

Sumitomo Drive Technologies



PLANETRA® NEO | PLANETRA® PRECISION

OPERATING MANUAL

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1 General information

1.1 Legal Status and Conformity Assessment

The Planetra® gearboxes with mounted electric motor are intended for integration into a higher-level machine or system and do not constitute a complete machine within the meaning of the Machinery Directive.

The mounted electric motor is a standalone CE-compliant product and meets the requirements of the applicable electrical directives (e.g. Low Voltage Directive and EMC Directive).

The assessment of the complete machine, including risk assessment, conformity assessment, and CE marking, is the responsibility of the manufacturer of the complete machine.

1.2 Personnel qualification

In particular, installation, commissioning, operation, maintenance, and disposal of the gearbox may only be carried out by qualified personnel.

Qualified personnel within the meaning of these operating instructions are persons who, by virtue of their technical training, knowledge, and experience in the field of mechanical engineering and drive technology, are capable of properly performing the tasks assigned to them, identifying potential hazards, particularly those arising from misuse, and implementing the safety and protective measures described in these operating instructions.

Electrical work may only be carried out by qualified electricians in accordance with the relevant national regulations.

1.3 Delineation of Responsibilities

The manufacturer of the gearbox is solely responsible for the design, manufacture, and delivery of the gearbox in accordance with the specified technical data.

The integration of the gearbox into a higher-level machine or system, as well as the performance of the risk assessment, the definition and implementation of the necessary protective measures, and the conformity assessment of the complete machine, fall within the responsibility of the manufacturer of the complete machine (integrator).

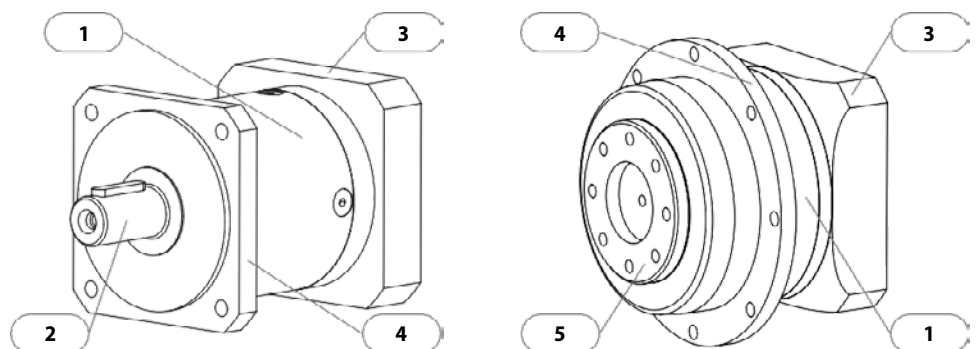
The operator is responsible for the intended use of the complete machine and for compliance with the instructions, safety requirements, and maintenance specifications described in these operating instructions.

1.4 Description of the gearbox

The gearbox has input and output shafts for the non-positive and positive mounting of electric motors. By means of mechanical transmission elements, speeds and torques are converted or transmitted by the drive and the output shaft in a form-fit, material-fit or friction-locked manner. The drive and output shaft can accommodate external loads.

The gearbox has a partially closed or closed housing. The drive and the output shaft are usually freely accessible.

The geometric characteristics and performance data of the gearbox are described in its technical specifications.



In the examples shown above, the following components of a planetary gearbox are described:

- | | |
|-------------------|--|
| 1 Gearbox housing | 4 Output flange |
| 2 Output shaft | 5 Output flange as flange output shaft |
| 3 Drive flange | |

1.5 Designated use

The gearbox is a partly completed machinery within the meaning of the Machinery Directive 2006/42/EC (until 19 January 2027) and the Machinery Regulation (EU) 2023/1230 (from 20 January 2027) and is intended exclusively for integration into a complete machine.

The gearbox is used solely for converting or transmitting torques and speeds, and for absorbing radial or axial loads in accordance with its technical specification. The gearboxes are intended only for integration into industrial machinery and systems outside potentially explosive atmospheres.

Use in potentially explosive atmospheres in accordance with the ATEX Directive is not permitted.

The gearboxes are not designed for lifting applications or for lifting or holding persons or loads.

1.6 Reasonably foreseeable misuse

Among other things, do not operate the gearbox in the following way:

- Without connecting element(s) on input or output shaft(s)
- Without monitoring and protective devices on the application side
- Outside the temperature range suitable for the lubricant
- Without consideration of the influence of the operating temperature on the lubricant service life
- In potentially explosive atmospheres
- Outside the performance data provided in the technical specifications

Furthermore, interventions through technical modifications or conversions are not permitted.

1.7 Warnings

Signal word	Explanation	Consequences of non-compliance
 WARNING	Possible imminent danger to life and health	Serious injuries, including death
 CAUTION	Possible imminent danger of property or environmental damage	Damage to the drive system or its environment
 INFORMATION	Very important information: Simplifies correct and safe installation and use of the gearbox	Can lead to undesired developments in the operating process

The warnings and safety instructions described in these operating instructions indicate residual risks that cannot be completely eliminated despite design measures and technical protective provisions.

These residual risks must be taken into account during the integration of the gearbox into a complete machine, as well as during operation, maintenance, and disassembly.

1.8 Content and use of the operating manual

This operating manual describes the conditions that must be met to ensure that the gearbox can be started up properly without adversely affecting the safety and health of persons. In addition, it contains specifications for all life phases of the gearbox. The operating manual is only complete when with the further applicable documents. If the operating manual refers to further applicable documents, these must be observed.

The gearboxes described in this operating manual are based on a risk assessment conducted in accordance with DIN EN ISO 12100: 2011-3.

1.9 Further applicable documents

- Technical specification (dimension spec sheet)
- Mounting instructions for the motor when mounted according to 4.1 as well as 4.2

2 Description of the gearbox

2.1 Nameplate

The nameplate is affixed to the drive flange or the gearbox housing. For clear identification of the gearbox, the nameplate must also be legible at all times once installed in a machine or system.

The following figure shows, by way of example, the nameplate of a Planetra® NEO series planetary gearbox.



1 Product code

2 Serial number

3 Production date: Calendar week / year

2.2 Codes



Link to documentation on the website:
<http://go.sumitomodriveservice.com/documents>



Serial number:
MAAJAGLPZWA

3 Storage and transport

3.1 Storage



INFORMATION

Improper storage can damage the gearbox. This can lead to premature aging of the lubricant and sealing elements, which can greatly reduce or shorten their service life or sealing effect.

- Choose a dry storage location to avoid corrosion.
- The long-term storage temperature must be kept between 0 C and +40 C because of the lubricant's storage life and the possibility of lubricant or seal aging.
- Direct sunlight or UV radiation accelerates the aging process of the seals and results in premature wear.
- To ensure lubricant serviceability, the storage period must not exceed 1 year.

3.2 Transport



CAUTION

When lifting and moving the gearbox, there is a risk of it falling if it is not properly secured. When the gearbox is being moved, there is a pinch point hazard between the gearbox and other application components.

- Keep the gearbox weight and gearbox dimensions listed in its technical specifications in mind.
- The gearbox must be lifted by means of suitable lifting aids which wrap directly around the gearbox housing.

4 Mounting



CAUTION

A damaged gearbox may no longer meet its technical specifications.

- The gearbox must not show any mechanical damage, corrosion, or lubricant leakage.
- The sealing elements must be protected from compressed air and aggressive cleaning agents. For cleaning, use cold cleaning agents based on a gasoline hydrocarbon.
- The mounting or removal of output elements or motors by means of striking, pressing or the like must be avoided in order to protect the bearings. Use pullers or heat connecting elements to be attached.
- Do not install a damaged gearbox in the application.
- Do not operate a damaged gearbox.



CAUTION

The gearbox may no longer fully meet the warranted performance characteristics or the maximum permissible operating temperature may be exceeded if the materials used are not sufficiently thermally conductive or if the heat storage capacity is insufficient due to undersizing or the ventilation is inadequate.

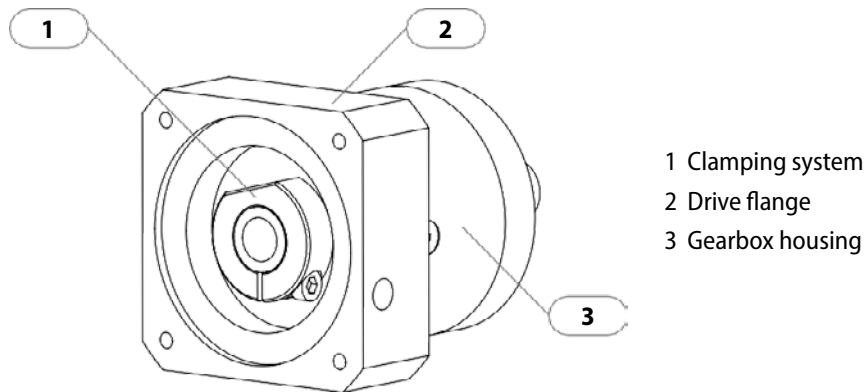
- The application-side materials and sizing for connection geometries must be specified for sufficient heat flow and heat capacity (e.g. aluminum or steel and plate size equal to twice flange size).
- Ventilation must be ensured by convection or forced-air ventilation.

4.1 Attaching the motor to the gearbox by means of a clamping system (motor attachment)



INFORMATION

If the gearbox is prepared for mounting a motor by means of a clamping system, please refer to the mounting instructions supplied with the gearbox for detailed information on mounting the motor to the gearbox.



4.1.1 Attaching the motor



WARNING - Risk of injury

Due to its weight, incorrect mounting or in the event of unacceptable deviation from radial run-out and axial run-out tolerances, the motor can cause a gear component or a connecting element to break. Among other things, this can result in a loss of position in the power train, uncontrolled rotation or a blocking of the output shaft.

- The permissible motor weight or bending moment given in the technical specification must be observed.
- The mounting instructions for motor mounting must be observed.
- Carefully clean the component surfaces to be used for non-positive connection and remove all residues.
- Radial run-out and axial run-out tolerances must be ensured when mounting a motor based on the values of the technical specification and the measuring method described in 4.1.3.1 to 4.1.3.5.
- Observe the bolt tightening torques of the motor manufacturer when fastening the motor.
- Select a suitable torque tool with a minimum accuracy to DIN EN ISO 6789-1 Type II A to ensure the required tightening torque.
- The bolts must be secured against self-loosening through use of a threadlocker (e.g. Loctite 245).

4.1.2 Attaching the motor shaft with a clamping system



WARNING - Risk of injury

Insufficient cleaning of the friction-locked components or insufficient tightening torque (TAK) of the clamping screw can lead to slippage in the clamping system and to its failure. Excessive tightening torque of the clamping screw can lead to its breakage and thus to failure of the clamping system. This can result in uncontrolled rotation of the output shaft, among other things.

- The mounting instructions for motor mounting must be observed.
- To protect against plastic deformation, the clamping system must not be preloaded without the shaft installed.
- Carefully clean the component surfaces to be used for non-positive connection and remove all residues.
- Observe the specified tightening torque (TAK) in the mounting instructions to avoid slippage in the clamping system or breaking the clamping screw.
- Select a suitable torque tool with a minimum accuracy to DIN EN ISO 6789-1 Type II A to ensure the required tightening torque.



WARNING - Risk of injury

A motor shaft diameter not matched to the clamping system can lead to slippage in the clamping connection and to its failure. This can result in uncontrolled rotation of the output shaft, among other things.

- Make sure that the tolerance of the motor shaft is matched to the gearbox.
- The tolerance for the motor shaft diameter can be found in the technical specifications.



WARNING - Risk of injury

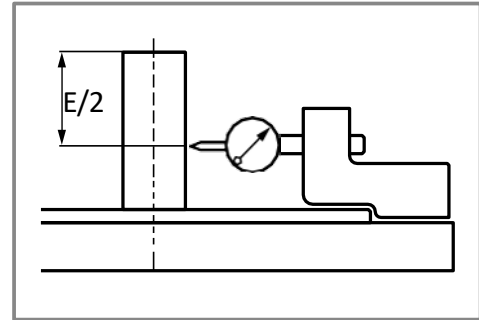
The clamping screw has specific characteristics. The use of a clamping screw other than the original screw can lead to failure of the clamping connection.

- Use only the original screw.
- Use only a replacement part provided by Sumitomo Drive Technologies.

4.1.3 Determining the radial run-out, axial run-out and coaxiality tolerance of the motor

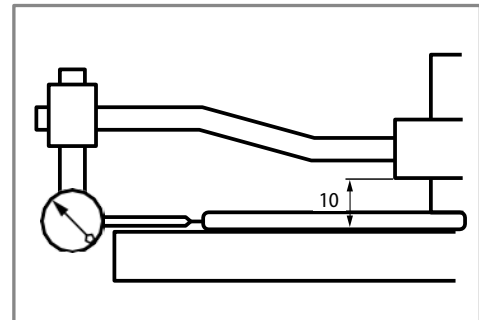
4.1.3.1 Radial run-out of the motor shaft end

The measuring probe is placed at the center of the shaft end. The maximum and minimum values are read on the measuring instrument by slowly rotating the shaft. The measurement may be performed with the motor in a horizontal or vertical position, with the measuring instrument mounted directly on the motor or on a common base plate for the motor and measuring instrument. The difference between these readings must not exceed the values given in the technical specifications of the gearbox.



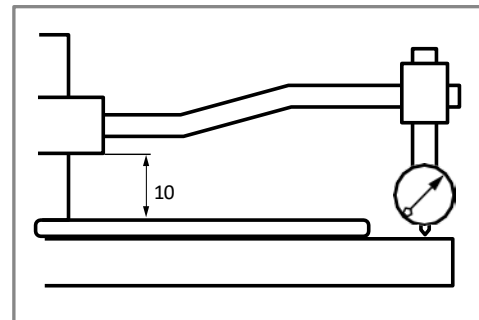
4.1.3.2 Coaxiality of flange centering with respect to the motor shaft

Using a fixture similar to the one shown in the picture, the measuring instrument is mounted on the shaft end at a distance of about 10 mm from the mounting surface of the flange. The maximum and minimum values are read on the measuring instrument by slowly rotating the shaft. It is recommended that the shaft be oriented vertically when performing this measurement. The difference between these readings must not exceed the values given in the technical specifications of the gearbox.



4.1.3.3 Axial run-out of the mounting surface of the flange with respect to the motor shaft

Using a fixture similar to the one shown in the picture, the measuring instrument is mounted on the shaft end at a distance of about 10 mm from the mounting surface of the flange. The maximum and minimum values are read on the measuring instrument by slowly rotating the shaft. It is recommended that the shaft be oriented vertically when performing this measurement. The difference between these readings must not exceed the values given in the technical specifications of the gearbox.



4.1.3.4 Radial run-out tolerance of the motor shaft

Nominal motor shaft diameter [mm]	Radial run-out tolerance [mm]	
	Planetra® NEO	Planetra® Precision
0 - ≤10	0,03	0,015
>10 - ≤30	0,04	0,020
>30 - ≤50	0,05	0,025
>50 - ≤80	0,06	0,030

4.1.3.5 Axial run-out and coaxiality tolerance of the motor flange

Flange size/ Square measure [mm]	Axial runout and coaxiality tolerance [mm]	
	Planetra® NEO	Planetra® Precision
0 - ≤40	0,06	0,03
>40 - ≤100	0,08	0,04
>100 - ≤230	0,10	0,05
>230 - ≤450	0,13	0,06

4.2 Attaching the motor to the gearbox by the drive pinion (direct motor mounting)



INFORMATION

If the gearbox is prepared for mounting a motor by means of a drive pinion directly connected to the motor shaft, please refer to the mounting instructions supplied with the gearbox for detailed information on mounting the motor to the gearbox or connecting the drive pinion to the motor shaft.



WARNING - Risk of injury

Due to its weight, faulty mounting, a technically faulty connection between the motor shaft and drive pinion or in the event of impermissible deviation from the radial and axial run-out tolerances, the motor can cause breakage of torque-transmitting gearbox components or slip in the connection. This can result in uncontrolled rotation or blocking of the output shaft, among other things.

- The permissible motor weight or bending moment given in the technical specifications must be observed.
- The instructions for motor and drive pinion mounting must be followed.
- The radial and axial run-out tolerances required in the motor and drive pinion mounting instructions must be satisfied with the drive pinion attached.
- The design of the connection between the motor shaft and the drive pinion must ensure the performance data of the technical specifications.

4.3 Installing the gearbox in the application



WARNING - Risk of injury

Incorrect attachment to the application can lead to misalignment or slippage in the connection between the gearbox and application or gearbox shafts and connecting elements. This can lead to breakage of a gear component, a connecting element or loss of position in the power train, which can result in uncontrolled rotation or blocking of the output shaft, among other things.

- Observe the strength class of the application-side mounting bolts and possible use of washers according to 4.3.1
- Observe the tightening torques for the application-side mounting bolts and the requirements in 4.3.1 and 4.3.2
- Select a suitable torque tool with a minimum accuracy to DIN EN ISO 6789-1 Type II A to ensure the required tightening torque.
- The bolts must be secured against self-loosening through use of a threadlocker (e.g. Loctite 245).
- Non-positive connections must be made with suitable clamping sets and the appropriate fit according to the shaft fits given in the technical specifications in order to avoid slippage.
- Carefully clean the component surfaces to be used for non-positive connection and remove all residues.
- The application-side flange geometry must be free of damage and residues.
- Uncontrolled introduction of external forces due to "overspecified" operating conditions can lead to shaft breakage or failure of the gearbox bearings. Overspecified operating conditions can include positional deviations between the gearbox and the application, jamming in the case of direct connection to translational applications e.g. rack and pinion, additional application-side bearings for the input or output shaft or excessive pretensioning of belts. Suitable connecting elements must be used and positional deviations must be avoided.

4.3.1 Application side attachment to steel or aluminum

Table 4.3.1 shows the strength class to be used and the tightening torque for the output side mounting bolts, as well as the use of washers for application-side attachment to steel or aluminum. For painted gearboxes, we recommend the use of washers to protect the paint layer.

Gearbox (sample image)	Series	Frame size	Bolt size	Application-side attachment to steel			Application-side attachment to aluminium		
				Mounting bolt strength class	Washer required	Tightening torque [Nm]	Mounting bolt strength class	Washer required	Tightening torque [Nm]
	Planetra® NEO	050	M4	12.9	no	4.4	12.9	yes	4.4
		070	M5	12.9	no	8.7	12.9	yes	8.7
		090	M6	12.9	no	15.1	12.9	yes	15.1
		120	M8	12.9	no	36	12.9	yes	36
		155	M10	12.9	no	72	12.9	yes	72
	Planetra® Precision shaft	055	M5	12.9	no	8.7	10.9	no	7.5
		070	M5	12.9	yes	8.7	10.9	yes	7.5
		090	M6	12.9	no	15.1	10.9	no	12.9
		115	M8	12.9	no	36	10.9	no	31
		142	M10	12.9	no	72	10.9	no	61
		190	M12	12.9	no	123	10.9	no	105
	Planetra® Precision flange	055	M3	12.9	no	1.9	10.9	no	1.6
		064	M4	12.9	no	4.4	10.9	no	3.8
		090	M5	12.9	no	8.7	10.9	no	7.5
		110	M5	12.9	no	8.7	10.9	no	7.5
		140	M6	12.9	no	15.1	10.9	no	12.9
		200	M8	12.9	no	36	10.9	no	31

4.3.2 General tightening torques on the output side

Tightening torques for the output side mounting bolts [Nm]								
Strength class Mounting bolts	M3	M4	M5	M6	M8	M10	M12	M16
10.9	1,6	3,8	7,5	12,9	31	61	105	257
12.9	1,9	4,4	8,7	15,1	36	72	123	300

General conditions for establishing the tightening torques

- Design of bolted connection in accordance with VDI 2230
- The total coefficient of friction for thread and head support is $\mu_{\text{total}}=0.1$
- Up to 90% of the bolt yield strength is used
- The max. permissible tightening torque minus the accuracy class of the mounting tool (the accuracy class of the mounting tool must satisfy DIN EN ISO 6789-1 Type II A at a minimum)

4.3.3 Modified gearboxes: Strength class of the output side mounting bolts and use of washers

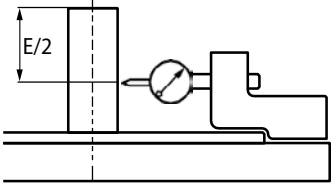
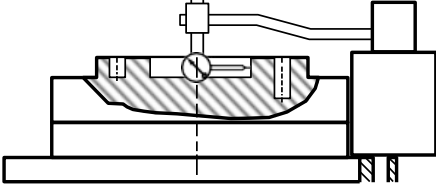
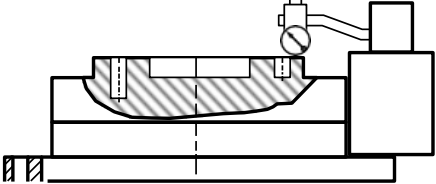
Table 4.3.3 shows the strength class of the application-side mounting bolts to be used for modified gearboxes, as well as the use of washers, for output side attachment on steel or aluminum. For painted gearboxes, we recommend the use of washers to protect the paint layer.

	Material Gearbox side	Aluminium	Aluminium	Aluminium	Steel	Steel	Steel
	Design Gearbox side	Thread	Holes	Oblong holes	Thread	Holes	Oblong holes
Application side of steel	Strength class Mounting bolts	10.9	12.9	12.9	12.9	12.9	12.9
	Washer required	no	yes	yes	no	no	yes
Application side of aluminium	Strength class Mounting bolts	10.9	10.9	10.9	12.9	10.9	10.9
	Washer required	yes	yes	yes	yes	no	yes

4.4 Radial and axial run-out of the gearbox shaft end

INFORMATION

If the technical specifications include data on the radial and axial run-out of the output shaft, the measuring methods described below must be used. The measurement may be performed with the gearbox in the horizontal or vertical position, with the measuring instrument mounted directly on the gearbox or on a common base plate for the gearbox and measuring instrument. The maximum and minimum values are read on the measuring instrument by slowly rotating the shaft.

Radial run-out of the gearbox shaft end for solid shafts	Radial run-out of the gearbox shaft end for flanged shafts	Axial run-out of the gearbox shaft end for flanged shafts
		
The measuring probe is placed at the center of the shaft end.	The measuring probe is placed at the center of the inner centering diameter of the flanged shaft.	The measuring probe is placed at the outer edge of the screw-on surface of the flanged shaft.

5 Commissioning and operation

5.1 Technical specifications



INFORMATION

The geometric characteristics and performance data of the gearbox are described in its technical specifications.

5.2 Initial operation (Commissioning)



WARNING - Risk of injury

The direction of rotation of the gearbox can be the same or opposite. Failure to note the direction of rotation may result in an unexpected starting direction of the gearbox.

- Note the direction of rotation of the gearbox stated in its technical specifications.



WARNING - Risk of entanglement in rotating parts

For its intended use, a gearbox has at least one freely accessible rotating shaft. These shafts pose a risk of entanglement or being caught by body parts, hair, or clothing.

- Only operate the gearbox with appropriate technical safeguards.
- Protective devices for the application that safeguard the area around the gearbox must not be disabled.



WARNING - Risk of injury

When operating with an exposed feather key, the key can be thrown off as the result of high centrifugal forces.

- Do not operate the gearbox with the feather key exposed.
- Secure or remove the feather key.



WARNING - Risk of injury

Due to its kinematic energy, the motor can cause torque-transmitting gearbox components to break in non-stationary operation. This can result in uncontrolled rotation or blocking of the output shaft, among other things.

- The maximum motor bending moment stated in the technical specifications must be observed.
- The maximum motor bending moment must be taken into account in the dynamic design in non-stationary operation.



WARNING - Risk of injury

Exceeding the performance data given in the technical specifications can cause a gearbox component to break. This can result in uncontrolled rotation or blocking of the output shaft, among other things.

- During commissioning, the speeds, torques and external loads on the gearbox must correspond to the maximum load intended for subsequent operation.
- The gearbox may only be operated within its technical specifications with regard to speeds, torques, external loads and its operating temperature. Check in the technical specifications whether the performance data must be reduced as the gearbox temperature increases.
- Check for possible faults and malfunctions (including increased current consumption, vibration, temperature e.g. due to deposits or sluggishness, noise during operation, leakage, uncontrolled introduction of external forces and torques e.g. due to foreign bodies).



WARNING - Risk of injury

Uncontrolled introduction of external forces and torques due, for example, to application-related impact and shock loads, emergency situations, foreign bodies in guides or between the pinion and rack can lead to breakage of gears, shafts, failure of gearbox bearings and leakage. This can result in uncontrolled rotation or blocking of the output shaft, among other things.

- Uncontrolled introduction of external forces and torques must be avoided.

**WARNING - Risk of burns**

The gearbox surface may heat up during operation.

- Allow the gearbox to cool down sufficiently after shutdown.

**INFORMATION**

Unusually low temperatures can cause sealing elements to freeze. As a result, the gearbox can no longer fully meet warranted performance characteristics due to leakage.

- The gearbox may only be operated within its technical specifications with regard to the operating temperature.
- Ensure environmental conditions that prevent the sealing elements from freezing.

**INFORMATION**

Rotary shaft seals with a dust lip are initially greased between the sealing edge and the dust lip. Harmless apparent leakage may occur here during the first few hours of operation.

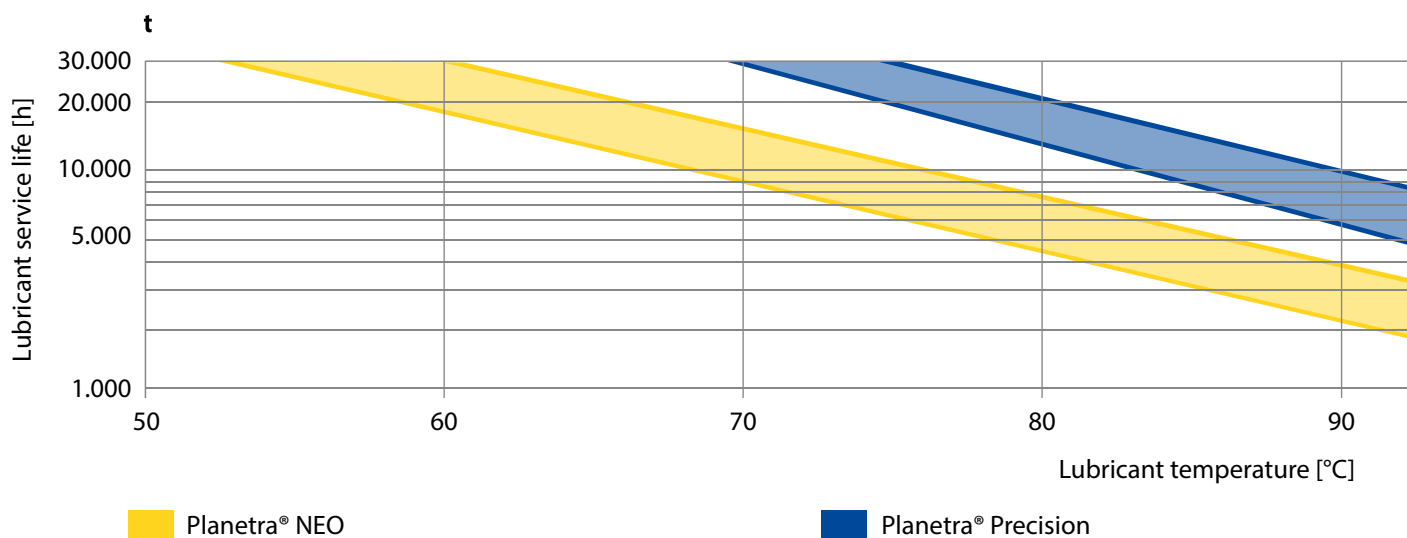
5.2.1 Determining the lubricant service life



INFORMATION

The expected service life of the lubricant depends on the gearbox temperature. The thermal suitability of the gearbox must be taken into account when selecting the gearbox. Using the lubricant beyond the service life can lead to premature wear of the gearbox.

- Determine the surface temperature in the thermally steady state for each load expected on the gearbox during operation.
- Check the surface temperature at several locations to determine the highest temperature. Expected differences with regard to the ambient temperature must be taken into account proportionally.
- Determine the lubricant temperature by adding 5 °C to the highest surface temperature measured.
- Define the expected or desired operating time t at the respective lubricant temperature determined.
- Check the lubricant as listed in the technical specifications and determine the range of the expected lubricant service life by means of the following diagram for the maximum and minimum characteristic curve of the lubricant used in each case.
- If different lubricant temperatures are present during operation, the total service life of the lubricant must be calculated using damage accumulation for each temperature range.



5.3 Operation



WARNING - Risk of injury

Exceeding the performance data given in the technical specifications may cause a gearbox component to break. This can result in uncontrolled rotation or blocking of the output shaft, among other things.

- Changing the operating parameters of the gearbox may be possible only within the limits of the maximum values allowed during the commissioning.
- Check for possible defects and malfunctions. Among other things, this includes increased current consumption, vibration, temperature (e.g. due to deposits or sluggishness), noise during operation, uncontrolled introduction of external forces and torques (e.g. due to foreign bodies).



WARNING - Risk of injury

In the event of contamination or deposits, the gearbox can no longer fully meet warranted performance characteristics.

- The gearbox must be protected against accumulation of dust and contamination, especially on the gearbox housing (heat buildup) and in the area of the seals (abrasive wear and leakage).



WARNING - Risk of injury

Continuous loss of lubricant due to leakage can cause a gear component to break. This can result in uncontrolled rotation or blocking of the output shaft.

- Check for leakage.
- Replace the gearbox if you notice a continuous loss of lubricant.

5.3.1 Remediating operational malfunctions



WARNING - Risk of injury

Tampering with the gearbox can lead to unintentional interruption of the power flow between the prime mover and the driven machine.

- It is not permitted to stay in the unsecured area around the gearbox (e.g. swivel range of a robot actuated by the gearbox nor stand under loads that are raised with the help of the gearbox).
- Observe the gearbox temperature and allow the gearbox to cool down if necessary.
- Secure the gearbox against unintentional startup or unintentional interruption of the power flow.
- When disconnecting the gearbox from the prime mover or driven machine, the gearbox must be disengaged from all loads. When disconnecting, any static torques still present in the power train or external loads on the gearbox must be taken into account.

5.3.1.1 Causes and remedies for possible fault states

Fault state	Possible causes	Potential solution
High operating temperature	Gearbox unsuitable for load	Compare the load with the technical specifications
	High ambient temperature	Ensure sufficient cooling by convection or forced-air ventilation. Optimize heat conduction in the application
	Insufficient convection, heat conduction	
	Motor is heating the gearbox	Check load on the motor
	Deposits on the gearbox surface	Clean the gearbox surface
	Gearbox too close to a heat source	Shield the gearbox or relocate heat source
Loud noise during operation	Gearbox unsuitable for load	Compare the load with the technical specifications
	Gearbox damage (bearings, gearing, lubricant used up)	Contact our customer service
	Motor attachment or radial/ axial run-out of the motor out of tolerance	Check radial/axial run-out of motor and remount motor

Fault state	Possible causes	Potential solution
Leakage	Leaking from initial lubrication	Monitor leakage. If lubricant leakage does not stop, contact customer service
	Leakage due to excessively greased bearing	
	Supposed leakage due to foreign medium	Check whether foreign medium is responsible for leakage
	Leakage due to worn seal (end of service life reached)	Contact customer service for inspection or maintenance. Order new product.
	Seal type unsuitable for load	Contact our customer service
	Gearbox damage (damaged seal)	
No power transmission / blockage	Gearbox unsuitable for load	Compare the load with the technical specifications
	Operating temperature too high	See potential remedy for fault condition "High operating temperature". Contact customer service.

5.4 Inspection and maintenance

5.4.1 Inspection intervals and inspection measures

Inspection interval	Inspection measures
during commissioning	Check for impurities, foreign bodies or foreign media, noise during operation, leakage, temperature. Check the non-positive and positive connections
10 h after commissioning	Check for impurities, foreign bodies or foreign media, noise during operation, leakage, temperature. Check the non-positive and positive connections
every 3 months	Check for impurities, foreign bodies or foreign media, noise during operation, leakage, temperature.

- If contamination, foreign bodies or media are to be expected under the ambient conditions the regular inspection intervals must be shortened accordingly.

5.4.2 Maintenance operations



INFORMATION

The gearbox is maintenance-free during its expected service life. A rotary shaft seal installed on the gearbox is a wearing part and may need to be replaced.

- The sealing elements must be protected from compressed air and aggressive cleaning agents. For cleaning, use cold cleaning agents based on a gasoline hydrocarbon.
- Only clean the gearbox when it is at a standstill.
- Have shaft seals changed by customer service.
- Opening the gearbox for maintenance purposes is not permitted.

5.4.3 Safety data sheets



INFORMATION

The corresponding safety data sheet can be obtained from Sumitomo Drive Technologies.

6 Disassembly



WARNING - Hazard from falling loads

Falling components can cause serious injuries.

- For component weights > 25kg, use suitable lifting equipment and certified lifting accessories .
- Do not stand or reach under suspended loads.

Disassembly is generally carried out in the reverse order of Chapter 4 "Mounting".

The following requirements must be observed:

- Support the product externally before loosening any mechanical connections.
- The weight of the product must not be transferred through the shafts.
- Loosen mechanical fastening elements in a controlled manner.
- Release any preload forces in couplings or flange connections.
- Separate interference fits only with suitable puller devices.



INFORMATION

Coated or functionally relevant surfaces (e.g. sealing or fitting surfaces) must not be damaged.

7 Disposal (instructions regarding hazardous substances, composition)



INFORMATION

The gearbox is made mainly of steel and aluminum materials.

- If possible, dispose of the gearbox lubricant separately, observing the relevant safety data sheet referenced in 5.4.3.
- If steel and aluminum components are not materially bonded, dispose of these materials separately if possible.
- Contact customer service if you have any questions.

8 Standards and Legal Regulations

For the planetary gearboxes with mounted electric motor described in these operating instructions, the following EU legislation is particularly relevant, depending on the specific design:

Machinery Directive 2006/42/EC
(or Machinery Regulation (EU) 2023/1230 as of 20 January 2027)

Low Voltage Directive 2014/35/EU
(for the mounted electric motor)

EMC Directive 2014/30/EU
(for the mounted electric motor)



You can find the nearest Sumitomo Drive Technologies locations here.

Sumitomo (SHI) Cyclo Drive Germany GmbH | Cyclostrasse 92 | 85229 Markt Indersdorf | Germany
Tel. +49 8136 66-0 | E-mail: SCG.info@shi-g.com | www.sumitomodrive.com

Hansen Industrial Transmissions NV | Leonardo da Vincilaan 1-3 | 2650 Edegem | Belgium
Tel. +32 3450 1211 | E-Mail: HIT.info@shi-g.com | www.sumitomodrive.com