	●	●		
SK 9022.1 SCP	7611	8.78 – 276.86	6.3 – 199	2700	5141	3	●	●	●		
SK 9032.1 SCP	13718	8.48 – 295.85	5.9 – 206	3263	5234	3	●	●	●	●	
SK 9042.1 SCP	24780	8.83 – 329.69	5.3 – 198	9000	6869	3		●	●	●	●
SK 9052.1 SCP	42480	8.10 – 289.61	6.0 – 216	10125	10125	3				●	●

● Available

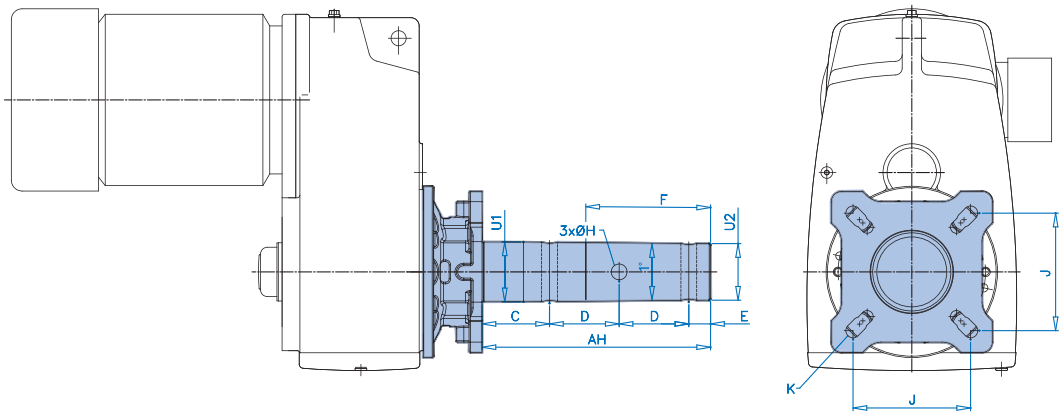
Screw Conveyor Mounting



Screw Conveyor Mounting Dimensions from CEMA 300-13

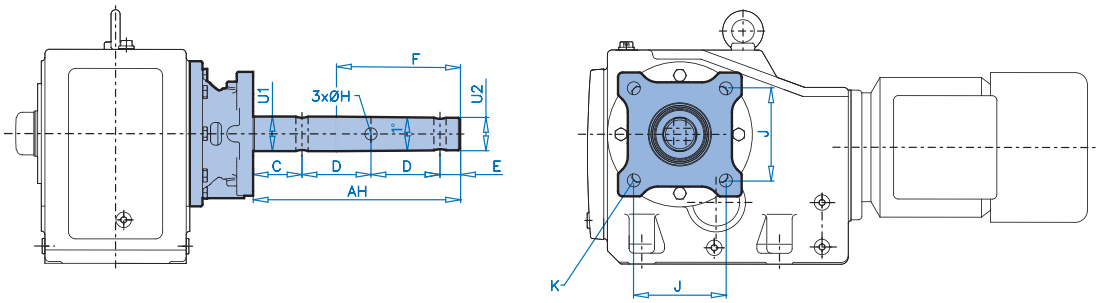
Screw Diameter [in]	CEMA Drive Shaft [in]	J Width [in]	K Bolt [in]	K Stud [in]
6.00	1.5000	4.000	0.500	0.4375
9.00	1.5000	4.000	0.500	0.4375
	2.0000	5.125	0.625	0.5625
12.00	2.0000	5.125	0.625	0.5625
	2.4375	5.625	0.625	0.5625
	3.0000	6.000	0.750	0.7500
14.00	2.4375	5.625	0.625	0.5625
	3.0000	6.000	0.750	0.7500
16.00	3.0000	6.000	0.750	0.7500
18.00	3.0000	6.000	0.750	0.7500
	3.4375	6.750	0.750	0.7500
20.00	3.0000	6.000	0.750	0.7500
	3.4375	6.750	0.750	0.7500
24.00	3.4375	6.750	0.750	0.7500

UNICASE™ Parallel Shaft SCP CEMA Drive Shaft Assembly



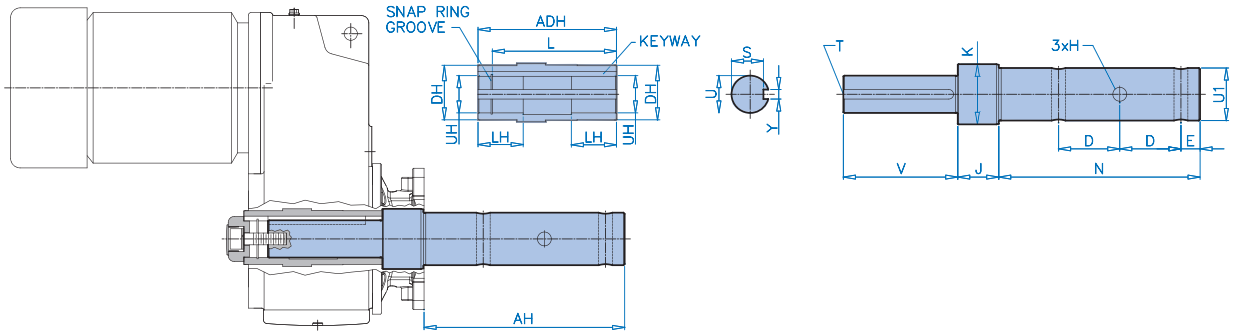
Shaft Size [in]	Shaft [in]								Flange [in]	
	U1	U2	AH	C	D	E	F	H	J	K
1.5000	1.5000	1.4100	9.0000	2.1250	3.00	0.8750	5.3750	17/32	4.000	0.5625
2.0000	2.0000	1.9100	9.0000	2.1250	3.00	0.8750	5.3750	21/32	5.125	0.6875
2.4375	2.4375	2.3400	9.6875	2.7500	3.00	0.9375	5.4375	21/32	5.625	0.6875
3.0000	3.0000	2.9100	9.8750	2.8750	3.00	1.0000	5.5000	25/32	6.000	0.8125
3.4375	3.4375	3.3100	13.1250	3.8750	4.00	1.2500	7.2500	29/32	6.750	0.8125

UNICASE™ Helical Bevel SCP CEMA Drive Shaft Assembly



Shaft Size [in]	Shaft [in]								Flange [in]	
	U1	U2	AH	C	D	E	F	H	J	K
1.5000	1.5000	1.4100	9.0000	2.1250	3.00	0.8750	5.3750	17/32	4.0000	0.5625
2.0000	2.0000	1.9100	9.0000	2.1250	3.00	0.8750	5.3750	21/32	5.1250	0.6875
2.4375	2.4375	2.3400	9.6875	2.7500	3.00	0.9375	5.4375	21/32	5.6250	0.6875
3.0000	3.0000	2.9100	9.8750	2.8750	3.00	1.0000	5.5000	25/32	6.0000	0.8125
3.4375	3.4375	3.3100	13.1250	3.8750	4.00	1.2500	7.2500	29/32	6.7500	0.8125

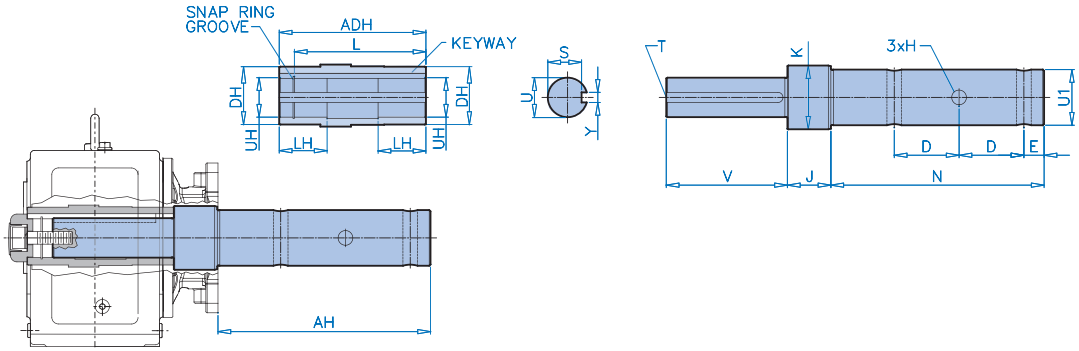
UNICASE™ Parallel Shaft SCP + NEMA CEMA drive shaft



Unit Type	Hollow Shaft [in]				
	UH	ADH	L	LH	DH
SK 1282 / 1382 SCP	1.1875 + 0.0008	4.80	3.85	1.57	1.77
SK 2282 / 2382 SCP	1.4375 + 0.0010	5.47	4.80	1.97	1.97
SK 3282 / 3382 SCP	1.6250 + 0.0010	6.85	6.14	2.28	2.17
SK 4282 / 4382 SCP	2.1875 + 0.0010	7.68	6.42	2.56	2.76
SK 5282 / 5382 SCP	2.4375 + 0.0012	9.06	7.58	2.95	3.35
SK 6282 / 6382 SCP	2.7500 + 0.0012	11.41	9.92	3.54	3.93

Unit Type	Hollow Shaft [in]															Key
	U1	AH	D	E	H	N	J	K		U		V	S	Y	T	
SK 1282 SK 1382	1.5000	9.0000	3	0.8750	17/32	9.04	2.04	2.165	-0.0039 -0.0069	1.1875	+0.0000 -0.0006	3.74	1.049	0.25	7/16-14 x 1	1/4 x 1/4
	2.0000	9.0000	3	0.8750	21/32	9.04	2.41	2.559		1.1875		3.74	1.049	0.25	7/16-14 x 1	1/4 x 1/4
	2.4375	9.6875	3	0.9375	21/32	9.73	2.85	2.559		1.1875		3.74	1.049	0.25	7/16-14 x 1	1/4 x 1/4
SK 2282 SK 2382	1.5000	9.0000	3	0.8750	17/32	9.04	2.04	2.165	-0.0039 -0.0069	1.4375	+0.0000 -0.0006	4.62	1.225	0.375	5/8-11 x 1.5	3/8 x 3/8
	2.0000	9.0000	3	0.8750	21/32	9.04	2.41	2.559		1.4375		4.62	1.225	0.375	5/8-11 x 1.5	3/8 x 3/8
	2.4375	9.6875	3	0.9375	21/32	9.73	2.41	2.559		1.4375		4.62	1.225	0.375	5/8-11 x 1.5	3/8 x 3/8
SK 3282 SK 3382	1.5000	9.0000	3	0.8750	17/32	9.04	2.20	2.165	-0.0039 -0.0069	1.6250	+0.0000 -0.0006	6.14	1.478	0.375	5/8-11 x 1.5	3/8 x 1/4
	2.0000	9.0000	3	0.8750	21/32	9.04	2.57	3.150		1.6250		6.14	1.478	0.375	5/8-11 x 1.5	3/8 x 1/4
	2.4375	9.6875	3	0.9375	21/32	9.73	2.57	3.150		1.6250		6.14	1.478	0.375	5/8-11 x 1.5	3/8 x 1/4
	3.0000	9.8750	3	1.0000	25/32	9.91	2.57	3.150		1.6250		6.14	1.478	0.375	5/8-11 x 1.5	3/8 x 1/4
SK 4282 SK 4382	2.0000	9.0000	3	0.8750	21/32	9.04	2.37	3.150	-0.0039 -0.0069	2.0625	+0.0000 -0.0007	6.69	1.844	0.5	5/8-11 x 1.5	1/2 x 3/8
	2.4375	9.6875	3	0.9375	21/32	9.73	2.37	3.150		2.0625		6.69	1.844	0.5	5/8-11 x 1.5	1/2 x 3/8
	3.000	9.8750	3	1.0000	25/32	9.91	2.37	3.150		2.0625		6.69	1.844	0.5	5/8-11 x 1.5	1/2 x 3/8
SK 5282 SK 5382	2.0000	9.0000	3	0.8750	21/32	9.04	2.68	3.937	-0.0047 -0.0081	2.4375	+0.0000 -0.0007	8.19	2.084	0.625	3/4-10 x 2	5/8 x 5/8
	2.4375	9.6875	3	0.9375	21/32	9.73	2.68	3.937		2.7375		8.19	2.084	0.625	3/4-10 x 2	5/8 x 5/8
	3.0000	9.8750	3	1.0000	25/32	9.91	2.68	3.937		2.4375		8.19	2.084	0.625	3/4-10 x 2	5/8 x 5/8
	3.4375	13.1250	4	1.2500	29/32	13.16	2.68	3.937		2.4375		8.19	2.084	0.625	3/4-10 x 2	5/8 x 5/8
SK 6282 SK 6382	3.0000	9.8750	3	1.0000	25/32	9.91	2.94	3.937	-0.0047 -0.0081	2.7500	+0.0000 -0.0007	10.55	2.402	0.625	3/4-10 x 2	5/8 x 5/8
	3.4375	13.1250	4	1.2500	29/32	13.16	2.94	3.937		2.7500		10.55	2.402	0.625	3/4-10 x 2	5/8 x 5/8

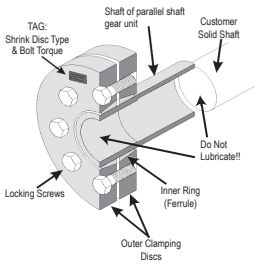
UNICASE™ Helical Bevel + NEMA CEMA Drive Shaft



Unit Type	Hollow Shaft [in]					
	UH		ADH	L	LH	DH
SK 9012.1 SCP	1.375	+0.0010 -0.0000	5.83	4.60	1.97	1.97
SK 9022.1 SCP	1.500	+0.0010 -0.0000	7.09	5.86	2.36	2.17
SK 9032.1 SCP	2.000	+0.0010 -0.0000	8.27	7.01	2.76	2.76
SK 9042.1 SCP	2.375	+0.0012 -0.0000	9.45	7.97	3.15	3.15
SK 9052.1 SCP	2.750	+0.0012 -0.0000	11.81	10.33	3.94	3.94

Unit Type	Shaft [in]															Key
	U1	AH	D	E	H	N	J	K		U		V	S	Y	T	
SK 9012.1	1.5000	9.0000	3	0.8750	17/32	9.04	2.47	2.165	-0.0039 -0.0069	1.375	+0.0000 -0.0006	4.88	1.201	0.3125	5/8-11 x 1.5	5/16 x 5/16
	2.0000	9.0000	3	0.8750	21/32	9.04	2.85	2.559		1.375		4.88	1.201	0.3125	5/8-11 x 1.5	5/16 x 5/16
	2.4375	9.6875	3	0.9375	21/32	9.73	2.85	2.559		1.375		4.88	1.201	0.3125	5/8-11 x 1.5	5/16 x 5/16
SK 9022.1	1.5000	9.0000	3	0.8750	17/32	9.04	2.40	2.165	-0.0039 -0.0069	1.500	+0.0000 -0.0006	6.14	1.289	0.3750	5/8-11 x 1.5	3/8 x 3/8
	2.0000	9.0000	3	0.8750	21/32	9.04	2.77	2.559		1.500		6.14	1.289	0.3750	5/8-11 x 1.5	3/8 x 3/8
	2.4375	9.6875	3	0.9375	21/32	9.73	2.77	2.559		1.500		6.14	1.289	0.3750	5/8-11 x 1.5	3/8 x 3/8
SK 9032.1	1.5000	9.0000	3	0.8750	17/32	9.04	2.40	2.165	-0.0039 -0.0069	2.000	+0.0000 -0.0007	7.28	1.718	0.5000	5/8-11 x 1.5	1/2 x 1/2
	2.0000	9.0000	3	0.8750	21/32	9.04	2.77	3.150		2.000		7.28	1.718	0.5000	5/8-11 x 1.5	1/2 x 1/2
	2.4375	9.6875	3	0.9375	21/32	9.73	2.77	3.150		2.000		7.28	1.718	0.5000	5/8-11 x 1.5	1/2 x 1/2
	3.0000	9.8750	3	1.0000	25/32	9.91	2.77	3.150		2.000		7.28	1.718	0.5000	5/8-11 x 1.5	1/2 x 1/2
SK 9042.1	2.0000	9.0000	3	0.8750	21/32	9.04	2.86	3.937	-0.0047 -0.0081	2.375	+0.0000 -0.0007	8.58	2.114	0.6250	3/4-10 x 2	5/8 x 7/16
	2.4375	9.6875	3	0.9375	21/32	9.73	2.86	3.937		2.375		8.58	2.114	0.6250	3/4-10 x 2	5/8 x 7/16
	3.0000	9.875	3	1.0000	25/32	9.91	2.86	3.937		2.375		8.58	2.114	0.6250	3/4-10 x 2	5/8 x 7/16
	3.4375	13.125	4	1.2500	29/32	13.16	2.86	3.937		2.375		8.58	2.114	0.6250	3/4-10 x 2	5/8 x 7/16
SK 9052.1	3.0000	9.875	3	1.0000	25/32	9.91	3.36	3.937	-0.0047 -0.0081	2.750	+0.0000 -0.0006	10.94	2.402	0.6250	3/4-10 x 2	5/8 x 5/8
	3.4375	13.125	4	1.2500	29/32	13.16	3.36	3.937		2.750		10.94	2.402	0.6250	3/4-10 x 2	5/8 x 5/8

Shrink Disc (S)

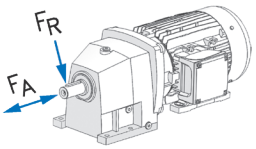


Shrink discs are recommended for NORD hollow shaft gear units as they provide a keyless friction connection without the typical assembly and disassembly problems.

The length of the customer's shaft journal, which is inserted into the gearbox hollow shaft, must match the length of the hollow shaft (mH). The shaft diameter of the shaft journal can be designed in accordance with ISO h6 or f6 (f6 = easier installation).

Axial Forces

The forces directed away from or towards the gearbox along the central axis of the driven shaft are referred to as axial force. The permissible axial force (F_A) is indicated in the performance tables. The presence of an axial force reduces the torque capacity of the shrink disk connection. The transmittable axial force depends on the gearbox size and the associated shrink disk.



Radial Forces

Radial forces act in a vertical direction on the axis of rotation of the driven solid shaft. Radial forces that can generate a bending moment include: the weight of the mounted components, a chain or belt tension, shaft deformations of the driven shaft, etc.

NORD does not recommend the use of shrink disk connections if considerable bending moments or radial forces occur.

Boundary Conditions

Design considerations

To ensure proper assembly and disassembly there are important shrink disc design considerations:

- The solid shaft end must engage the full length of the gear unit's hollow shaft.
- The yield strength of the customer shaft must be at least 360 N/mm² or 52,260 lb/in² so that the required compressive forces do not lead to permanent deformation of the shaft.
- The contact surfaces of the hollow gearbox shaft, the bushing insert, and the corresponding customer shaft must be free of contamination.
- All fastening screws of the shrink disk must have the correct strength class and be tightened to the specified tightening torque.

Shaft Tolerances and Assembly Clearance

Shrink discs require tight tolerances to ensure proper clamping forces are maintained and prevent permanent distortion of the shrink disc components or mating shaft. The recommended fit between the hollow shaft and solid shaft and the maximum assembly clearance is listed in the following tolerance tables.

Shrink Disc Tolerance (mm)

Diameter Above	Diameter to & Including	Solid Shaft Tolerance (ISO 286-2, h6)	Reducer Bore Tolerance (ISO 286-2, H7)	Minimum Assembly Clearance	Maximum Assembly Clearance
18	30	+0.000/-0.013	+0.021/-0.000	0.0000	0.0340
30	50	+0.000/-0.016	+0.025/-0.000	0.0000	0.0410
50	80	+0.000/-0.019	+0.030/-0.000	0.0000	0.0490
80	120	+0.000/-0.022	+0.035/-0.000	0.0000	0.0570
120	180	+0.000/-0.025	+0.040/-0.000	0.0000	0.0650
180	190	+0.000/-0.029	+0.046/-0.000	0.0000	0.0750

Shrink Disc Tolerance (in)

Diameter Above	Diameter to & Including	Solid Shaft Tolerance (ISO 286-2, h6)	Reducer Bore Tolerance (ISO 286-2, H7)	Minimum Assembly Clearance	Maximum Assembly Clearance
0.7500	1.1250	+0.0000/-0.0005	+0.0008/-0.0000	0.0000	0.0013
1.1250	1.9375	+0.0000/-0.0006	+0.0009/-0.0000	0.0000	0.0015
2.0000	3.1250	+0.0000/-0.0007	+0.0011/-0.0000	0.0000	0.0018
3.1875	4.6875	+0.0000/-0.0008	+0.0013/-0.0000	0.0000	0.0021
4.7500	7.0625	+0.0000/-0.0009	+0.0015/-0.0000	0.0000	0.0024
7.1250	7.5000	+0.0000/-0.0011	+0.0018/-0.0000	0.0000	0.0029

UNICASE™ Parallel Shaft Geared Motors Available with Shrink Disc

Gear Unit	Shrink Disc Type	Motor Size													
		63	71	80	90	100	112	132	160	180	200	225	250	280	315
SK 0282.1	SN 25 / 35 V	●	●	●											
SK 0282.1	SN 30 / 40 V	●	●												
SK 1282.1	SN 35 / 46 V	●	●	●	●										
SK 1382.1	SN 35 / 46 V	●	●	●	●										
SK 1282	SN 30 / 40 V	●	●	●											
SK 2282	SN 35 / 46 V		●	●	●	●									
SK 3282	SN 40 / 55 V		●	●	●	●	●								
SK 3382	SN 40 / 55 V	●	●	●	●										
SK 4282	SN 50 / 62 V				●	●	●	●							
SK 5282	SN 60 / 76 V				●	●	●	●	●						
SK 6282	SN 70 / 90 V					●	●	●	●	●					
SK 6382	SN 70 / 90 V				●	●	●	●	●	●					
SK 7282	SN 80 / 108 V							●	●	●	●	AS			
SK 7382	SN 80 / 108 V					●	●	●	●	●	●	AS			
SK 8282	SN 100 / 128 V							●	●	●	●	●			
SK 8382	SN 100 / 128 V					●	●	●	●	●	●	●			
SK 9282	SN 125 / 158 V										●	●	●	●	
SK 9382	SN 125 / 158 V							●	●	●	●	●	●	●	
SK 10382.1	SN 160 / 210 V							●	●	●	●	●	●	●	AS
SK 11382.1	SN 180 / 230 V								●	●	●	●	●	●	●

AS Heavy duty shrink disc
● Available

UNICASE™ Parallel Shaft Geared Motors with Motor Adapters Available with Shrink Disc

Gear Unit	Shrink Disc Type	Motor Size 63	71	80	90	100	112	132	160	180	200	225	250	280	315
SK 0282.1	SN 25 / 35 V	●	●	●	●										
SK 0282.1	SN 30 / 40 V	●	●	●	●										
SK 1282.1	SN 35 / 46 V	●	●	*	*	*	*								
SK 1382.1	SN 35 / 46 V	●	●	*	*										
SK 1282	SN 30 / 40 V	●	●	●	●										
SK 2282	SN 35 / 46 V		●	●	●	●	●								
SK 3282	SN 40 / 55 V		●	●	●	●	●	●							
SK 3382	SN 40 / 55 V	●	●	●	●										
SK 4282	SN 50 / 62 V				●	●	●	●	●						
SK 5282	SN 60 / 76 V				●	●	●	●	●	●					
SK 6282	SN 70 / 90 V					●	●	●	●	●	●	●			
SK 6382	SN 70 / 90 V				●	●	●	●	●	●					
SK 7282	SN 80 / 108 V							●	●	●	●	●			
SK 7382	SN 80 / 108 V					●	●	●	●	●	●	●			
SK 8282	SN 100 / 128 V							●	●	●	●	●	●	●	
SK 8382	SN 100 / 128 V					●	●	●	●	●	●	●			
SK 9282	SN 125 / 158 V									●	●	●	●	●	●
SK 9382	SN 125 / 158 V							●	●	●	●	●	●	●	
SK 10382.1	SN 160 / 210 V							●	●	●	●	●	●	●	●
SK 11382.1	SN 180 / 230 V								●	●	●	●	●	●	●

● Available
* See adapter table

*1282.1 / 1382.1

Motor Size	Adapter		Aluminium	Cast Iron
80	IEC	B14 C120	●	
		B14 C160	●	❍
		B5 A200	❍	
	NEMA	N56C	●	❍
		N140TC	●	❍
90	IEC	B14 C140	●	
		B14 C160	●	❍
		B5 A200	❍	
	NEMA	N140TC	●	❍
100	IEC	B14 C160	●	
		B14 C200	❍	❍
		B5 A250	❍	
	NEMA	N180TC	●	❍
112	IEC	B14 C160	●	
		B14 C200	❍	❍
		B5 A250	❍	
	NEMA	N180TC	●	❍

• Available
❍ Not available

UNICASE™ Parallel Shaft Geared Motors Available with Heavy Duty Shrink Disc

Gear Unit	Shrink Disc Type	Motor Size													
		63	71	80	90	100	112	132	160	180	200	225	250	280	315
SK 7282	SN 85 / 108 VS							●	●	●					
SK 7382	SN 85 / 108 VS					●	●	●	●	●					
SK 8282	SN 100 / 128 VS							●	●	●	●				
SK 8382	SN 100 / 128 VS					●	●	●	●	●	●				
SK 9282	SN 130 / 158 VS										●	●	●	●	
SK 9382	SN 130 / 158 VS							●	●	●	●	●	●	●	

● Available

UNICASE™ Parallel Shaft Geared Motors with Motor Adapters Available with Heavy Duty Shrink Disc

Gear Unit	Shrink Disc Type	Motor Size													
		63	71	80	90	100	112	132	160	180	200	225	250	280	315
SK 7282	SN 85 / 108 VS							●	●	●	●	●			
SK 7382	SN 85 / 108 VS					●	●	●	●	●	●	●			
SK 8282	SN 100 / 128 VS							●	●	●	●	●			
SK 8382	SN 100 / 128 VS					●	●	●	●	●	●	●			
SK 9282	SN 130 / 158 VS									●	●	●	●	●	●
SK 9382	SN 130 / 158 VS							●	●	●	●	●	●	●	

● Available

UNICASE™ Parallel Shaft Gear Units with Shrink Disc

Gear Unit	Shrink Disc Type	$M_{2, max}$		Safety Factor	
		[Nm]	[lb-in]	s h6	s f6
SK 0282.1	SN 25 / 35 V	200	1770	2.51	1.99
SK 0282.1	SN 30 / 40 V	200	1770	4.85	4.21
SK 1282.1	SN 35 / 46 V	400	3540	3.28	2.84
SK 1282	SN 30 / 40 V	296	2620	3.56	3.03
SK 2282	SN 35 / 46 V	563	4983	2.53	2.15
SK 3282	SN 40 / 55 V	1039	9195	2.31	2.00
SK 4282	SN 50 / 62 V	2000	17700	2.26	2.10
SK 5282	SN 60 / 76 V	3235	28630	2.58	2.39
SK 6282	SN 70 / 90 V	6000	53100	2.33	2.16
SK 7282	SN 80 / 108 V	8300	73455	2.56	2.38
SK 8282	SN 100 / 128 V	13200	116820	2.38	2.25
SK 9282	SN 125 / 158 V	25400	224790	2.38	2.25
SK 10382.1	SN 160 / 210 V	43000	380550	3.18	3.04
SK 11382.1	SN 180 / 230 V	73000	646050	3.59	3.46

Gear Unit	Shrink Disc Type	$M_{2, max}$		Safety Factor	
		[Nm]	[lb-in]	s h6	s f6
SK 7282	SN 85 / 108 VS	8300	73455	4.02	3.76
SK 8282	SN 100 / 128 VS	13200	116830	3.69	3.44
SK 9282	SN 130 / 158 VS	25400	224790	4.03	3.83

NORDBLOC.1® Helical Bevel Gear Units with Shrink Disc

Gear Unit	Shrink Disc Type	$M_{2, max}$		Safety Factor	
		[Nm]	[lb-in]	s h6	s f6
SK 9x0072.1	20/24 TAS 3173	50	443	3.00	n.a.
SK 9x072.1	SN 25 / 34 V	90	797	4.14	3.14
SK 9x172.1	SN 25 / 35 V	120	1062	4.18	3.32
SK 9x372.1	SN 30 / 40 V	230	2036	4.22	3.65
SK 9x672.1	SN 35 / 46 V	380	3363	3.74	3.19
SK 9x772.1	SN 40 / 55 V	660	5841	3.64	3.16

UNICASE™ Helical Bevel Gear Units with Shrink Disc

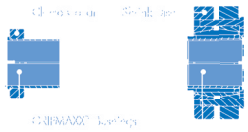
Gear Unit	Shrink Disc Type	$M_{2, max}$		Safety Factor	
		[Nm]	[lb-in]	s h6	s f6
SK 9012.1	SN 35 / 46 V	400	3540	3.56	3.03
SK 9016.1	SN 40 / 46 V	610	5399	3.41	3.18
SK 9022.1	SN 40 / 55 V	860	7611	2.80	2.42
SK 9032.1	SN 50 / 62 V	1550	13718	2.93	2.71
SK 9042.1	SN 60 / 76 V	2800	24780	2.99	2.75
SK 9052.1	SN 70 / 90 V	4800	42480	2.90	2.70
SK 9072.1	SN 95 / 108 V	8500	75225	3.72	3.60
SK 9082.1	SN 110 / 138 V	13000	115050	2.75	2.63
SK 9086.1	SN 125 / 158 V	20000	177000	3.01	2.86
SK 9092.1	SN 150 / 185 V	32000	283200	2.75	2.65
SK 9096.1	SN 150 / 195 V	50000	442500	2.60	2.49

Gear Unit	Shrink Disc Type	$M_{2, max}$		Safety Factor	
		[Nm]	[lb-in]	s h6	s f6
SK 9072.1	SN 95 / 108 VS	8500	75225	5.25	5.08
SK 9082.1	SN 110 / 138 VS	13000	115050	6.46	6.17
SK 9086.1	SN 130 / 158 VS	20000	177000	5.11	4.85
SK 9092.1	SN 150 / 195 VS	32000	283200	4.06	3.89
SK 9096.1	SN 155 / 195 VS	50000	442500	3.92	3.73

UNICASE™ Worm Gear Units with Shrink Disc

Gear Unit	Shrink Disc Type	$M_{2, max}$		Safety Factor	
		[Nm]	[lb-in]	s h6	s f6
SK 02040.1	SN 25 / 34 V	100	885	3.72	2.83
SK 02050	SN 25 / 35 V	182	1611	2.75	2.19
SK 02050	SN 30 / 40 V	182	1611	5.34	4.62
SK 12063	SN 30 / 40 V	383	3390	2.54	2.20
SK 12063	SN 35 / 46 V	383	3390	3.72	3.17
SK 12080	SN 40 / 55 V	779	6894	3.09	2.68
SK 12080	SN 45 / 55 V	779	6894	4.22	3.90
SK 32100	SN 50 / 62 V	1604	14195	2.82	2.63
SK 32100	SN 60 / 76 V	1604	14195	5.22	4.81
SK 42125	SN 60 / 76 V	3120	27612	2.68	2.48
SK 42125	SN 70 / 90 V	3120	27612	4.46	4.16

GRIPMAXX™ (M)



Torque Capacity

The GRIPMAXX torque capacity (F_T) is specified in the performance tables. The transmittable torque depends on the gearbox size and the bushing size without any external axial force and radial forces (F_A = 0 and F_R=0). The maximum transmittable torque from GRIPMAXX is calculated without using a safety factor.

Axial Forces

The forces directed away from or towards the gearbox along the central axis of the driven shaft are referred to as axial force. The permissible axial force (F_A) is indicated in the performance tables. The presence of an axial load reduces the torque capacity of the GRIPMAXX connection. The transmittable axial force depends on the gearbox and bushing size.

Radial Forces

Radial forces act in a vertical direction on the axis of rotation of the driven solid shaft. Radial forces that can generate a bending moment include: the weight of the mounted components, a chain or belt tension, shaft deformations of the driven shaft, etc.

NORD does not recommend the use of GRIPMAXX if considerable bending moments or radial forces occur. These forces must be absorbed elsewhere in the system, not by the gear unit or the GRIPMAXX connection.

Design considerations

Boundary Conditions

- The solid shaft end must engage the full length of the gear unit hollow shaft.
- The yield strength of the customer shaft must be at least 360 N/mm² or 52,260 lb/in² so that the compressive forces required to generate sufficient friction do not lead to permanent deformation of the shaft.
- The contact surfaces of the hollow gearbox shaft, the bushing insert, and the corresponding customer shaft must be free of contamination.
- All fastening screws of the shrink disk must have the correct strength class and be tightened to the specified tightening torque.

Solid Shaft Tolerance Requirements

The recommended solid shaft tolerances for the GRIPMAXX connection are tabulated below.

Above [mm]	To & Including [mm]	ISO 268-2 Tolerance h11 [mm]
10	18	0.1100
18	30	0.1300
30	50	0.1600
50	80	0.1900
Above [in]	**To & Including [in]**	**ISO 268-2 Tolerance h11 [in]**
0.438	0.6880	0.0043
0.750	1.0630	0.0051
1.125	1.9380	0.0063
2.000	3.1250	0.0075

UNICASE™ Parallel Shaft Geared Motors Available with GRIPMAXX™

Gear Unit	Shrink Disc Type	Motor Size													
		63	71	80	90	100	112	132	160	180	200	225	250	280	315
SK 1282.1	SN 30 / 42 V	●	●	●	●										
SK 1382.1	SN 30 / 42 V	●	●	●	●										
SK 1282	SN 30 / 42 V	●	●	●											
SK 2282	SN 35 / 49 V		●	●	●	●									
SK 3282	SN 40 / 55 V		●	●	●	●	●								
SK 3382	SN 40 / 55 V	●	●	●	●										
SK 4282	SN 50 / 62 V				●	●	●	●							
SK 5282	SN 60 / 78 V				●	●	●	●	●						
SK 6282	SN 70 / 94 V					●	●	●	●	●					
SK 6382	SN 70 / 94 V				●	●	●	●	●	●					
SK 7282	SN 80 / 108 V							●	●	●					
SK 7382	SN 80 / 108 V					●	●	●	●	●					
SK 8282	SN 100 / 128 V							●	●	●	●	●			
SK 8382	SN 100 / 128 V					●	●	●	●	●	●	●			
SK 9282	SN 125 / 158 V										●	●	●	●	
SK 9382	SN 125 / 158 V							●	●	●	●	●	●	●	

● Available

UNICASE™ Parallel Shaft Geared Motors with Motor Adapters Available with GRIPMAXX™

Gear Unit	Shrink Disc Type	Motor Size													
		63	71	80	90	100	112	132	160	180	200	225	250	280	315
SK 1282.1	SN 30 / 42 V	●	●	*	*	*	*								
SK 1382.1	SN 30 / 42 V	●	●	*	*	*	*								
SK 1282	SN 30 / 42 V	●	●	●	●										
SK 2282	SN 35 / 49 V		●	●	●	●	●								
SK 3282	SN 40 / 55 V		●	●	●	●	●	●							
SK 3382	SN 40 / 55 V	●	●	●	●	●	●	●							
SK 4282	SN 50 / 62 V				●	●	●	●	●						
SK 5282	SN 60 / 78 V				●	●	●	●	●	●					
SK 6282	SN 70 / 94 V					●	●	●	●	●	●	●			
SK 6382	SN 70 / 94 V				●	●	●	●	●	●					
SK 7282	SN 80 / 108 V							●	●	●	●	●			
SK 7382	SN 80 / 108 V					●	●	●	●	●	●	●			
SK 8282	SN 100 / 128 V							●	●	●	●	●	●	●	
SK 8382	SN 100 / 128 V					●	●	●	●	●	●	●			
SK 9282	SN 125 / 158 V									●	●	●	●	●	●
SK 9382	SN 125 / 158 V							●	●	●	●	●	●	●	

● Available
* See adapter table

*1282.1 / 1382.1

Motor Size	Adapter		Aluminium	Cast Iron
80	IEC	B14 C120	●	
		B14 C160	●	❍
		B5 A200	❍	
	NEMA	N56C	●	❍
		N140TC	●	❍
90	IEC	B14 C140	●	
		B14 C160	●	❍
		B5 A200	❍	
	NEMA	N140TC	●	❍
100	IEC	B14 C160	●	
		B14 C200	❍	❍
		B5 A250	❍	
	NEMA	N180TC	●	❍
112	IEC	B14 C160	●	
		B14 C200	❍	❍
		B5 A250	❍	
	NEMA	N180TC	●	❍

● Available
❍ Not available

UNICASE™ Parallel Shaft Gear Units with GRIPMAXX

Gear Unit	GRIPMAXX Type	$M_{2, max}$ [Nm]	$M_{2, max}$ [lb-in]	Safety Factor SM h11 (DiB_{max})
SK 1282.1	SN 30 / 42 V	400	3540	3.10
SK 1282	SN 30 / 42 V	295	2611	4.14
SK 2282	SN 35 / 49 V	565	5000	3.18
SK 3282	SN 40 / 55 V	1040	9204	2.45
SK 4282	SN 50 / 62 V	2000	17700	2.24
SK 5282	SN 60 / 78 V	3235	28630	2.88
SK 6282	SN 70 / 94 V	6000	53100	2.54
SK 7282	SN 80 / 108 V	8300	73455	2.59
SK 8282	SN 100 / 128 V	13200	116820	2.31
SK 9282	SN 125 / 158 V	25400	224790	2.24

NORDBLOC.1® Helical Bevel Gear Units with GRIPMAXX

Gear Unit	GRIPMAXX Type	$M_{2, max}$ [Nm]	$M_{2, max}$ [lb-in]	Safety Factor SM h11 (DiB_{max})
SK 9x072.1	SN 25 / 34 V	81	717	5.00
SK 9x172.1	SN 30 / 42 V	120	1062	10.17
SK 9x372.1	SN 35 / 49 V	220	1947	8.16
SK 9x672.1	SN 50 / 62 V	364	3221	12.31
SK 9x772.1	SN 50 / 62 V	660	5841	6.79

UNICASE™ Helical Bevel Gear Units with GRIPMAXX

Gear Unit	GRIPMAXX Type	$M_{2, max}$ [Nm]	$M_{2, max}$ [lb-in]	Safety Factor SM h11 (DiB_{max})
SK 9012.1	SN 35 / 49 V	400	3540	4.49
SK 9016.1	SN 35 / 49 V	610	5399	2.94
SK 9022.1	SN 40 / 55 V	860	7611	2.96
SK 9032.1	SN 50 / 62 V	1550	13718	2.89
SK 9042.1	SN 60 / 78 V	2800	24780	3.33
SK 9052.1	SN 70 / 94 V	4800	42480	3.18
SK 9072.1	SN 90 / 119 V	8500	75225	3.41
SK 9082.1	SN 110 / 138 V	13000	115050	2.57

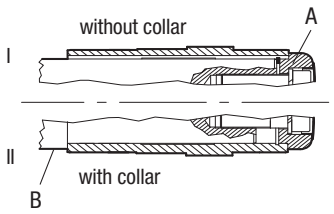
UNICASE™ Worm Gear Units with GRIPMAXX

Gear Unit	GRIPMAXX Type	$M_{2, max}$ [Nm]	$M_{2, max}$ [lb-in]	Safety Factor SM h11 (DiB_{max})
SK 02050	SN 30 / 42 V	180	1593	6.78
SK 12063	SN 35 / 49 V	385	3407	4.66
SK 12080	SN 50 / 62 V	780	6903	5.74
SK 32100	SN 60 / 78 V	1605	14204	5.81
SK 42125	SN 60 / 78 V	3120	27612	2.99

Fixing Element (B)

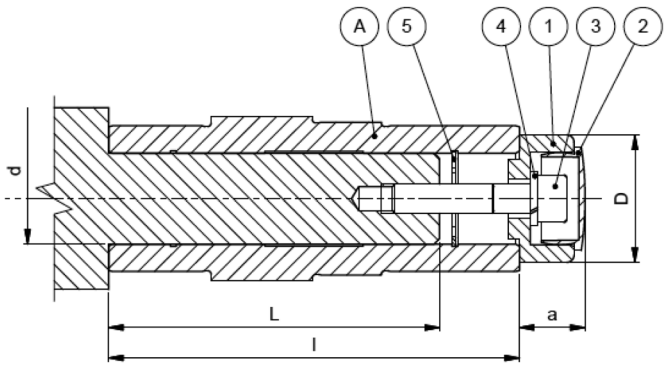
To combat inherent, slight oscillations in rotating shafts, NORD offers an optional fixing element kit. This method prevents the gear unit from "walking out" of position. The kit includes all necessary parts to secure the shaft in the axial direction by using a tapped hole in the end of the mating male shaft.

There are two methods for securing the fixing element kit. The first involves pulling the supplied male shaft to the snap ring (type 1). For the second method, the supplied shaft is shouldered (type 2) and pulled against the hollow shaft and not the snap ring.



Prerequisites for use:

- The solid shaft used must be equipped with a face-side thread as per DIN 332/2.
- The fixing elements are suitable for both solid shafts without collars (I) and with collars (II).
- For attachment according to I, the solid shaft is fixed by means of a securing ring located in the hollow shaft (item A).
- For attachment according to II, the collar of the solid shaft is in direct contact with the hollow shaft (item B).



Fixing element kit included parts

- The fixing element consists of items 1 – 5
- L = Length of customer's shaft

A. Hollow shaft
1. Washer
2. Sealing cap
3. Socket head cap screw
4. Lock washer
5. Retaining washer

Dimensions and more information can be found in the respective dimensions section.
Reference the manual B1000 for installation and maintenance (download at www.nord.com).

Fixing Element Data - Metric

Shaft Diameter	l	L	1		3						4	5
[mm]	[mm]	[mm]	a	D								
14	68	50	14.8	25	M5 x 30	M5 x 16					A5	-
18	83	65	14.0	30	M6 x 30	M6 x 20					A6	I 18
20	83 – 125	65 – 102	9.6	30	M6 x 40	M6 x 35	M6 x 30	M6 x 25	M6 x 20		A6	IS 20
25	97 – 132	79 – 110	19.2	35	M10 x 50	M10 x 45	M10 x 40	M10 x 30			A10	IS 25
30	122 – 170	102 – 140	19.2	40	M10 x 55	M10 x 50	M10 x 45	M10 x 40	M10 x 30	M10 x 25	A10	IS 30
35	130 – 180	110 – 150	32	45	M12 x 55	M12 x 50	M12 x 35				A12	IS 35
40	145 – 210	120 – 170	24.4	55	M16 x 70	M16 x 65	M16 x 60	M16 x 45			A16	IS 40
45	168 – 192	135 – 162	25.4	60	M16 x 70	M16 x 65	M16 x 45				A16	IS 45
50	170 – 240	140 – 200	25.4	65	M16 x 70	M16 x 65	M16 x 45				A16	IS 50
55	192	162	28.8	95	M20 x 70	M20 x 55					A20	IS 55
60	202 – 300	155 – 255	28.8	75	M20 x 90	M20 x 55					A20	IS 60
70	250 – 350	205 – 290	28.8	95	M20 x 100	M20 x 90	M20 x 55				A20	IS 70
80	310 – 350	250 – 290	28.8	102	M20 x 100	M20 x 55					A20	IS 80
90	350	290	34	102	M24 x 110	M24 x 60					A24	IS 90
100	366 – 420	310 – 365	34	120	M24 x 110	M24 x 65					A24	IS 100
110	420 – 500	360 – 440	34	135	M24 x 110	M24 x 65					A24	IS 110
120	430 – 610	370 – 550	34	150	M24 x 110	M24 x 65					A24	IS 120
150	610	550	39.1	200	M30 x 120	M30 x 70					A30	IS 150
160	475 – 674	418 – 614	47	200	M36 x 130	M36 x 100					A36	I 160
180	522 – 546	460 – 480	47	240	M36 x 140	M36 x 100					A36	I 180