



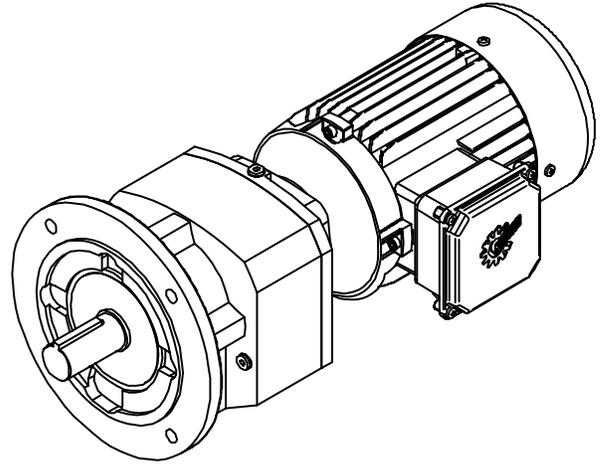
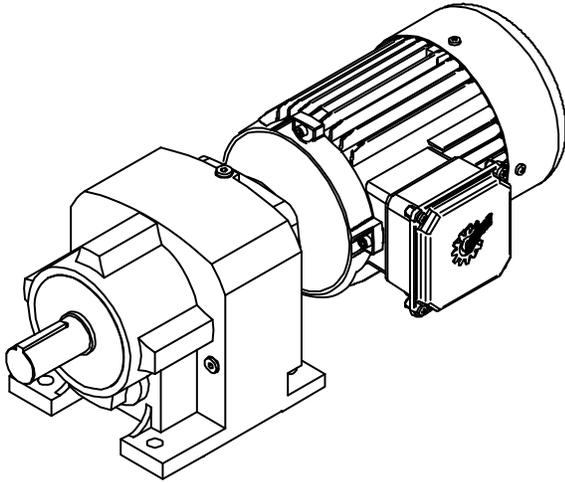
NORDBLOC®.1 Helical Gearboxes Installation and Maintenance Instructions

BIM 1013

USA

CDN

Retain These Safety Instructions For Future Use



INSPECTION OF UNIT

Thoroughly inspect the equipment for any shipping and handling damage before accepting shipment from the freight company. If any of the goods called for in the bill of lading or express receipt are damaged or the quantity is short, do not accept until the freight or express agent makes an appropriate notation on your freight bill or express receipt. If any concealed loss or damage is discovered later, notify your freight carrier or express agent at once and request him to make an inspection. We will be very happy to assist you in collecting claims for loss or damage during shipment; however, this willingness on our part does not remove the transportation company's responsibility in reimbursing you for collection of claims or replacement of material. Claims for loss or damage in shipment must not be deducted from the NORD Gear invoice, nor should payment of the NORD Gear invoice be withheld awaiting adjustment of such claims, as the carrier guarantees safe delivery.

If considerable damage has been incurred and the situation is urgent, contact the nearest NORD Gear Sales Office for assistance. Please keep a written record of all communications.

RECORD NAMEPLATE DATA

Locate the gear reducer nameplate and record all nameplate data for future reference.

SK _____ S/N _____

RATIO _____ MAX TORQUE _____ RPM _____ MTG. POS _____

STORAGE

PROPER STORAGE UNTIL INSTALLED

Keep unit in a dry, temperature controlled area. If stored other than said, long term storage methods must be applied to the unit including complete fill with lubricant. Protect machined surfaces and rotate shafts periodically. Prior to putting unit into service, drain lubricant and refill to proper level as determined by the mounting position.

PROPER HANDLING OF THE UNIT

Exercise care to prevent damage to the unit when moving. Lift only at designed lifting points. Do not attach other machinery and lift by the unit lifting points. The lifting points are to be used to lift the unit only. Insure that adequate safety measures are taken to protect personnel during transportation. Protect the mounting surface from damage.

INSTALLATION OF UNIT

To ensure reliable service and dependable performance, an enclosed gear drive must be rigidly supported and the shafts accurately aligned. Following are some precautions required to accomplish this end.

FOUNDATION

The responsibility for the design and construction of the foundation is with the user. The foundation must be adequate to withstand normal operating loads and possible overloads while maintaining alignment to attached system components under such loads.

MOUNTING POSITION

Unless a unit is specifically ordered for inclined mounting, the foundation must be level and flat. The lubrication system may not operate properly if the unit is not mounted in the position for which it is designed. It may be desirable to elevate the foundation to facilitate oil drainage.

CONCRETE FOUNDATION

If a concrete foundation is used, steel mounting pads and bolts of sufficient size to distribute the stress into the concrete should be grouted into the foundation.

STEEL FOUNDATION

If a structural steel foundation is used (i.e. wide flange beams or channels), a base plate or sole plate of suitable thickness should be used and should extend under the entire unit.

FOOT MOUNTED UNITS

Use shims under the feet of the unit to align the output shaft to the driven equipment. Make sure that all feet are supported so that the housing will not distort when it is bolted down. Improper shimming will reduce the life of the unit and may cause failure. Dowel pins may be installed to prevent misalignment and ensure proper realignment if removed for service.

FLANGE MOUNTED UNITS

If a structural steel foundation is used (i.e. wide flange beams or channels), a base plate or sole plate of suitable thickness should be used and should extend under the entire unit. If a bulk head plate is used it should be of proper strength to minimize buckling distortions.

Flange Pilot 'AK' or 'AK1' tolerance

Metric (mm)

- > $\varnothing 50 \leq \varnothing 80 = +0.012/-0.007$
- > $\varnothing 80 \leq \varnothing 120 = +0.013/-0.009$
- > $\varnothing 120 \leq \varnothing 180 = +0.014/-0.011$
- > $\varnothing 180 \leq \varnothing 230 = +0.016/-0.013$
- > $\varnothing 230 \leq \varnothing 315 = +0.000-0.032$
- > $\varnothing 315 \leq \varnothing 400 = +0.000/-0.036$
- > $\varnothing 400 \leq \varnothing 500 = +0.000/-0.040$

Inch

- > $\varnothing 1.969 \leq \varnothing 3.150 = +0.005/-0.0003$
- > $\varnothing 3.150 \leq \varnothing 4.724 = +0.005/-0.0004$
- > $\varnothing 4.724 \leq \varnothing 7.087 = +0.006/-0.0004$
- > $\varnothing 7.087 \leq \varnothing 9.055 = +0.006/-0.0005$
- > $\varnothing 9.055 \leq \varnothing 12.402 = +0.000/-0.0013$
- > $\varnothing 12.402 \leq \varnothing 15.748 = +0.000/-0.0014$
- > $\varnothing 15.748 \leq \varnothing 19.685 = +0.000/-0.0016$

BOLT STRENGTH

Bolt size, strength and quantity should be verified to insure proper torque reaction capacity whatever the mounting arrangement.

PRIME MOVER MOUNTING

Align the prime mover to the reducer-input shaft using shims under the feet. Make sure that the feet are supported. Dowel pin the prime mover to its foundation.

SHAFT CONNECTIONS

When connecting shafts to either the input or output of the reducer, consider the following:

- Coupling hubs should be installed in accordance with ANSI/AGMA 9002-A86
- Consult with the manufacture to determine proper assembly and fit, prior to installing outboard sprockets or gears. Interference fits may require heating the sprocket or gear per the manufacturer's recommendations, generally up to 250°F to 300°F, (120°C to 150° C), before assembling to the shaft.

NORD SHAFT TOLERANCES

Solid shaft diameter tolerance

Metric (mm)

- $\leq \varnothing 18 = +0.012/+0.001$
- > $\varnothing 18 \leq \varnothing 30 = +0.015/+0.002$
- > $\varnothing 30 \leq \varnothing 50 = +0.018/+0.002$
- > $\varnothing 50 \leq \varnothing 80 = +0.030/+0.011$
- > $\varnothing 80 \leq \varnothing 120 = +0.035/+0.013$
- > $\varnothing 120 \leq \varnothing 180 = +0.040/+0.015$

Inch

- $\leq \varnothing 1.750 = +0.0000/-0.0005$
- > $\varnothing 1.750 = +0.0000/-0.0010$

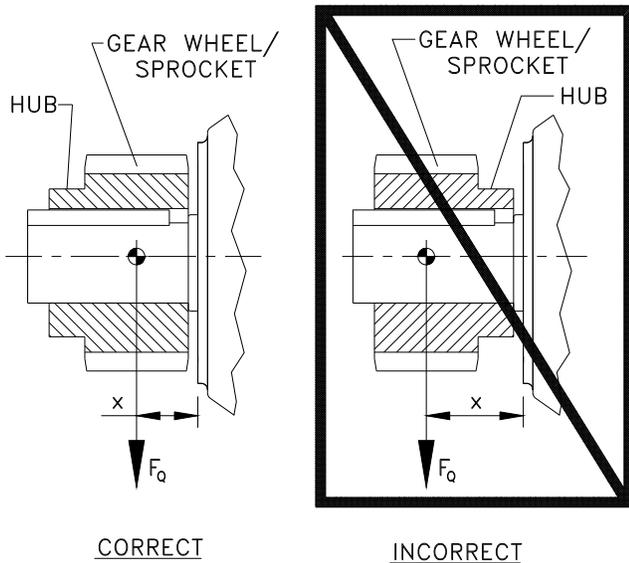
Solid shaft drill and tap at shaft end

Metric (mm)

- $\leq \varnothing 16 = M5$
- > $\varnothing 16 \leq \varnothing 21 = M6$
- > $\varnothing 21 \leq \varnothing 24 = M8$
- > $\varnothing 24 \leq \varnothing 30 = M10$
- > $\varnothing 30 \leq \varnothing 38 = M12$
- > $\varnothing 38 \leq \varnothing 50 = M16$
- > $\varnothing 50 \leq \varnothing 85 = M20$
- > $\varnothing 85 \leq \varnothing 130 = M24$

Inch

- $\leq \varnothing 0.500 = 10-24 \times 0.43 \text{ deep}$
- > $\varnothing 0.500 \leq \varnothing 0.875 = 1/4-20 \times 0.59 \text{ deep}$
- > $\varnothing 0.875 \leq \varnothing 0.938 = 5/16-18 \times 0.71 \text{ deep}$
- > $\varnothing 0.938 \leq \varnothing 1.100 = 3/8-16 \times 0.87 \text{ deep}$
- > $\varnothing 1.100 \leq \varnothing 1.300 = 1/2-13 \times 1.10 \text{ deep}$
- > $\varnothing 1.300 \leq \varnothing 1.875 = 5/8-11 \times 1.4 \text{ deep}$
- > $\varnothing 1.875 \leq \varnothing 3.500 = 3/4-10 \times 1.7 \text{ deep}$
- > $\varnothing 3.500 = 1-8 \times 2.2 \text{ deep}$



LOCATION

Coupling hubs should be mounted flush with the shaft ends, unless specifically ordered for overhung mounting. Pinions, sprockets and sheaves should be mounted as close as possible to the unit housing to minimize bearing loads and shaft deflections.

COUPLING ALIGNMENT

Shaft couplings should be installed according to the coupling manufacturer's recommendations for gap, angular and parallel alignment. In many installations, it is necessary to allow for thermal and mechanical shaft movement when determining shaft alignment. The coupling manufacturer's recommendations should be followed.

AXIAL DISPLACEMENT

The gap between shaft ends should be the same as the specified coupling gap unless overhung mounting of the coupling hub is specified. The coupling gap and shaft gap must be sufficient to accommodate any anticipated thermal or mechanical axial movement.

ANGULAR ALIGNMENT

Insert a spacer or shim stock equal to the required coupling gap between the coupling hub faces and measure the clearance using feeler gauges. Repeat this at the same depth at 90-degree intervals to determine the amount of angular misalignment.

PARALLEL ALIGNMENT

Mount a dial indicator to one coupling hub, and rotate this hub, sweeping the outside diameter of the other hub. The parallel misalignment is equal to one-half of the total indicator reading. Another method is to rest a straight edge squarely on the outside diameter of the hubs at 90-degree intervals and measure any gaps with feeler gauges. The maximum gap measurement is the parallel misalignment.

CHECKING ALIGNMENT

After both angular and parallel alignments are within specified limits, tighten all foundation bolts securely and repeat the above procedure to check alignment. If any of the specified limits for alignment are exceeded, realign the coupling.

SPROCKET OR SHEAVE ALIGNMENT

Align the sheaves or sprockets square and parallel by placing a straight edge across their faces. Alignment of bushed sheaves and sprockets should be checked after bushings have been tightened. Check horizontal shaft alignment by placing a level

vertically against the face of the sheave or sprocket. Adjust belt or chain tension per the manufacturer's specified procedure.

OUTBOARD PINION ALIGNMENT

Align the pinion by adjusting the gear tooth clearance according to the manufacturer's recommendations and checking for acceptable outboard pinion tooth contact. The foundation bolts may have to be loosened and the unit moved slightly to obtain this contact. When the unit is moved to correct tooth contact, the prime mover should be realigned.

RECHECK ALIGNMENT

After a period of operation, recheck alignment and adjust as required.

1. Properly install unit on a rigid foundation
 - adequately supported
 - securely bolted into place
 - leveled so as not to distort the gear case
2. Properly install couplings suitable for the application and connected equipment.
3. Ensure accurate alignment with other equipment.
4. Furnish and install adequate machinery guards as needed to protect operating personnel and as required by the applicable standards of the Occupational Safety and Health Administration (OSHA), and by other applicable safety regulations;
5. Ensure that driving equipment is running in the correct direction before coupling to reducers with backstops (designed to operate only in a specific direction) or machinery designed to operate only in one direction.

CHANGES IN PERFORMANCE SPECIFICATIONS

The owner has the responsibility to consult with NORD GEAR if such items such as applied loads, operating speeds or other operating conditions have changed.

 **WARNING:**
 LOCK OUT POWER before any maintenance is performed.
 Make absolutely sure that no voltage is applied while work is

START-UP

1. Ensure that switches, alarms, heaters, coolers and other safety and protection devices are installed and operational for their intended purpose.
2. Verify that the installed mounting position is the same as the nametag mounting position. If not, relocate the vent plug, fill plug and drain plug according to the tables on pages 5-7 and make the necessary adjustments to the oil level.

OPERATION AND MAINTENANCE CHECKLIST

1. Operate the equipment as it was intended to be operated
2. Do not overload.
3. Run at correct speed.
4. Maintain lubricant in good condition and at proper level.
5. Dispose of used lubricant in accordance with applicable laws and regulations.
6. Apply proper maintenance to attached equipment at prescribed intervals recommended by the manufacturer.
7. Perform periodic maintenance of the gear drive as recommended by NORD.

LUBRICATION

Proper gearbox lubrication is essential in order to reduce friction, heat, and component wear. Lubricants reduce heat and wear by inserting a protective “fluid boundary” between mating parts and preventing direct metal to metal contact. Lubricants also help prevent corrosion and oxidation, minimize foam, improve heat transfer, optimize reducer efficiency, absorb shock loads and reduce noise.

- All reducers are shipped from the factory with a pre-determined oil fill level in accordance to the specified reducer size and mounting position (See pages 5-7).
- Actual oil volume can vary slightly depending upon the gear case size, mounting and ratio. Prior to commissioning the reducer, check the oil-fill level using the reducer’s oil-level plug and drain or add additional oil as needed.

Standard Oil Type

The standard NORDBLOC.1 gear units are supplied with mineral-base oil, ISO viscosity grade VG220.

Gear units may also be supplied with specific lubricants designed to operate in certain environments, extend service life, or extend the service temperature range. *Consult the lubrication decal adjacent to the fill plug to determine the type of lubricant installed at the factory.*

Oil Viscosity

Viscosity or the oil’s resistance to shear under load is often considered the single most important property of any gear oil. There are three primary reasons to consider a lubrication viscosity change as follows:

1. *Low temperature* gear oils should be selected so that the pour point is at least 9°F (5°C) lower than the expected minimum ambient temperature. In extreme cases, consider a lower ISO Viscosity rating and test the critical performance of the gear box under cold start-up.
2. *High temperature* applications may require an increase in the lubricants viscosity to assure proper lubrication conditions in the critical load zones of the gear unit. NORD also recommends switching to synthetic oil if oil sump temperatures exceed 176-185 °F (80-85 °C).
3. *In cases of extreme load conditions*, gear pairs and antifriction bearings may be more susceptible to scuffing wear. In these operating conditions, it may be beneficial to consider an increased lubrication viscosity and/or lubrication with improved antiwear additive packages.

NORD recommends that the user consult with their primary lubrication supplier when considering changes in oil viscosity.

Maximum Oil Sump Temperature Limit

To prevent reducer overheating, the reducer’s maximum oil sump temperature limit must not be exceeded for prolonged periods of operation (up to 3 hours continuous operation depending upon reducer size).

Oil Type	Maximum Oil Temperature Limit	
	NORD	AGMA 9005-D94
Mineral	80-85 °C (176-185 °F)	95 °C (203 °F)
Synthetic	105 °C (220 °F)	107 °C (225 °F)

The Importance of Routine Oil Analysis

Routine oil analysis, sound lubrication practices, and good tracking of oil performance trends as related to specific equipment, will help establish proper lubrication maintenance and change-out intervals. To maximize equipment reliability, NORD Gear generally recommends a condition-based lubrication maintenance program.

One may take exceptions to this general recommendation on sealed-for-life or maintenance-free gear units or smaller and less costly gear units. In these instances, the replacement cost of the gear unit is often small compared to the costs associated with this type of oil analysis program.

NORD suggests replacing the gear oil if oil analysis indicates any of the following:

- Viscosity has changed by approximately 10% or more.
- Debris particles (silicon, dust, dirt or sand) exceed 25 ppm.
- Iron content exceeds 150-200 ppm.
- Water content is greater than 0.05% (500 ppm).
- Acid number tests indicate a significant level of oxidative break-down of the oil and a critical reduction in Performance.

OIL PLUG OPTIONS

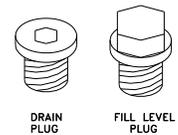
All gear units are assembled with the oil fill-level, oil-drain and vent plugs installed in their proper locations, according to the specified mounting position that is shown on the reducer nametag (See Pages 5-7). All standard plugs are metric and utilize sealing gaskets between the head of the plug and the reducer housing.

Drain Plug

All reducer drain plugs are metric socket head cap screws. For ease of draining the spent oil from the gear reducer use the socket head screw located at the lowest part of the gearbox.

Fill Level Plug

For ease of identification, it is NORD’s standard practice to provide a hex-head screw for the fill-level plug

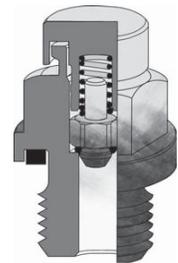


Vent Plug Options

Proper reducer venting allows for air pressure differences that occur during operation, between the inner space of the reducer and the atmosphere, while ensuring leak-free operation. The Autovent™ is standard on all NORDBLOC.1 gear units.

Autovent™

The AUTOVENT™ helps prevent bearing and gear damage by blocking entry of foreign material (water, dust, corrosives, etc.) through a breather that acts like a check valve. The typical design utilizes a spring pressing a ball or a sealing plunger, which presses against a machined orifice. The check valve opens at approximately 2 psi during operation and closes tightly when the gearbox cools, producing a slightly negative pressure to ensure a tight seal. This keeps contaminants out of the oil, helps maintain proper oil cleanliness, reduces contamination, oil foaming and oxidation. The AUTOVENT™ is perfect for humid conditions, washdown applications, and dusty environments.



Open Vent

An optional open vent can be supplied on NORD reducers. The open vent will be closed upon delivery to prevent oil leakage. Before the reducer is put in service the open vent should be activated by removing the sealing plug.

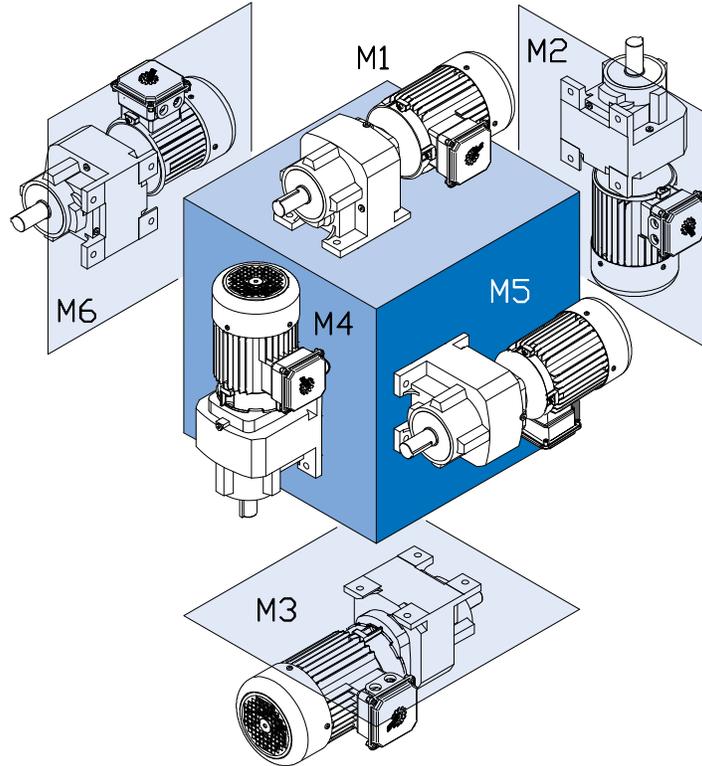
Filtered Vent

NORD may offer an optional filtered vent, which allows gases to permeate, but does not allow dust and debris to pass through the vent.

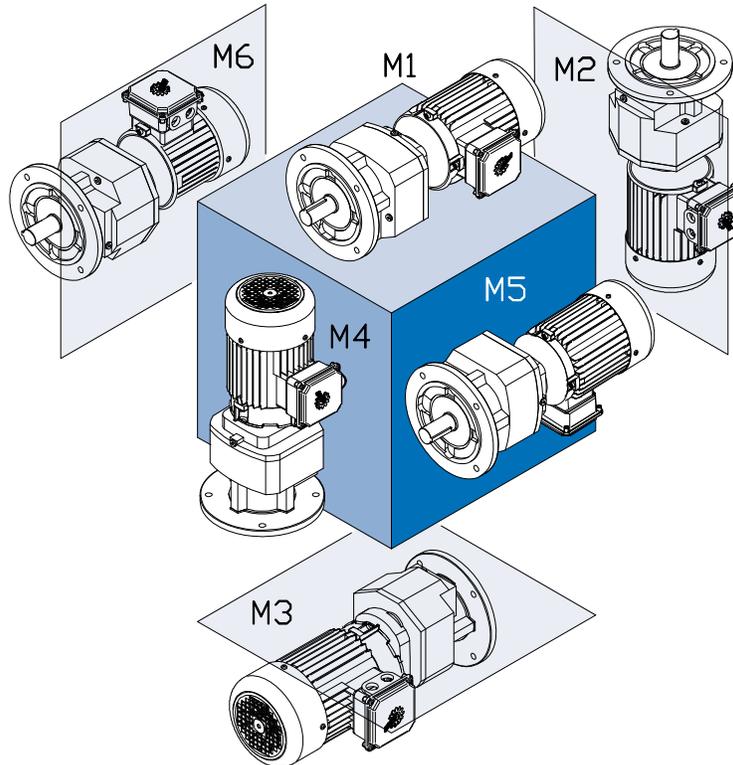
MOUNTING POSITIONS

The mounting position charts that follow detail the standard mounting positions for horizontal and vertical mounting. The gearbox nametag will indicate the mounting position that was provided. For mounting orientations other than shown consult NORD Gear.

FOOT-MOUNTED

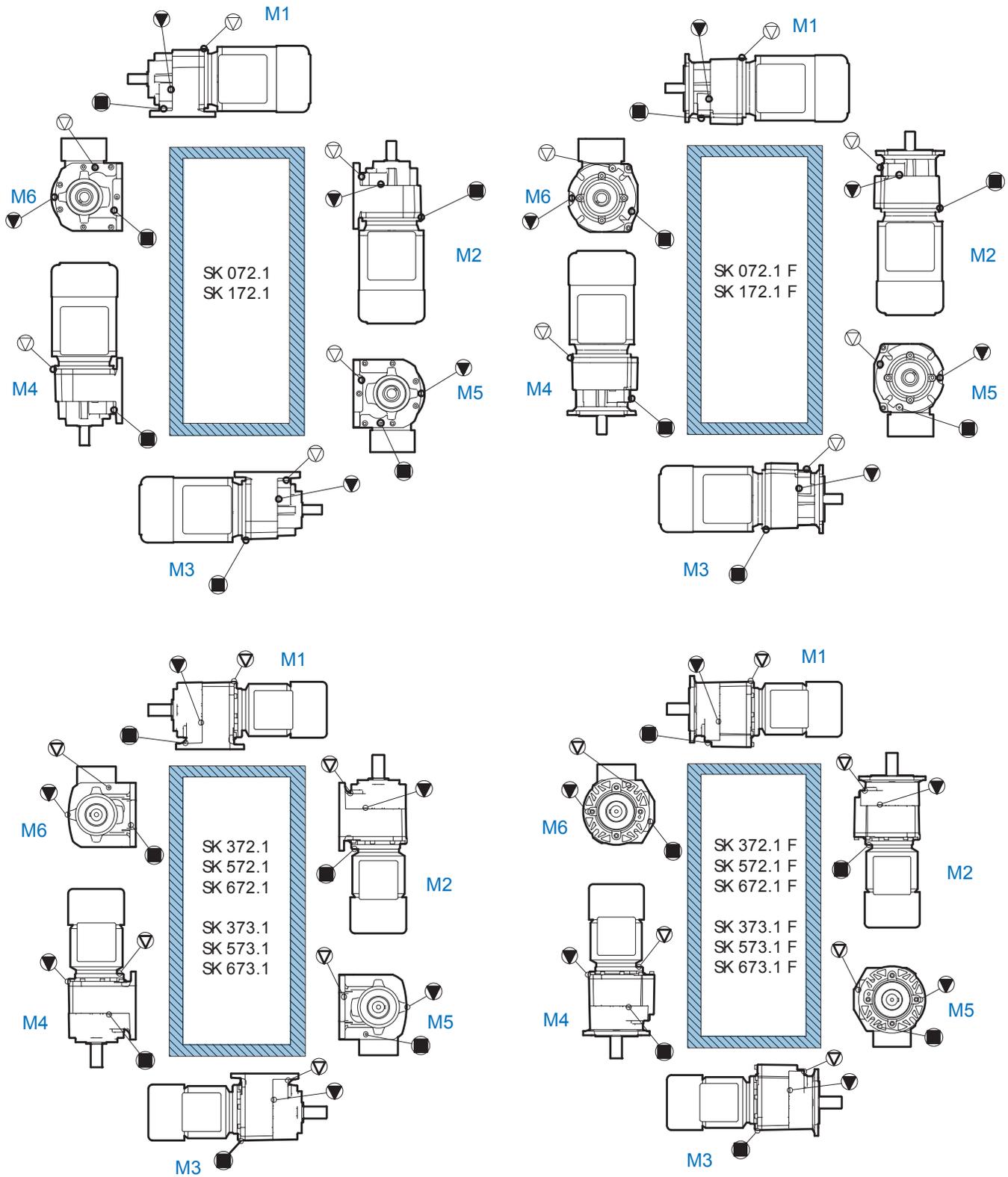


FLANGE-MOUNTED



OIL PLUG LOCATIONS

All gear units are assembled with the oil fill-level, oil-drain and vent plugs installed in their proper locations, according to the specified mounting position that is shown on the reducer nametag. All standard plugs are metric and utilize sealing gaskets between the head of the plug and the reducer housing.



LUBRICANT CAPACITY

All reducers are shipped from the factory with a pre-determined oil fill level in accordance to the specified reducer size and mounting position. Actual oil volume can vary slightly depending upon the gear case size, mounting and ratio. Prior to commissioning the reducer, check the oil-fill level using the reducer's oil-level plug and drain or add additional oil as needed.

Foot-mounted

Mounting Position	M1		M2		M3		M4		M5		M6	
	Quarts	Liters										
SK 072.1	0.17	0.16	0.34	0.32	0.22	0.21	0.24	0.23	0.19	0.18	0.21	0.20
SK 172.1	0.29	0.27	0.62	0.59	0.44	0.42	0.48	0.45	0.34	0.32	0.41	0.39
SK 372.1	0.43	0.41	0.96	0.91	0.82	0.78	1.16	1.10	0.58	0.55	0.68	0.64
SK 373.1	0.43	0.41	0.90	0.85	0.79	0.75	1.10	1.04	0.58	0.55	0.63	0.60
SK 572.1	0.95	0.90	2.11	2.00	1.80	1.70	2.54	2.40	1.27	1.20	1.48	1.40
SK 573.1	0.95	0.90	2.01	1.90	1.74	1.65	2.43	2.30	1.27	1.20	1.43	1.35
SK 672.1	1.37	1.30	3.07	2.90	2.59	2.45	3.70	3.50	1.85	1.75	2.11	2.00
SK 673.1	1.37	1.30	2.96	2.80	2.54	2.40	3.59	3.40	1.85	1.75	2.06	1.95

Flange-Mounted

Mounting Position	M1		M2		M3		M4		M5		M6	
	Quarts	Liters										
SK 072.1	0.17	0.16	0.34	0.32	0.22	0.21	0.24	0.23	0.19	0.18	0.21	0.20
SK 172.1	0.29	0.27	0.62	0.59	0.44	0.42	0.48	0.45	0.34	0.32	0.41	0.39
SK 372.1	0.43	0.41	0.96	0.91	0.82	0.78	1.16	1.10	0.58	0.55	0.68	0.64
SK 373.1	0.43	0.41	0.90	0.85	0.79	0.75	1.10	1.04	0.58	0.55	0.63	0.60
SK 572.1	0.95	0.90	2.11	2.00	1.80	1.70	2.54	2.40	1.27	1.20	1.48	1.40
SK 573.1	0.95	0.90	2.01	1.90	1.74	1.65	2.43	2.30	1.27	1.20	1.43	1.35
SK 672.1	1.37	1.30	3.07	2.90	2.59	2.45	3.70	3.50	1.85	1.75	2.11	2.00
SK 673.1	1.37	1.30	2.96	2.80	2.54	2.40	3.59	3.40	1.85	1.75	2.06	1.95

MAINTENANCE

LUBRICATION REPLACEMENT

If the gear unit is filled with mineral oil, the lubricant should be replaced at least after every 10,000 operating hours or after every two years. If the gear unit is filled with synthetic oil, the lubricant should be replaced at least after every 20,000 operating hours or after every four years. Often gear reducers are exposed to extreme ambient conditions, hostile environments, wet conditions, or dirty and dusty operating areas. Especially in these situations, it is important to establish a condition-based oil service interval.

OIL SPECIFICATIONS

NORD supplies all reducers filled with oil from the factory. Standard lubricant is ISO VG220 mineral-based oil. Consult the sticker adjacent to the fill plug to determine the type of lubricant installed at the factory. However, some units have special lubricants designed to operate in certain environments or to extend the service life or service temperature range of the lubricant. If in doubt about which lubricant is needed, contact NORD Gear.

Standard Oil Lubricant

Gear Unit Type	Ambient Temperature	Oil Type	ISO Viscosity	Manufacturer Brand / Type
NORDBLOC®.1	-4 to 104 °F (-20 to 40 °C)	MIN-EP	VG 220	Shell / Omala 220 ♦

Optional Oil Lubricants

Gear Unit Type	Ambient Temperature	Oil Type	ISO Viscosity	Manufacturer Brand / Type
NORDBLOC®.1	-31 to 176 °F (-35 to 80 °C)	PAO	VG 460	Mobil / SHC 634
	-40 to 140 °F (-40 to 60 °C)	PAO	VG 220	Mobil / SHC 630 ♦
	-22 to 77 °F (-30 to 25 °C)	PAO	VG 150	Mobil / SHC 629
	23 to 104 °F (-5 to 40 °C)	FG	VG 220	Shell / FM 220 ♦
	-40 to 140 °F (-40 to 60 °C)	FG-PAO	VG 220	Shell / Cassida GL 220

Bearing Grease Lubricants

Grease Type (Thickener)	Ambient Temperature	NLGI Grade	Manufacturer Brand / Type
Standard (Li-Complex)	-22 to 140 °F (-30 to 60 °C)	NLGI 2	Shell Albida EP 2 ♦
High-Temperature (Polyurea)	-13 to 176 °F (-25 to 80 °C)	NLGI 2	Mobil Polyrex EP 2 ♦
Food-Grade (Al-Complex)	-13 to 104 °F (-25 to 40 °C)	NLGI 2	Mobil Grease FM 222 ♦

♦ Stocked Lubricants

OIL CROSS-REFERENCE CHART

ISO Viscosity	Oil Type	Service Temperature Range						
VG 460	MIN-EP	68 to 122°F (20 to 50°C)	Mobilgear 634	Omala 460	7EP	Klüberoil GEM 1-460	Energol GR-XP 460	Tribol 1100/460
	PAO	-22 to 176°F (-30 to 80°C)	Mobil SHC 634	Omala 460 HD	Isolube EP 460	Klübersynth EG 4-460	N/A	Tribol 1510/460
VG 220	MIN-EP	20 to 104°F (-5 to 40°C)	Mobilgear 630	Omala 220	5EP	Klüberoil GEM 1-220	Energol GR-XP 220	Tribol 1100/220
	PAO	-30 to 176°F (-34 to +80°C)	Mobil SHC 630	Omala 220 HD	Isolube EP 220	Klübersynth EG 4-220	N/A	Tribol 1510/220
VG 150	MIN-EP	5 to 77°F (-15 to 25°C)	Mobilgear 629	Omala 150	4EP	Klüberoil GEM 1-150	Energol GR-XP 100	Tribol 1100/100
	PAO	-35 to 50°F (-37 to 10°C)	Mobil SHC 629	Omala 150 HD	Isolube EP 150	Klübersynth EG 4-150	N/A	N/A

Oil Formulation Codes

MIN-EP	Mineral Oil with EP Additive
PAO	Synthetic Polyalphaolefin Oil
PG	Synthetic Polyglycol Oil
FG	Food-Grade Oil
FG-PAO	Food-Grade, Synthetic Polyalphaolefin Oil

Important Notes

- Food grade lubricants must be in compliance with FDA 21 CFR 178.3570 and qualify as a NSF-H1 lubricant. Please consult with lubrication manufacture for more information.
- When making a lubrication change, check with the lubrication supplier to assure compatibility and to obtain recommended cleaning or flushing procedures.
- Do not to mix different oils with different additive packages or different base oil formulation types. Polyglycol (PG) oils are not miscible with other oil types and should never be mixed with mineral oil.
- Please Consult NORD if considering oils of ISO Viscosity VG100 or lower.

TROUBLE SHOOTING

PROBLEM WITH THE REDUCER		POSSIBLE CAUSES	SUGGESTED REMEDY
Runs Hot	Overloading	Load exceeds the capacity of the reducer	Check rated capacity of reducer, replace with unit of sufficient capacity or reduce load
	Improper lubrication	Insufficient lubrication	Check lubricant level and adjust up to recommended levels
		Excessive lubrication	Check lubricant level and adjust down to recommended levels
		Wrong lubrication	Flush out and refill with correct lubricant as recommended
Runs Noisy	Loose foundation bolts	Weak mounting structure	Inspect mounting of reducer. Tighten loose bolts and/ or reinforce mounting and structure
		Loose hold down bolts	Tighten bolts
	Failure of Bearings	May be due to lack of lubricant	Replace bearing. Clean and flush reducer and fill with recommended lubricant.
		Overload	Check rated capacity of reducer.
	Insufficient Lubricant	Level of lubricant in the reducer not properly maintained.	Check lubricant level and adjust to factory recommended level.
Output Shaft Does Not Turn	Internal parts are broken	Overloading of reducer can cause damage.	Replace broken parts. Check rated capacity of reducer.
		Key missing or sheared off on input shaft.	Replace key.
	Improper coupling connection	Coupling loose or disconnected.	Properly align reducer and coupling. Tighten coupling.
Oil Leakage	Worn Seals	Caused by dirt or grit entering seal.	Replace seals. Autovent may be clogged. Replace or clean.
		Overfilled reducer.	Check lubricant level and adjust to recommended level.
		Autovent™ clogged.	Clean or replace, being sure to prevent any dirt from falling into the reducer.
		Improper mounting position, such as wall or ceiling mount of horizontal reducer.	Check mounting position. Name tag & verify with mounting chart in manual.

www.nord.com

NORD Gear Corp

Toll Free 888-314-6673 info.us@nord.com

WEST

Corona, CA (Los Angeles)
Phone 608-849-0190

MIDWEST

Waunakee, WI (Madison)
Phone 608-849-7300

ATLANTIC

Charlotte, NC
Phone 608-849-0140

NORD Gear Ltd

888-668-4378 info.ca@nord.com

CANADA

Brampton, ON
Phone 905-796-3606