

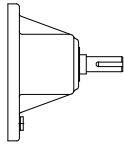
NORD Gearbox Inputs Installation and Maintenance Instructions

BIM 1009

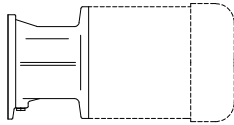
USA

CDN

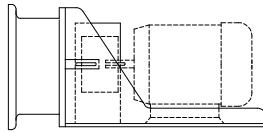
Retain These Safety Instructions For Future Use



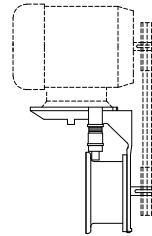
W-STYLE



NEMA/IEC



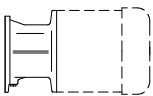
SUGAR SCOOP



MOTOR MOUNT
PLATFORM

⚠ WARNING:
LOCK OUT POWER before any maintenance is performed. Make absolutely sure that no voltage is applied while work is being done on the gearbox.

NEMA/ IEC Motor Adapters



NORD Gear supplies a coupling that is to be mounted onto the motor shaft. It is important that the coupling is properly positioned. For **NEMA Input Adapters**, follow the Motor Installation Instructions below to insure full coupling engagement onto the input shaft. For **IEC Input Adapters**, the supplied coupling will mount directly against the motor shaft shoulder. No locating measurements need to be taken. *NOTE: Some of the larger IEC inputs will have a coupling spacer included to help locate the coupling. Slide the spacer against the motor shaft shoulder, slide the coupling against the spacer and tighten set screw(s).*

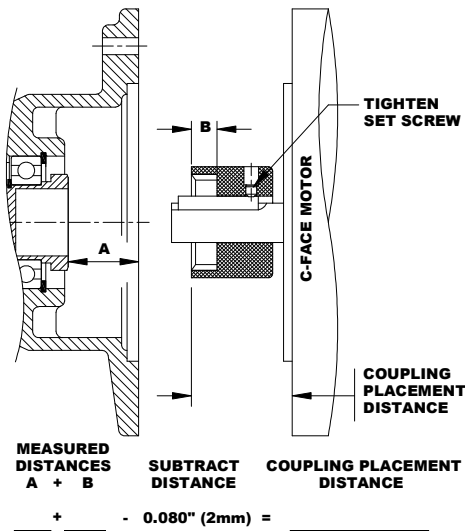
For the larger motor adapters (IEC160 / N250TC and larger), an **Automatic Lubricator** is supplied. **This will need to be activated at the time of startup.** For operation and activation instructions, refer to the "Automatic Lubricator" section.

NORD supplies three different types of couplings depending on the size of input: "J" style, "M" style and "Jaw" style coupling. Following are instructions on how to properly mount each type of coupling onto the motor. First, identify which coupling has been supplied to you by referring to the "Couplings for the NEMA and IEC Adapters" section on the next page. Make sure the motor flange and shaft are cleaned and verify that the proper key is in the motor shaft.

"J" Style Coupling

NEMA C-face Motor Installation Instructions

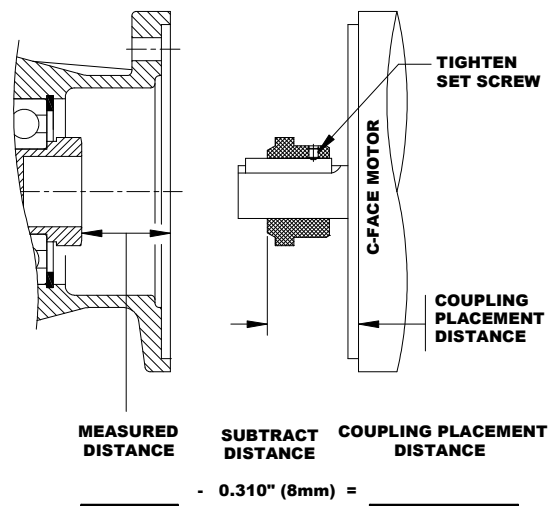
1. Measure the distance from the face of the input adapter to the face of the splined shaft and record that measurement.
2. Subtract 0.08" (~2mm) from the distance. ***This needs to be done so that the coupling will not be preloaded after installation!***
3. Use that measurement to locate the coupling from the face of the motor onto the shaft.
4. Once in place, tighten the set screw to lock the coupling in place. It is recommended that the key is staked or bonded (Loctite) in place to prohibit the key from vibrating out.
5. Mount the motor onto the input adapter with customer supplied bolts. Make sure that the coupling from the adapter and the motor engage securely. Use lock washers or Loctite to prohibit bolts from becoming loose from vibration.



"M" Style Coupling

NEMA C-face Motor Installation Instructions

1. Measure the distance from the face of the input adapter to the face of the splined shaft and record that measurement.
2. Subtract 0.31" (~8mm) from the distance. ***This needs to be done so that the coupling will not be preloaded after installation!***
3. Use that measurement to locate the coupling from the face of the motor onto the shaft.
4. Once in place, tighten the set screw to lock the coupling in place. It is recommended that the key is staked or bonded (Loctite) in place to prohibit the key from vibrating out.
5. Mount the motor onto the input adapter with customer supplied bolts. Make sure that the coupling from the adapter and the motor engage securely. Use lock washers or Loctite to prohibit bolts from becoming loose from vibration.



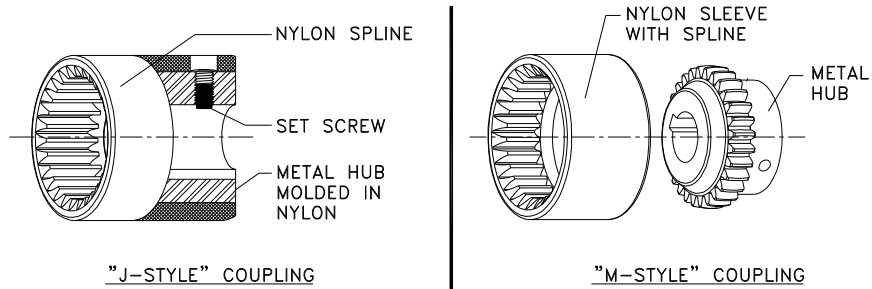
Couplings for the NEMA and IEC Adapters

Depending on the size of the input adapter to the gearbox, NORD Gear supplies two styles of couplings - BoWex® (gear tooth) and Rotex® (jaw) couplings.

BoWex® Couplings

NORD C-face adapter input shafts have a machined spline on the end. NORD incorporates two styles of BoWex® couplings, the "J" and "M" styles. The "J" style is a one-piece coupling with a metal hub and nylon spline. The "M" style is a two-piece coupling – the metal hub and a nylon sleeve. Nylon and steel components allow them to operate in high ambient temperatures without lubrication or maintenance.

- Nylon sleeves resist dirt, moisture, most chemicals and petroleum products
- No lubrication required
- Operating Conditions: -22°F - 195°F (-30°C - 90°C)
- Higher temperature coupling sleeve available up to 250°F (120°C)
- Special bore available



BoWex® Mechanical Ratings

"J" Style

Coupling Type	Available Bore Sizes	Cont. / Peak Torque	Input
J14	11, 14 mm 5/8 in.	10 / 20 Nm 89 / 177 lb-in	IEC 63, 71 NEMA 56C
J24	19, 24 mm 5/8, 7/8 in	20 / 40 Nm 177 / 354 lb-in	IEC 80, 90 NEMA 56C, 140TC
J28	28mm 1-1/8 in	45 / 90 Nm 399 / 797 lb-in	IEC 100, 112 NEMA 180TC

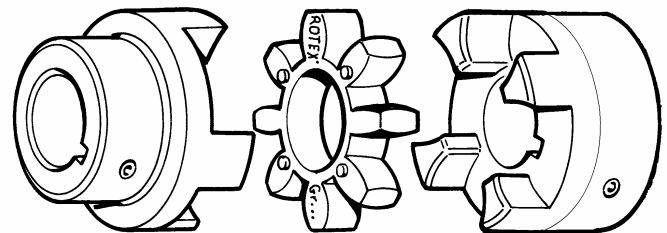
"M" Style

Coupling Type	Available Bore Sizes	Cont. / Peak Torque	Input
M14/M24/M28	Same as "J" style	Same as "J" style	Same as "J" style
M38	38 mm 1-1/8, 1-3/8 in.	80 / 160 Nm 708 / 1,416 lb-in	IEC 132 NEMA 180TC, 210TC
M42	42 mm 1-5/8 in	100 / 200 Nm 885 / 1,770 lb-in	IEC 160 NEMA 250TC
M48	48 mm 1-7/8 in	140 / 280 Nm 1240 / 2,478 lb-in	IEC 180 NEMA 280TC

Rotex® Couplings

The cast iron jaw type couplings have an integral urethane "spider" that provides smooth transmission of the motor torque. A set screw on the coupling prohibits axial movement along the motor shaft.

- Excellent shock and vibration dampening
- Excellent resistance to oils and most chemicals
- No metal-to-metal contact
- Operating Conditions: -40°F - 195°F (-40°C - 90°C)
- Higher temperature material (Hytrel) spider available up to 230°F (110°C)
- Special bores available



Hub Design 1

Spider

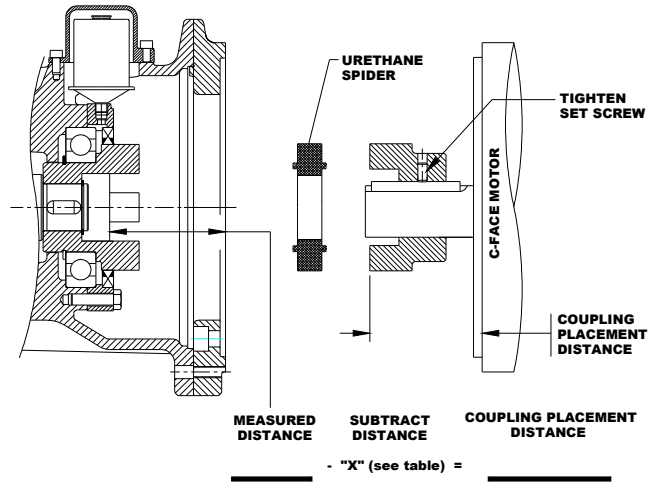
Hub Design 1a

Rotex® Mechanical Ratings

Coupling Type	Available Bore Sizes	Continuous / Peak Torque	Inputs Used With	Spider
R19	14, 19 mm	17 / 34 Nm 150 / 300 lb-in	SEK/SEP 100	Urethane 98 Shore A Hardness Color: Red
R24	19, 24 mm	60 / 120 Nm 530 / 1,060 lb-in	SEK/SEP 100, 130	
R28	32, 38 mm	95 / 190 Nm 840 / 1,680 lb-in	SEK/SEP 165, 215	Urethane 92 Shore A Hardness Color: Yellow
R38	1.89" (48mm) Max Bore	190 / 382 Nm 1,680 / 3,380 lb-in	-	
R42	2.44" (62mm) Max Bore	310 / 620 Nm 2,740 / 5,480 lb-in	-	
R48	42, 48 mm 1-5/8, 1-7/8 in	310 / 620 Nm 2,740 / 5,485 lb-in	IEC 160, 180 NEMA 250T, 280T SEK/SEP 300, 215	
R65	60 mm 2-1/8, 2-3/8 in	625 / 1,250 Nm 5,530 / 11,060 lb-in	IEC 225 NEMA 320T, 360T	
R90	65, 75, 80 mm 2-1/8, 2-3/8 in	2,400 / 4,800 Nm 21,240 / 42,480 lb-in	IEC 250, 280, 315 NEMA 360T, 400TS, 440TS	

**Jaw" Style Coupling
NEMA C-face Installation Instructions**

1. Measure the distance from the face of the input adapter to the face of the coupling as shown and record that measurement.
2. Subtract the "X" dimension from the measured distance. ***This needs to be done so that the coupling will not be preloaded after installation!***
3. Use that measurement to locate the coupling from the face of the motor onto the shaft.
4. The metal portion of the coupling should be heated up prior to assembly, generally 250°F to 300°F (120°C to 150°C). ***DO NOT HEAT THE URETHANE SPIDER.**
5. Once in place, tighten the setscrew to lock coupling in place. Let the coupling cool down before placing the spider into the jaws. It is recommended that the key is staked or bonded (Loctite) in place to prohibit the key from vibrating out.
6. Mount the motor onto the input adapter with customer supplied bolts. Make sure that the coupling from the adapter and the motor engage securely. Use lock washers or Loctite to prohibit bolts from becoming loose from vibration.



Coupling Size	"X" (Subtract this value from measured distance)
R14	0.06" (1.5mm)
R19 & R24	0.08" (2.0mm)
R28	0.10" (2.5mm)
R38/42	0.12" (3.0mm)
R48	0.14" (3.5mm)
R65	0.18" (4.5mm)
R90	0.22" (5.5mm)

Automatic Lubricator

NORD Gear supplies the larger C-face motor adapters with an Automatic Lubricator. This will provide additional grease lubrication to the outboard bearing. As the pressure from the lubricator pushes the new grease into the bearing, the old grease will flow into the cavity towards the gearbox. When the cavity is filled with the "used" grease, the pressure from the new grease pushes the used grease into the gear box thru the input seal. The old grease mixes with the oil but will not cause harm to the gearing or bearings. Regular oil changes with the gearbox will remove the old grease which has been pushed into the gearbox. Refer to the PARTS LISTS for inputs equipped with the Automatic Lubricator.

Principle of Operation

After tightening the plastic activating screw, the Zinc-Molybdenum pellet drops into the Citric Acid electrolyte. The chemical reaction builds up pressure that causes the piston to move forward. The lubricant is continuously injected into the lubrication point. At the end of the lubrication period, the discharge indicator cap becomes clearly visible indicating the lubricant has been fully discharged. The lubrication period is determined and defined by the color of the activating screw.

For the bearings used in NORD Gear products, a 12-month lubrication period is standard, indicated by a **gray activating screw**. This applies for an average operating time of 8 hours/day. For longer operating times, the replacement interval decreases to 6 months. Lubrication canisters are also available for cold temperature applications. Contact NORD Gear for more information.

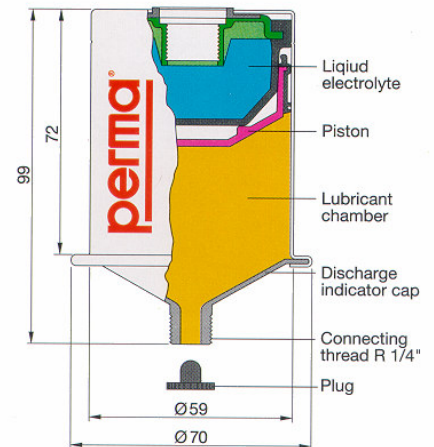
Assembly Instructions

1. Remove the plug from the male connecting thread.
2. Screw male fitting into bearing housing within Input Adapter.
3. Insert activating screw into end of canister. Tighten until the ring-eyelet breaks off.
4. Replace every twelve months.

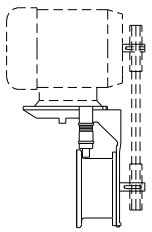
Perma Classic Specifications

Standard Lubricant	Klüber Petamo GHY 133 (synthetic)
NORD Part Number	28301000
Lubricant Volume	120 mL (4 oz.)
Operating Temperature Range*	-30°C to 150°C (-22°F to 302°F)
Discharge Time	12 months at 25°C (77°F)
Operating Position	Independent of mounting position, operates even under water.
Male Connecting Thread	1/4" NPT

* The temperature range shown is for the Perma Classic Lubricator only and does not apply to other components and/or lubricants within the gear reducer.

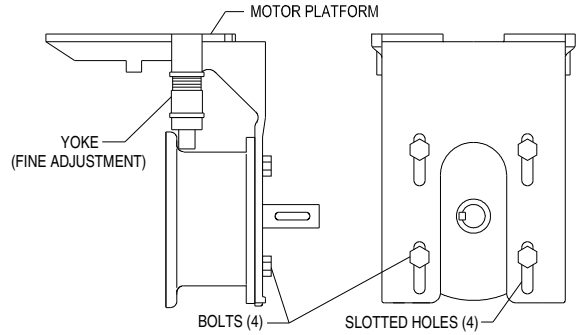


MK Motor Mount Platform



For proper installation of the belt drive, consult the V-belts manufacturer. NORD MK motor mounts are adjustable in two ways. Slotted holes are provided at the input cylinder for the initial height adjustment. There are two fine adjustments at the Yoke to increase/decrease tension. Two Spanner head wrenches will be needed to tighten/loosen the fine adjustments. The four bolts holding the motor platform to the input cylinder must be loosened in order to use the fine adjustments.

The motor mounting platform has tapped holes to accept the foot pattern of the standard footed NEMA or IEC motor. All MK mounting input shaft diameters are metric.

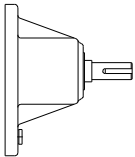


Align the sheaves or sprockets square and parallel by placing a straight edge across their faces. Alignment of bushed sheaves and sprockets should be checked after bushings have been tightened. Check horizontal shaft alignment by placing a level vertically against the face of the sheave or sprocket. Adjust belt or chain tension per the manufacturer's specified procedure. After a period of operation, recheck alignment and adjust as required.



WARNING:
NORD Gear does not furnish the safety guards for the traction mechanism. It is the responsibility of the customer to install a safety guard to conform to OSHA standards.

Solid Shaft (W-Type)

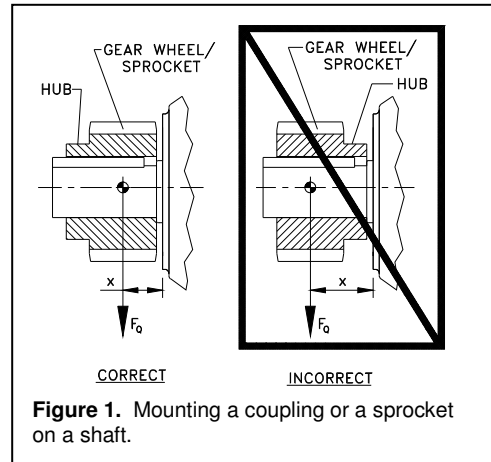


The shaft will be inch or metric, depending on how the unit was ordered. Measure and verify the shaft before mounting anything on the shaft. Below are the tolerances used for the solid shafts.

All solid input shafts have a tapped hole on the end for customer use. The chart below indicated the tap size for each shaft. Keys are also supplied with solid shaft.

Outboard pinion and sprocket fits should be as recommended by the manufacturer. The components should be heated according to the manufacturer's recommendations, generally 250°F to 300°F, (120°C to 150°C) before assembling to the shaft. The coupling hub or sprocket should be mounted per Figure 1.

On larger gearboxes (SK62, SK6282, SK9062.1), there is grease fitting on the W-Type inputs to grease the outboard bearing. About 0.75 ounce (20 - 25g) of synthetic grease should be added every 4,000 service hours. There is a sticker adjacent to the grease fitting detailing which grease should be used. **USE ONLY SYNTHETIC GREASE – NOT MINERAL.**



Output and Input Shaft Diameter Tolerance

Metric (mm)

- ≤ ∅ 18 = +0.012/+0.001
- > ∅ 18 ≤ ∅ 30 = +0.015/+0.002
- > ∅ 30 ≤ ∅ 50 = +0.018/+0.002
- > ∅ 50 ≤ ∅ 80 = +0.030/+0.011
- > ∅ 80 ≤ ∅ 120 = +0.035/+0.013
- > ∅ 120 ≤ ∅ 180 = +0.040/+0.015

Inch

- ≤ ∅ 1.750 = +0.0000/-0.0005
- > ∅ 1.750 = +0.0000/-0.0010

Solid Shaft Drill and Tap Shaft End

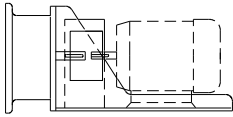
Metric (mm)

- ≤ ∅ 16 = M5
- > ∅ 16 ≤ ∅ 21 = M6
- > ∅ 21 ≤ ∅ 24 = M8
- > ∅ 24 ≤ ∅ 30 = M10
- > ∅ 30 ≤ ∅ 38 = M12
- > ∅ 38 ≤ ∅ 50 = M16
- > ∅ 50 ≤ ∅ 85 = M20
- > ∅ 85 ≤ ∅ 130 = M24

Inch

- ≤ ∅ 0.500 = #10-24 x 0.4 deep
- > ∅ 0.500 ≤ ∅ 0.875 = 1/4-20 x 0.6 deep
- > ∅ 0.875 ≤ ∅ 0.938 = 5/16-18 x 0.7 deep
- > ∅ 0.938 ≤ ∅ 1.100 = 3/8-16 x 0.9 deep
- > ∅ 1.100 ≤ ∅ 1.300 = 1/2-13 x 1.1 deep
- > ∅ 1.300 ≤ ∅ 1.875 = 5/8-11 x 1.4 deep
- > ∅ 1.875 ≤ ∅ 3.500 = 3/4-10 x 1.7 deep
- > ∅ 3.500 = 1-8 x 2.2 deep

Sugar Scoop



Each sugar scoop includes the coupling for the motor and the coupling guard. The coupling guard must be mounted when the machine is in use. NORD's standard supplied coupling is the jaw type. Make sure the set screw is tighten after coupling is in place. The coupling hub or sprocket should be mounted per Figure 2.

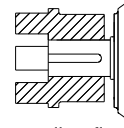


Figure 2. Place coupling flush with end of motor shaft and tighten setscrew.

Motor Installation Instructions

1. Make sure that the motor shaft is clean
2. Mount the coupling onto the motor. Place the coupling so that the inside face is flush with the end of the motor shaft (see Figure 2). The coupling should be heated prior to assembly, generally 250°F to 300°F (120°C to 150°C). ***DO NOT HEAT THE URETHANE SPIDER.** Once in place, tighten the setscrew into the motor shaft to lock coupling in place.
3. Let the coupling cool down before mounting the spider into the jaws. The spider should not be under axial compression when installed.
4. Place the motor onto the scoop and engage the couplings together. The scoop has slotted holes for axial alignment.

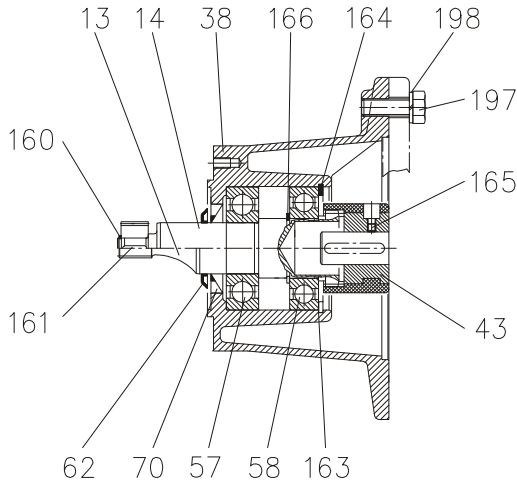
****The motor and input shaft must be aligned in all directions to assure proper operation of the system.**

5. Before tightening the motor feet down, check the coupling alignment with a straight edge or a level. Maximum parallel misalignment should not exceed 0.015" and angular misalignment should be held to 1.5°. Shim the motor feet to align the couplings. Careful alignment extends the life of not only the coupling but all the components of the drive train.
6. Once aligned, tighten the bolts on the feet to the scoop. Check the coupling alignment again due to compression of the shims.
7. Mount the supplied coupling guard to the scoop.
8. After a period of operation, recheck alignment and adjust as required.

NOTES

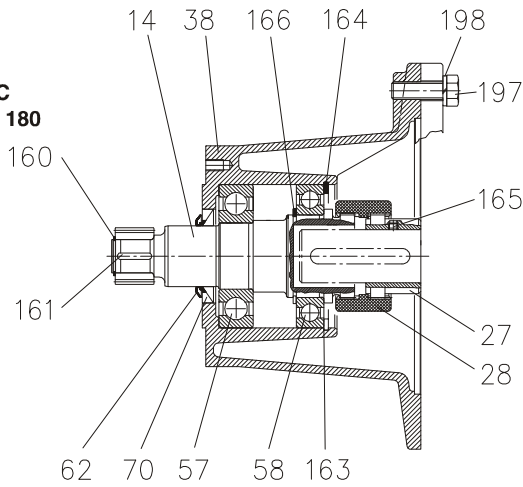
**PARTS LIST
INPUTS FOR "NORDBLOC" GEARBOXES**

**56C - 180 TC
IEC 63 - IEC 112**



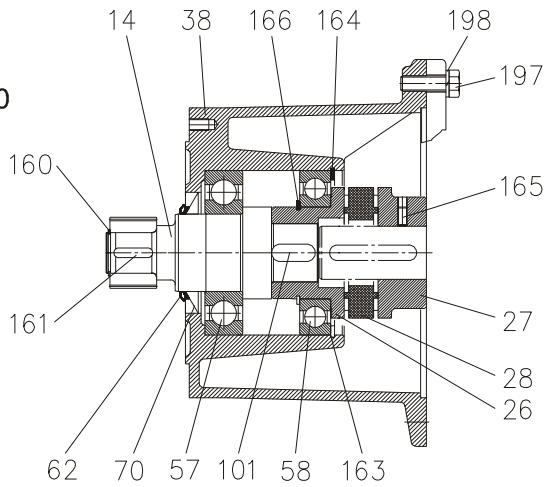
**C-FACE INPUTS FOR
SK172 - SK973
&
SK92072 - SK92773**

**180 TC - 280 TC
IEC 132 - IEC 180**

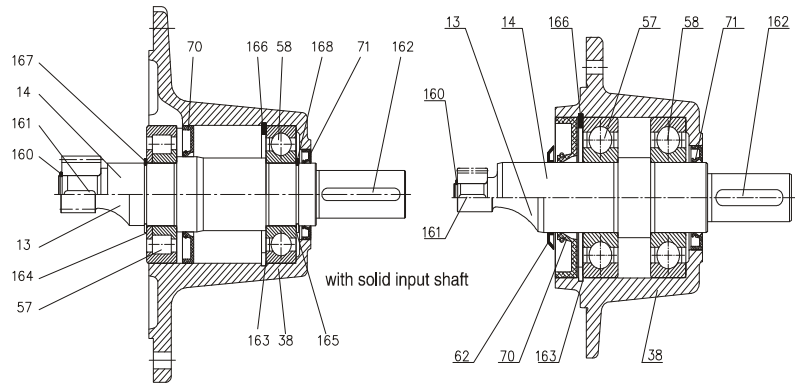


- 13 Clutch pinion shaft
- 14 Clutch shaft
- 26 Coupling
- 27 Coupling
- 28 Coupling
- 38 IEC Adapter
- 43 Coupling
- 57 Clutch shaft bearing
- 58 Clutch shaft bearing
- 62 Oil flinger
- 70 Shaft seal
- 101 Key
- 160 Snap ring
- 161 Key
- 163 Shim
- 164 Snap ring
- 165 Set screw
- 166 Snap ring
- 197 Bolt
- 198 Spring washer

IEC 200



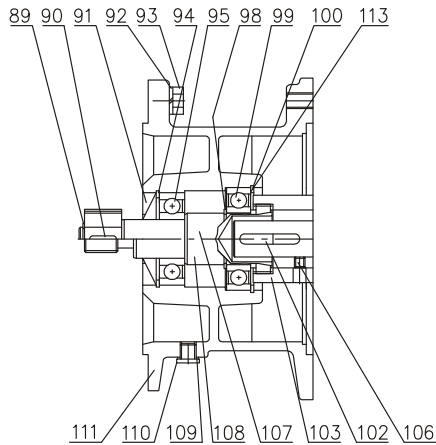
**W-TYPE INPUTS FOR
SK172 - SK973
&
SK92072 - SK92773**



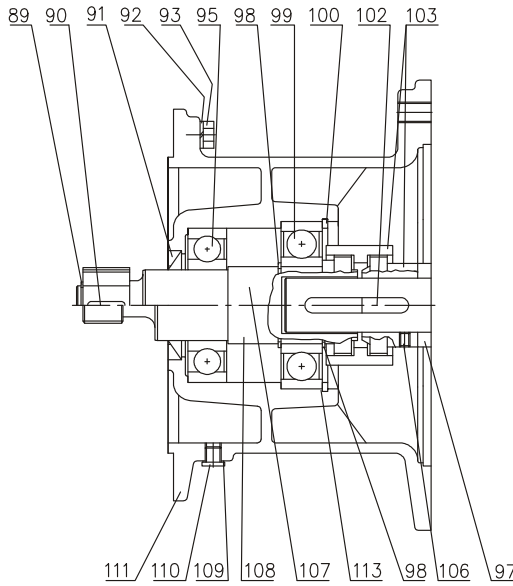
- 13 Clutch pinion shaft
- 14 Clutch shaft
- 38 IEC Adapter
- 57 Clutch shaft bearing
- 58 Clutch shaft bearing
- 70 Shaft seal
- 71 Shaft seal
- 160 Snap ring
- 161 Key
- 162 Key
- 163 Shim
- 164 Shim
- 165 Shim
- 166 Snap ring
- 167 Snap ring
- 168 Snap ring

PARTS LIST C-FACE INPUTS FOR "UNICASE" GEARBOXES

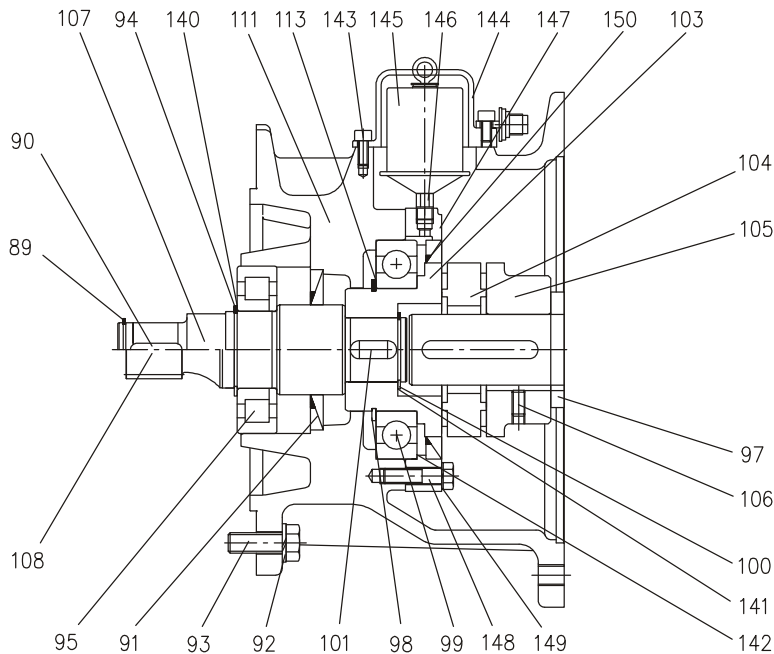
**NEMA 56C - 180TC
IEC 63 - IEC 112**



**NEMA 210TC - 280TC
IEC 132 - IEC 180**



**NEMA 250TC - 400TC
IEC 160 - IEC 315**



- 89 Circlip
- 90 Key
- 91 Shaft seal
- 92 Washer
- 93 Hexagon screw
- 94 Circlip
- 95 Clutch shaft bearing
- 97 Spacer
- 98 Circlip
- 99 Clutch shaft bearing
- 100 Circlip
- 101 Key
- 102 Key
- 103 Coupling
- 104 Coupling
- 105 Coupling
- 106 Set screw
- 107 Clutch shaft
- 108 Clutch pinion shaft
- 109 Seal
- 110 Oil-plug
- 111 NEMA / IEC Adapter
- 112 Oil flinger
- 113 Shim
- 140 Shim
- 141 Shim
- 142 Shim
- 143 Socket head screw
- 144 Cover
- 145 Automatic lubricator
- 146 Adapter
- 147 Bearing cover
- 148 Hexagon screw
- 149 Washer
- 150 Shaft seal

RECOMMENDED SPARE PARTS

Bearings - *all* Gaskets - *all* Shims - *all*
Seals - *all* Seal Plugs - *all*

IMPORTANT!

When ordering parts, it is necessary to have the **NORD SERIAL NUMBER** from the unit the parts are for. The serial number will dictate the correct parts for that particular unit. The gearbox nameplate will have the serial number on it.

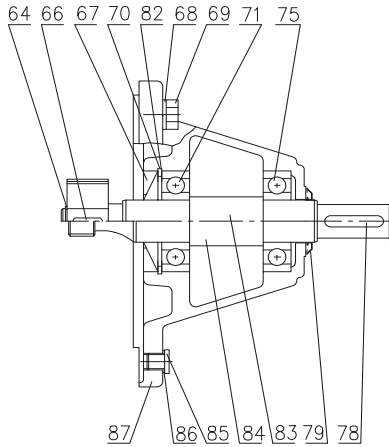
PARTS LIST
W-TYPE INPUTS FOR "UNICASE" GEARBOXES

SK 02 - SK 52
SK 03 - SK 63

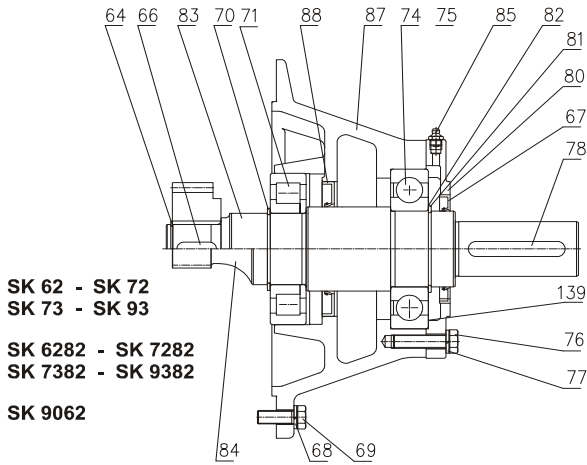
SK 0182NB - SK 6382

SK 02040 - SK 42125
SK 13050 - SK 43125

SK 92072 - SK 92772
SK 9012.1 - SK 9052.1
SK 9013.1 - SK 9053.1



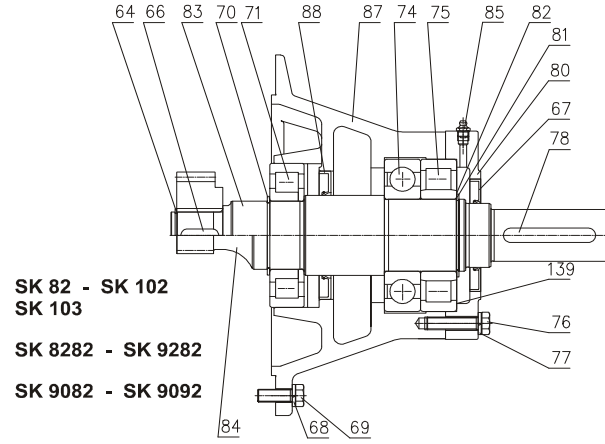
- 64 Circlip
- 66 Key
- 67 Shaft seal
- 68 Washer
- 69 Hexagon screw
- 70 Circlip
- 71 Input shaft bearing
- 74 Ball bearing
- 75 Input shaft bearing
- 76 Washer
- 77 Hexagon screw
- 78 Key
- 79 Oil flinger
- 80 Bearing cover
- 81 Circlip
- 82 Shim
- 83 Input shaft, plain
- 84 Input shaft, gearcut
- 85 Drain plug
- 86 Seal
- 87 Input bearing housing
- 88 Shaft seal (Oil flinger)
- 139 Shim



SK 62 - SK 72
SK 73 - SK 93

SK 6282 - SK 7282
SK 7382 - SK 9382

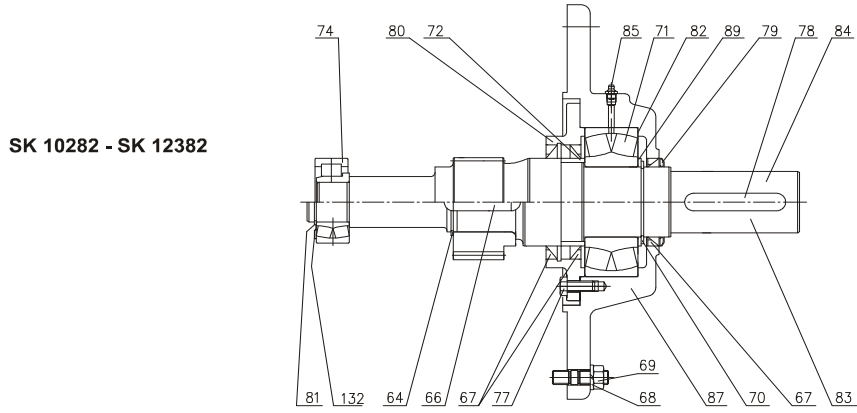
SK 9062



SK 82 - SK 102
SK 103

SK 8282 - SK 9282

SK 9082 - SK 9092



SK 10282 - SK 12382

NORD Gear Corporation

National Customer Service Toll Free 888-314-6673

www.nord.com

NORD Gear Limited

Toll Free in Canada 800-668-4378

WEST
1121 Railroad Street
Building 101
Corona, CA 92882
Phone 951-279-2600
Fax 888-408-6673

MIDWEST
PO Box 367
800 Nord Drive
Waunakee, WI 53597
Phone 608-849-7300
Fax 800-373-6673

SOUTH
100 Forsyth Hall Dr.
Building 100B
Charlotte, NC 28273
Phone 704-529-1255
Fax 888-259-6673

CANADA
41 West Drive
Brampton, Ontario L6T 4A1
Phone 905-796-3606
Fax 905-796-8130