rexroth
A Bosch Company

MOBILEX GFW 5000

Winch drives for mobile and stationary applications

Series 40

Sizes 5110 - 5190

Operating Instructions
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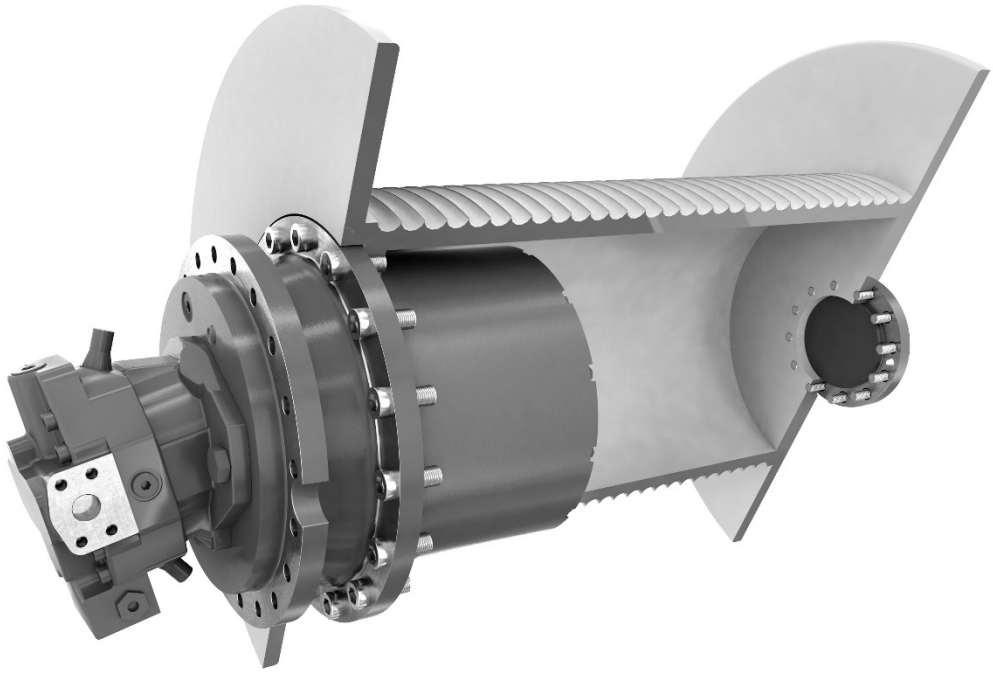

The data specified above serve to describe the product. If there is also information on the intended use, it is meant only as examples of use and suggestions. Catalog information does not constitute guaranteed properties. The information given does not release the user from obligation of own judgment and verification. Our products are subject to a natural process of wear and aging.

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A CE marking of the gearboxes as well as the EC declaration of conformity are not necessary, because the gearboxes are not a machine for the purposes of the EC-machine directive.

An example configuration is shown on the title page. The delivered product may, therefore, differ from the product which is pictured.

The original operating instructions were created in the German language.

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1 About this documentation

1.1 Validity of the documentation

This documentation is valid for the following product:
- MOBILEX GFW 5000 series 40

These general operating instructions of the hydrostatic winch drive MOBILEX GFW 5000 describes the following configurations:
- Planetary gearbox with connection options for:
  - Axial-piston motor
- Planetary gearbox (depending on the scope of supply) with :
  - Mounted axial-piston motor
  - Integrated static multiple-disk parking brake
  - Counter-bearing (optional)
  - Cable drum (optional)

- ▶ For the valid configuration of your hydrostatic winch drive MOBILEX GFW 5000, see the chapters “Product description”, “Scope of supply” and appendix D “Technical data / Drawings” of the material number-specific operating instructions.
- ▶ Also observe the respective chapters of these general operating instructions.

For simplification purposes, the product is referred to as “MOBILEX GFW 5000 planetary gearbox” or as “planetary gearbox” in the following chapters.
This documentation addresses installers/service technicians/crane operators or operators of the winch application.

This documentation contains important information on the safe and appropriate transport, storage, assembly, commissioning, use, maintenance, disassembly and simple troubleshooting of the planetary gearbox.
- ▶ Please read this documentation completely and in particular the chapter 2 “Safety Instructions” and chapter 3 “General information concerning damage to property and product damages”, prior to working with the planetary gearbox.

1.2 Required and supplementary documentations

- ▶ Please only commission the planetary gearbox once the documentation marked with the book icon 🕮 has been made available to you and make sure you have read, understood and followed it.

Table 1 Required and supplementary documentations

	Description	Document type
🕮	Material number-specific operating instructions	Operating instructions (included within Rexroth's scope of supply)

1.3 Presentation of information

So that you can work with this documentation fast and with certainty when using your planetary gearbox, uniform safety instructions, icons, terminology and abbreviations are being used. For better understanding, these are explained in the following sections.

1.3.1 Safety instructions

In this documentation, safety notes are located in chapter 2.6 “Product and technology-dependent safety instructions” and in chapter 3 “General information concerning damage to property and product damages”, as well as before any sequence of actions, or sequence of instructions, where there is a danger of damage to persons or property. The measures described for avoiding hazards must be observed.

The safety instructions are structured as follows:

⚠ SIGNAL WORD

Type and source of danger

Consequences in the case of non-compliance

- ▶ Measures for danger aversion
- ▶ <List>

- Warning symbol: draws attention to the danger
- Signal word: identifies the degree of the danger
- Type and source of danger: identifies the type and source of danger
- Consequences: describes what occurs if the safety instructions are not complied with
- Precautions: states how the danger can be avoided.

Table 2 Danger categories according to ANSI Z535.6

Warning symbol, signal word	Meaning
⚠ DANGER	identifies a dangerous situation where death or serious personal injury will result if it is not avoided
⚠ WARNING	identifies a dangerous situation where death or serious personal injury may result if it is not avoided
⚠ CAUTION	identifies a dangerous situation where mild to medium personal injury will result if it is not avoided
NOTE	identifies damage to property: The product or the environment can get damaged.

1.3.2 Symbols

The following symbols identify information which is not relevant for safety, however, does increase the coherency of the documentation.

Table 3 Meaning of symbols

Symbol	Meaning
	If this information is not observed, the product cannot be optimally used and/or operated.
▶	individual, independent action step
1 2 3	numbered action instructions: The figures show that the action steps follow on each other.

1.3.3 Terminology

The following terminology is used in this documentation:

Table 4 Terminology

Name	Meaning
MOBILEX	Registered trademark
GFW 5000	**GF** = vehicle gearbox **W** = winch **5000** = Size (e.g. 5110)
Ri Chan Jia HE L-HL15	Hydraulic oil
PERIGOL VCI 230	Preservative
CUSTOS 10-38	Preservative
HAKUTEX 74	Detergent to remove preservative
HAKUPUR 236	Detergent to remove preservative
L-X**B**CHA3 (GB 7324-94) FAG Arcanol MULTI3 Klüberplex BE 31-222	Lithium multi-purpose grease
L-X**E**CHA3 (GB 7324-94; GB 7631.8)	Lithium multi-purpose grease (low temperature)
Screw plug	Metallic screw, pressure-resistant
Plug	Made of plastic, not pressure-resistant, only for transport

1.3.4 Abbreviations

The following abbreviations are used in this documentation:

Table 5 Abbreviations

Abbreviation	Meaning
RE	**R**exroth-Document in **E**nglish Language
RDE	**R**exroth-Document in German (**D**) and **E**nglish Language
DIN	**D**eutsche **I**ndustrie **N**orm (German Industrial Standard)
ISO	**I**nternational **O**rganization for **S**tandardization (Internationale Normierungsorganisation)
SAE	**S**ociety of **A**merican **E**ngineers
ANSI	**A**merican **N**ational **S**tandard **I**nstitute
PSA	**P**ersonal **S**afety equipment (**A**)

2 Safety instructions

2.1 About this chapter

This MOBILEX GFW 5000 planetary gearbox was produced according to the generally approved good engineering practice. There is, however, still a danger of personal injury or damage to equipment if the following chapter and the safety instructions of this documentation are not complied with.

- ▶ Read this documentation thoroughly and completely before working with the MOBILEX GFW 5000 planetary gearbox.
- ▶ Keep the documentation in a place where it is accessible at all times to all users.
- ▶ When passing on the MOBILEX GFW 5000 planetary gearbox to third parties, always do so together with the required documentation.

2.2 Intended use

The planetary gearbox is a subassembly.

- ▶ Refer to the material number-specific operating instructions for the intended use of your MOBILEX GFW 5000 planetary gearbox.
- ▶ Observe the operating conditions and power limits as mentioned in the technical data sheet. For this refer to the material number-specific operating instructions.

The planetary gearbox is intended only for professional use and not for private use.
Intended use includes that this documentation, especially chapter 2 “Safety instructions” has been read and understood.

2.3 Improper use

Any use other than described in intended use is not in accordance with the requirements and, therefore, is not permitted.
Bosch Rexroth AG assumes no liability for damage resulting from improper use. The risks associated with improper use lie solely with the user.
Also the following expected foreseeable misuses are not improper use (this list is not exhaustive):

- Use outside the operating data released in the specifications or the order confirmation
- The use of inadmissible liquids, e.g. water or unreleased lubricating oils
- The use of the planetary gearbox in other applications than described in chapter 2.2 “Intended use”
- The use of the planetary gearbox and its mounting parts in explosion-prone environments
- The use of the planetary gearbox as a safety-related part of a control unit
- The use of the planetary gearbox in an environment with aggressive substances and gases
- Change of the factory settings by unauthorized persons
- The use of the planetary gearbox when the external pressure exceeds the internal pressure (housing pressure)

- The use of mounting parts (e.g. attached filter, controller, valves) other than the intended Rexroth components

2.4 Qualification of Personnel

The operations described in this documentation require basic knowledge of mechanics, electrics, hydraulics as well as knowledge of the related technical terms. Transport and handling of the planetary gearbox require additional knowledge of handling a crane or forklift (e.g. crane/forklift training, crane/forklift driver's license) and the associated means of attachment.
In order to ensure the safe use, all operations should therefore only be carried out by a respective qualified personnel or an instructed and trained person under the direction of qualified personnel.
Qualified personnel are those who can recognize possible hazards and institute the appropriate safety measures due to their professional training, knowledge and experience, as well as their understanding of the relevant regulations pertaining the work to be done. Specialists must comply with the applicable specialist regulations.

2.5 General safety instructions

- Observe all binding regulations for accident prevention and environmental protection.
- Observe all safety instructions and provisions of the country where the planetary gearbox is going to be deployed/operated.
- Only use Rexroth products which are in perfect technical condition.
- Observe all instructions on the planetary gearbox.
- Persons, who assemble, commission, operate, disassemble, or maintain Rexroth products must not consume alcohol, drugs or pharmaceuticals that may affect their ability to respond.
- Only use Rexroth original accessories and spare parts in order to prevent any hazards to persons due to improper spare parts.
- You may only start using the MOBILEX GFW 5000 planetary gearbox once it has been established that the end product (see intended use of the material number-specific operating instructions) in which the Rexroth-products are installed complies with the country-specific provisions, safety regulations and standards of the application.
- The assembly, commissioning, maintenance and disassembly of the MOBILEX GFW 5000 planetary gearbox takes place under the responsibility of the end-product manufacturer. Therefore, the product safety of the MOBILEX GFW 5000 planetary gearbox cannot be guaranteed by Rexroth during these life phases.
- You must adhere to the technical data, operating conditions and performance limits shown in the product documentation.
- The warranty shall apply to the delivered configuration only.
- The warranty is void in case of faulty installation, commissioning and operation, as well as in case of improper use and/or improper handling
- You may not modify the MOBILEX GFW 5000 planetary gearbox in principle.

2.6 Product and technology-dependent safety instructions

The following safety instructions apply to chapters 6 to 14.

⚠ WARNING

Risk when transporting persons with the winch drive!

Mortal danger, risk of severe injury or damage to property in case of non-observance!

- Transporting persons with the winch drive is not allowed by the manufacturer, Bosch Rexroth AG.

Danger during all works on the in case of non-observance planetary gearbox during the operation of the crane or the winch application!

Mortal danger, risk of severe injury or damage to property during working!

- Secure the entire unit against restarting.
- Relieve any system pressure in the relevant part of the crane or winch application before you start working on the planetary gearbox.
- Switch the relevant part of the crane or winch application free of voltage before you start working on the planetary gearbox.
- Do not loosen any cable connections, connections or components on the planetary gearbox, as long as the planetary gearbox or the crane, the winch application part is under oil pressure and under voltage.

Fire hazard caused by fire, smoking and naked light!

Risk of injury or damage to property from combustible materials, as for example: Lubricating oil, preserving agent, solvent, detergents and hydraulic fluid!

- In dealing with combustible materials, please observe the product data sheets and safety data sheets of the respective manufacturer.
- Do not use fire or naked light when working on the planetary gearbox, its mounting parts and when handling with combustible materials.
- Do not smoke in the vicinity of combustible materials.
- Always wear the protective equipment which is specified in the safety data sheets of the respective substance.
- When the planetary gearbox is positioned near ignition sources or heat radiators, a shield must be installed so that leaking hydraulic fluid cannot ignite and hoses are protected against premature aging.

⚠ WARNING

Risk of toxicity and injury!

Risk of toxicity and injury by contact with harmful substances, as for example: Lubricating oil, preserving agent, solvent, detergents and hydraulic fluid!

- In dealing with harmful substances, please observe the product data sheets and safety data sheets of the respective manufacturer.
- Always wear the protective equipment which is specified in the safety data sheets of the respective substance.
- Carefully wash off harmful substances that have come into contact with the skin. Wash out your eyes thoroughly with water if harmful substances have gotten into the eyes and go see a doctor.
- See a doctor immediately if you have inhaled, for example, solvent-based detergents or have swallowed harmful substances.

⚠ CAUTION

Locally hot surfaces on the gearbox!
Danger of burns!
- ▶ Do not touch any hot surfaces on the planetary gearbox. The planetary gearbox heats up to a max. of 90 °C during operation in the oil sump.
- ▶ Allow the planetary gearbox and its mounting parts to cool down to approx. 50 °C before touching.
- ▶ To protect yourself from burns, wear heat-resistant protective clothing and heat-resistant safety gloves.

Hot lubricating oil during operation!
Danger of scalding during oil change, oil sampling and draining oil!
- ▶ To protect yourself from scaldings, wear heat- and oil-resistant safety gloves and heat-resistant protective clothing. Wear protective goggles.
- ▶ Avoid oil temperatures of much more than 50°C when taking oil samples or draining oil.
- ▶ When taking the oil sample or draining the lubricating oil, carefully open the oil sampling point or oil drain.

Sharp edges and tensioned tension belts and cable fasteners as well as rebounding parts!
Risk of injury!
- ▶ Carefully remove any attached tension belts and chains.
- ▶ When cutting tension belts and detaching chains, always wear protective goggles and cut-resistant safety gloves.

Danger in the case of mix-up with metrical and inch threads!
Risk of injury and damaging to the gearbox!
- ▶ Only assemble the planetary gearbox, if you have the dimensioned drawing available, indicating the thread types and sizes.

Danger in the case of faulty installation of cables and lines!
Risk of injury or property damage!
- ▶ Lay cables and lines so that they cannot be damaged and no one can trip over them.

Metal particles or metal abrasion in the lubricating oil or on the screw plugs!
Risk of injury!
- ▶ When refilling the lubricating oil, during the oil change and when draining oil, always wear oil-resistant safety gloves and protective goggles.

⚠ CAUTION

Setting down the planetary gearbox on unsuitable, non-load-bearing base!
Risk of injury or property damage by tipping over the planetary gearbox!
- ▶ Always load the planetary gearbox on a load-bearing surface.
- ▶ Secure the planetary gearbox against tipping over by the use of chocks, wooden bars or the load boards provided by Rexroth.

Leaking hydraulic fluid due to leakages of the crane or winch application!
Risk of burns and injuries due to leaking oil jet!
- ▶ Relieve any system pressure in the crane or winch application and repair the leak.
- ▶ Never try to stop or seal the leak or oil jet using a cloth.

2.7 Personal Safety Equipment (PSA)

The personal safety equipment for users of the planetary gearbox comprises:
- Safety gloves

The required characteristics of the safety gloves are determined by the conditions encountered in practice.
- ▶ Wear resistant safety gloves of the corresponding classification (according to action step, for example, heat-resistant, oil-resistant, cut-resistant).

- Protective goggles (sealed)
- Safety shoes
- Heat-resistant safety wear, if necessary, flameproof protective clothing
- If necessary, safety helmet

- ▶ When in contact with lubricating oil, preserving agents, solvents, detergents and hydraulic fluid, please wear the mandatory safety equipment as outlined in the respective product data sheets and safety data sheets.

All components of the personal safety equipment must be intact.

3 General information concerning damage to property and product damages

The following instructions apply to chapters 6 to 14.

NOTE

Danger caused by improper handling!
The planetary gearbox can be damaged!

- Do not submit the planetary gearbox to mechanical load in an unacceptable way.
- Do not place any objects on the product.
- Do not hit against sensitive mounting parts (e.g. sensors or valves).
- Do not hit against sealing surfaces (e.g. on the axial-piston motor working connections (if included in the scope of supply)).
- Leave the protective cover on the axial-piston motor (if included in the scope of supply) until just before connecting the cables.

Damage of the planetary gearbox caused by a lack of knowledge when handling the crane and the slinging equipment!
Lack of knowledge when handling a crane, or wrong means of attachment, may lead to uncontrolled movements of the planetary gearbox and therefore damage the crane or winch application!

- Use a crane with sufficient lifting capacity for lifting the planetary gearbox.
- Only use approved transport equipment.
- Use e.g. eye bolts, straps, chains, swivel hooks, shackles or suitable equipment as slinging equipment.

Damage caused by improper assembly!
Improper assembly of the planetary gearbox may lead to damage of the crane or winch application!

- Make sure that the planetary gearbox has been properly mounted by qualified personnel before operating it.

Damage to the planetary gearbox caused by improper installation!
Material damage to the planetary gearbox or its mounting parts!

- Assign or close all necessary connections properly, particularly the one of the static multiple-disk brake.
- Only commission a completely installed product.
- Take the required connections from the dimensioned drawing in appendix D “Technical data / Drawings” of the material number-specific operating instructions.

NOTE

Damage to the planetary gearbox caused by commissioning without or with insufficient lubricating oil!

When commissioning the planetary gearbox and the integrated static multiple-disk parking brake without, or with insufficient lubricating oil can damage or even being completely destroyed!

- When commissioning or recommissioning the crane or winch application, fill the planetary gearbox with the correct quantity of oil.
- Control the oil level thoroughly.
- Pay attention when commissioning the crane or winch application, that the housing chamber and the axial-piston motor (if included in the scope of supply) service lines are filled with hydraulic fluid and remain filled during operation.
- Always replace the disks, the springs and the sealing elements after a functional impairment or thermal overload and by any repair work on the multiple-disk parking brake.

Damage to the planetary gearbox caused by commissioning with too much lubricating oil!

When commissioning the planetary gearbox and the static multiple-disk parking brake, integrated in the planetary gearbox, with too much lubricating oil, thermal overloads may occur, causing damage to the gears, seals and bearings as well as failure of the static multiple-disk brake!

- When commissioning or recommissioning the crane or winch application, fill the planetary gearbox with the correct quantity of oil.
- Control the oil level thoroughly.
- Always replace the disks, the springs and the sealing elements after a functional impairment or thermal overload and by any repair work on the multiple-disk parking brake.

Damage caused by penetrating liquids, foreign objects and dirty lubricating oil!

Wear and malfunctions caused by impurities!

- Check whether all seals, connections and plug-in connectors have been correctly installed and are intact.
- When performing any work on the planetary gearbox, please ensure extreme cleanness to prevent foreign objects, as for example weld spatter or metal particles, from getting into the planetary gearbox and, therefore, causing wear and malfunction.
- Only use clean connections.
- Exclusively install clean hydraulic lines.
- No dirt shall penetrate when closing the ports.

NOTE

Damage to the planetary gearbox caused by cleaning agents or solvents!
Damage caused by aggressive detergents or solvents and/or fiber from cleaning cloths getting into the planetary gearbox.

- When removing the preserving agent make sure that no aggressive detergents or solvent enters the seal areas, the hydraulic system, or the planetary gearbox.
- Only use a dry cloth made of lint-free fabric to remove lubricating oils and other soils.

Damage to the planetary gearbox caused by mechanical stress!
Oil lines and hoses which you install under tension cause additional mechanical stress during operation, which reduces the service life of the gearbox!

- Assemble hydraulic lines and hoses without mechanical stress.
- Ensure vibration-free fastening of tubings.
- Only use hoses and fasteners which have been approved for the respective operating pressure range.

Risk of environmental pollution!
Ground water and/or soil contamination by escaping or spilled lubricating oil or pressure medium!

- Place a catch basin with sufficient capacity under the planetary gearbox when replacing, draining lubricating oil, or working with a pressure medium.
- Bond any passing flow of lubricating oil or spilled lubricating oil or pressure medium with appropriate absorption material such as oil absorbent granule.
- Dispose the lubricating oil or pressure medium in accordance with local country regulations and provisions.
- Observe the product data sheets and safety data sheets of the lubricating oil manufacturer and pressure medium manufacturer. These data sheets are not included within Rexroth's scope of supply.

Damage to the planetary gearbox caused by improper handling!
Damage to the planetary gearbox during installation into the equipment frame or winch base/cable drum, maintenance and repair work and during disassembly!

- Avoid strong impacts on the planetary gearbox during assembly or disassembly.
- Never use the mounting parts as a handle or step.
- Make sure that the planetary gearbox is not canted.

Damage to the planetary gearbox and mounting parts!
Material damage caused by securing and lifting equipment!

- When lifting the planetary gearbox, take care that mounting parts do not get damaged by securing or lifting equipment.

NOTE

Insufficient lubrication!
Damage to the planetary gearbox and mounting parts!
- Supply the gearbox with a sufficient lubricating oil amount in all modes of operation.

Any irregularities manifesting during maintenance and inspection!
Damage to the planetary gearbox and its mounting parts!
- Take the planetary gearbox out of service and contact the nearest Rexroth Service point, if you find any irregularities during maintenance work or inspections.

Unpunctual inspection and maintenance work!
Risk of damage!
- Adhere to the planetary gearbox's maintenance intervals schedule when carrying out mandatory maintenance work.

4 Scope of supply

Refer to your material number-specific operating instructions for the complete scope of supply.

5 About this product

5.1 Performance description

- For the performance-related data of the MOBILEX GFW 5000 planetary gearbox, please refer to appendix D “Technical data / Drawings” of the material number-specific operating instructions.

5.2 Product description

The hydrostatic MOBILEX GFW 5000 winch drive is a planetary gearbox.
The following product description includes different models. For details of your planetary gearbox, refer to the chapter “Product description” as well as the chapter “Scope of supply” and the dimensioned drawing provided in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
This is where you find details on:

- Number of planetary stages
- Transmission ratio
- Motor type and design
- Integrated static multiple-disk parking brake
- Mounting parts
- Connections
- Lubrication, etc.

The entire planetary gearbox, which is mounted in rolling bearings, is equipped with a splash oil lubrication. The externally toothed planet gears are case-hardened.
A special output seal ensures optimum protection against dust and dirt of the output bearing.
Drive and output have opposite direction of rotation.
The planetary gearbox is intended exclusively for use in the technical environment approved by Rexroth for the application referred to in the material number-specific instructions.

5.2.1 Application conditions

The planetary gearboxes are designed for use in environmental temperatures between -25°C and + 40°C. Environmental factors such as salt water, salt air, sand, dust, pressure, severe shocks, extreme shock loads and environmental temperatures, aggressive media, etc. affect the function. Such influences must be pre-announced in order for a secure gearbox design.

5.3 Description of the brake

The planetary gearbox is equipped with an integrated wet-running static multiple-disk brake (multiple-disk parking brake).

⚠ WARNING

Risk caused by the failure of the static multiple-disk parking brake!
The use of the static multiple-disk parking brake for braking the load hook or the load may cause its destruction.

- Operate the static multiple-disk parking brake only after a complete stop of the load hook or the load.
- Always replace the disks, the springs and the sealing elements after a functional impairment or thermal overload and by any repair work on the multiple-disk parking brake.

Danger of delayed holding of the static multiple-disk parking brake!
The delayed application of the static multiple-disk parking brake can lead to unintentional lowering of the load / load hook.

- Make sure that the brake line of the static piston is pressureless within 0.5 s.

The multiple-disk brake is a hydraulically released parking brake. The parking brake (static multiple-disk parking brake) is applied via the brake release connection.
The static multiple-disk parking brake acts negatively, i.e. it is released by means of pressure fluid and applied by spring action when pressureless.

5.4 Product overview

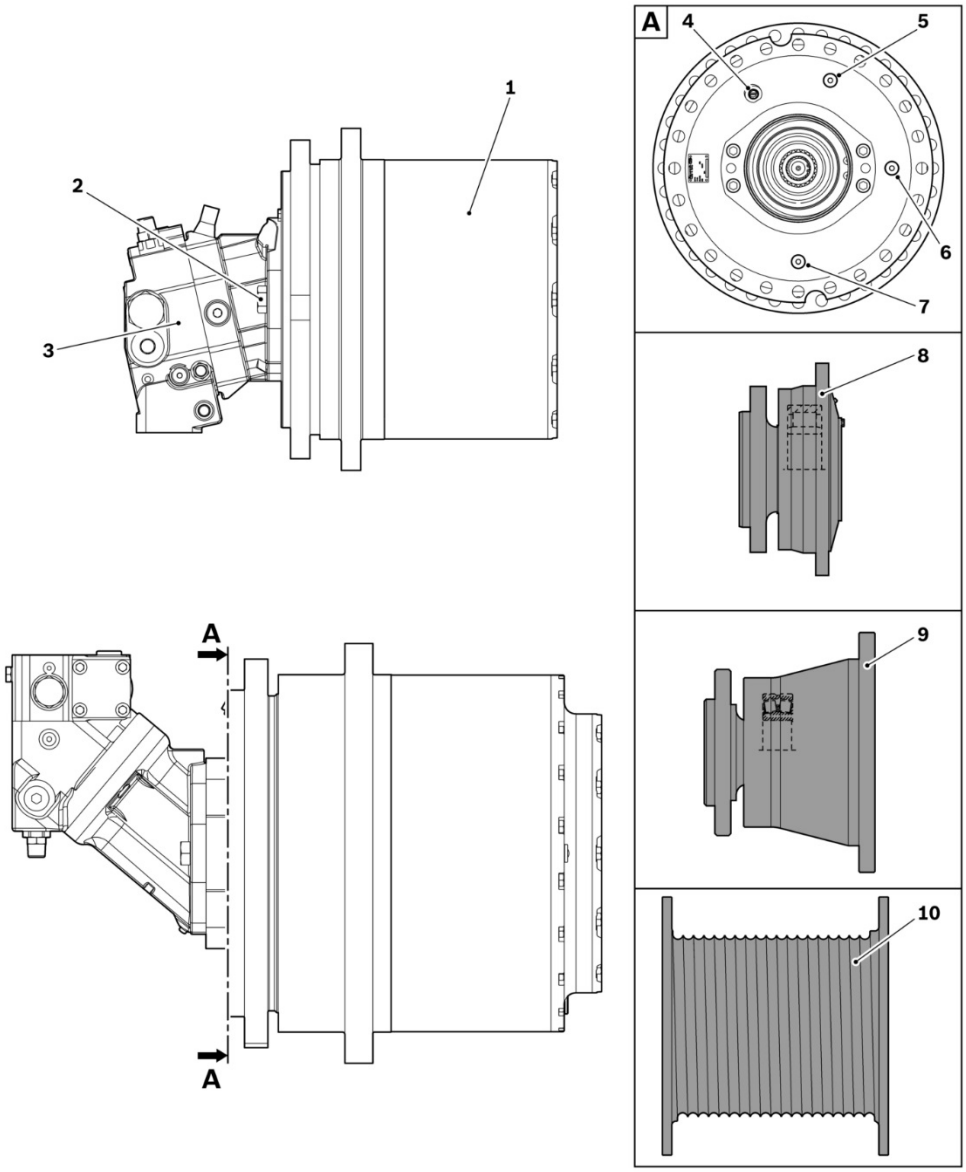


Fig 1: Overview of the MOBILEX GFW 5000 planetary gearbox (the represented model is exemplary and may differ from the supplied model)

1 MOBILEX GFW 5000 planetary gearbox
2 Motor attachment screws
3 Axial-piston motor
4 External brake release connection
5 Bore **5** (in the position shown above for filling in the lubricating oil)
6 Bore **6** (in the position shown above, for oil level checking)
7 Bore **7** (in the position shown above for discharging the lubricating oil)
8 **Optional**: Counter-bearing with cylindrical roller bearings
9 **Optional**: Counter-bearing with spherical roller bearings
10 **Optional**: Cable drum

For the exact arrangement of the bores, refer to the planetary gearbox dimensioned drawing in the appendix D “Technical data / Drawings” of the material number-specific operating instructions.

The indicated gear type is an example. Your MOBILEX GFW 5000 planetary gearbox may differ from this example in the following points:
- Position and type of the connections
- Position of oil filler opening
- Position of the oil level control system
- Position of the oil drain opening
- Position and type of mounting parts
- **Optional** counter-bearing
- **Optional** cable drum

5.5 Identification of the product

A name plate is located on the planetary gearbox, enabling you to identify the product.

5.5.1 Standard name plate

The following information is indicated on the name plate:

Fig 2: Example of a planetary gearbox name plate

1 Manufacturer
2 Type code
3 Factory specific order number
4 Serial number
5 Internal factory code
6 Ratio of the gearbox
7 Date of manufacture
8 Product material number

The name plate shown above is only an example of the Rexroth name plate. In addition, the serial number is engraved on the gearbox housing. For this information, please refer to the front side/motor connection side on the spindle.

6 Transport and storage

Please read chapter 7.1 “Unpacking” before you transport the planetary gearbox.

6.1 Transporting the MOBILEX GFW 5000

⚠ WARNING

Hazardous, uncontrolled movements during the transport of the planetary gearbox!

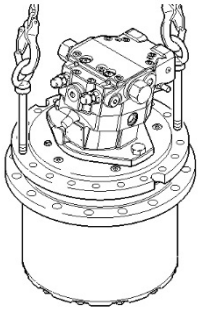
Mortal danger, risk of injury, severe physical injury or damage to property!

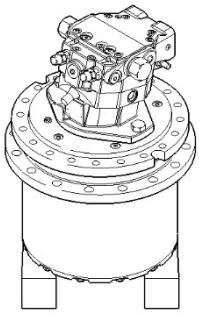
- Observe the national laws and regulations regarding occupational safety and health protection and transport.
- Weight information about the planetary gearbox can be found in the shipping documents, the technical data sheet or on the name plate.
- Make sure that the planetary gearbox is attached to the crane or the forklift exclusively by qualified personnel with credentials, using attachment means, and is transported only by said qualified personnel, with a crane or forklift. In addition, observe chapter 2.4 “Qualification of Personnel”.
- Adjust the lifting means (crane or forklift) and attachment means (chains and shackles or straps or ropes) to the weight and the dimensions of the planetary gearbox.
- Design the load-carrying capacity of the lifting means to match the weight of the planetary gearbox.
- Tighten the means of attachment before lifting the planetary gearbox.
- You may only lift the planetary gearbox with a forklift if it is protected by a transport frame / a pallet designed for the planetary gearbox.
- Make sure that the crane loads (such as the planetary gearbox on the crane hook) do not start swaying.

Danger from suspended loads!

Danger to life or risk of injury!

- Use a crane or forklift whose load-carrying capacity is sufficient to lift the planetary gearbox.
- Never step or put your hands under suspended loads.





- Carefully attach the planetary gearbox with approved lifting equipment, such as chains and shackles adapted to weight, suitable ropes or eye bolts (see illustration on the left) to the crane hook or transport the planetary gearbox in a suitable transport frame using a suitable forklift.
- Choose the chain or cable length such that the attachment angle remains smaller than 90°.
- Please ensure that the mounting parts attached depending on the gearbox design cannot be damaged by transport elements when the planetary gearbox is lifted.
- Always load the planetary gearbox on a load-bearing surface as shown in the figure beside.

6.2 Storing the MOBILEX GFW 5000

NOTE
Risk of damaging the planetary gearbox! A planetary gearbox stored for more than 12 months has to be thoroughly inspected and submitted to a test run before use! ▶ If necessary, contact our Rexroth Service before installing a planetary gearbox that has been stored for more than 12 months. ▶ This product should only be tested by qualified personnel (refer to chapter 2.4 “Qualification of personnel”).

Preservation and storing of the planetary gearbox is described in this chapter.

For queries concerning preservation and storage, please contact a Rexroth's subsidiary located near you or the main plant directly. Refer to www.boschrexroth.com and the address directory in appendix A “Address directory” of the material number-specific operating instructions for the addresses of our national agencies.

6.2.1 Preservation

Rexroth delivers the planetary gearbox without oil filling. The planetary gearbox is, however, preserved from the inside with e.g. Ri Chan Jia HE L-HL15.
The external flange surfaces and flanging surfaces are applied with preservative by the factory (e.g. PERIGOL VCI 230 or CUSTOS 10-38).
After removing the packing, you must check whether the outside preservation is still correct.

- If the preservation is damaged and gearbox parts on the outside have bright spots, then preserve these spots again with e.g. PERIGOL VCI 230 or CUSTOS 10-38.
- Observe the manufacturer's product data sheets and safety data sheets when using preservative. These data sheets are not included within Rexroth's scope of supply.

- ▶ Apply a layer of grease onto the output seal area, before you apply the external preservation. Use a lithium multi-purpose grease L-XBCHA3 (GB 7324-94) or FAG Arcanol MULTI3 or Klüberplex BE 31-222. Thus preventing, that preservative reaches to the output seal. For the output seal, refer to the spare parts drawing, view ”B“ in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
- ▶ Use a brush to apply the preservative evenly onto the bright spots.

6.2.2 Maximum storage periods

The following storage conditions must be met to ensure a maximum storage period of 12 months:

- Temperature -30 ... 60°C, relative air humidity of max. 70%
- Dry and dust-free
- Protected against rain, snow and sunlight

7 Assembly

Prior to assembly, the following documents must be readily accessible:
- Operating instructions for the crane or the winch application (supplied by the manufacturer)
- Dimensioned drawing of the planetary gearbox
- Technical data of the planetary gearbox
- Material number-specific operating instructions of the planetary gearbox
- Hydraulic diagram for the crane or the winch application (supplied by the manufacturer)
- Assembly drawing for the crane or the winch application (supplied by the manufacturer)

7.1 Unpacking

Depending on manufacturer's plant and transport paths, the planetary gearbox may be packed differently.

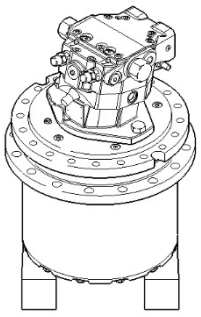
7.1.1 Delivery on pallet

If the planetary gearbox is delivered on a pallet, the gearbox is secured with clamping bands. To protect from moisture, the delivery may be covered in shrink wrap.

Procedure To unpack the planetary gearbox:

1 Remove the shrink wrap and the oiled paper.
2 Remove the clamping bands.
3 Check the scope of supply for transport damage and completeness, see chapter 4 “Scope of supply”.
4 Compare material number and designation (type code) with those specified in the order confirmation.

If the material number of the planetary gearbox does not match the one in the order confirmation, contact the Rexroth Service for clarification. For the address, see appendix A “Address directory” of the material number-specific operating instructions.



5 Lift the planetary gearbox from the pallet with suitable lifting gear and suitable attachment means (see chapter 6.1 “Transporting the MOBILEX GFW 5000”).
6 For placing the planetary gearbox, make sure that the surface is stable.
7 Place the planetary gearbox with the cover plate down on two suitable squared timbers. Secure the planetary gearbox against tipping over.
8 Dispose of the packaging in accordance with regulations in your local country.

7.1.2 Delivery in wood transport box

Overseas transports are performed mainly in closed wood transport boxes in seaworthy packaging. The gearbox is covered with oiled paper and the bottom of the transport box is lined with foam packaging or the planetary gearbox is packed in PE foil.

Procedure To unpack the planetary gearbox:

1. Place the packing on a flat, stable surface.
2. Only open the packing from the top.
3. Check the scope of supply for transport damage and completeness, see chapter 4 “Scope of supply”.
4. Compare material number and designation (type code) with those specified in the order confirmation.

If the material number of the planetary gearbox does not match the one in the order confirmation, contact the Rexroth Service for clarification. For the address, see appendix A “Address directory” of the material number-specific operating instructions.

5. Lift the planetary gearbox out of the packing with suitable lifting means and suitable attachment means (see chapter 6.1 “Transporting the MOBILEX GFW 5000”).
6. For placing the planetary gearbox, make sure that the surface is stable.
7. Place the planetary gearbox with the cover plate down on two suitable squared timbers. Secure the planetary gearbox against tipping over.
8. Dispose of the packaging in accordance with regulations in your local country.

7.2 Installation conditions

The assembly conditions depend on the crane, winch application, equipment frame, winch base/cable drum where the planetary gearbox is integrated.

- Make sure that the equipment frame or the winch base/cable drum the MOBILEX GFW 5000 planetary gearbox is attached to, is torsion resistant. It must be able to withstand the weight and torque specified for the design.
- During assembly, observe by all means the operating conditions that are specified in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
- Make sure that the work environment on site is free of dust and foreign substances. The planetary gearbox must be installed free of contamination. Contamination of the hydraulic fluid may considerably affect the function and service life of the axial-piston motor, if supplied.
- Use cloths made of lint-free fabric for cleaning.
- Use mild detergents for removing lubricants and other heavy contaminations. No detergents may penetrate into the hydraulic system.

7.3 Installation position

The installation position of the planetary gearbox is horizontal.

The planetary gearbox installation position approved and recommended by Rexroth is indicated on the drawing in appendix D “Technical data / Drawings” of the material number-specific operating instructions.

NOTE
Installation of the planetary gearbox in a non-approved Rexroth mounting position! Damage or failure of the planetary gearbox and expiry of the warranty! ▶ Only install the planetary gearbox in an approved Rexroth mounting position as indicated in the dimensioned drawing in appendix D “Technical data / Drawings” of the material number-specific operating instructions. **Damage to the planetary gearbox through misalignment with the equipment frame or winch base/cable drum!** Property damage! ▶ Do not tilt the planetary gearbox during installation and insert it into the equipment frame or winch base/cable drum torsion-free and tension-free. ▶ Avoid misalignment of the planetary gearbox during installation. ▶ Align the planetary gearbox exactly with the equipment frame or winch base/cable drum.

7.3.1 Operation with axial-piston motor (if included in the scope of supply)

▶ Strictly observe the instructions of the axial-piston motor operating instructions. You will find these in appendix C “Mounting parts” in the material number-specific operating instructions of the planetary gearbox.

7.4 Required tools

The planetary gearbox can be assembled with standard tools. No special tool is required.

7.5 Assembling the MOBILEX GFW 5000

Please note the order of assembly of the overall winch including

- Axial-piston motor
- Planetary gearbox
- Counter-bearing (optional)
- Cable drum (optional)
- separate winch base (not included in the Rexroth scope of supply)

may differ substantially.

Check the order of assembly when using a separate winch base.

Attach the planetary gearbox to the cable drum before installing the equipment frame/winch base.

Note that the axial-piston motor must be removed from the planetary gearbox depending on the size of the opening on the equipment or the winch base (see chapter 7.5.2 "Installing the planetary gearbox with the axial-piston motor installed in the equipment frame or the winch base/cable drum").

Depending on the design of the crane or the winch application, the orders of assembly described or proposed in these operating instructions may be different.

7.5.1 Preparing assembly

Procedure

1. Check if the scope of supply is complete and shows transport damages. Refer to your material number-specific operating instructions for the complete scope of supply.
2. Compare the material number and the type designation on the nameplate with the details in the order confirmation or on the delivery note. If the material number of the planetary gearbox does not match the order confirmation or the delivery note, please contact the Rexroth Service.
3. Compare the connecting dimensions of planetary gearbox and equipment frame or winch base.
4. Compare the connecting dimensions of the planetary gearbox with the cable drum.

The order of assembly depends on the crane, the winch application or the design of equipment frame, winch base or cable drum. Refer to the instructions in chapter 7.2 “Installation conditions”. In addition, observe the assembly instructions of the crane or winch application manufacturer.

The dimensioned drawing contains the dimensions of all connections of the MOBILEX GFW 5000 planetary gearbox. Also observe the instructions of the manufacturers of the mounting parts in appendix C “Mounting parts” in the material number-specific operating instructions.

5 Remove the preservative from the outside flange surfaces with a suitable organic solvent (e.g. HAKUTEX 74) or an alkaline detergent (e.g. HAKUPUR 236). Wear suitable protective gloves and protective goggles when cleaning the planetary gearbox and observe the manufacturer's safety notes when handling preservative or solvents. These data sheets are not included within Rexroth's scope of supply.

NOTE
Damages to the seals! Aggressive detergents or solvents can damage the seals of the planetary gearbox and can cause the seals to age faster! ▶ When removing the preserving agent make sure that no aggressive detergents or solvents enter the seal areas. This applies in particular to the area of the output seals.

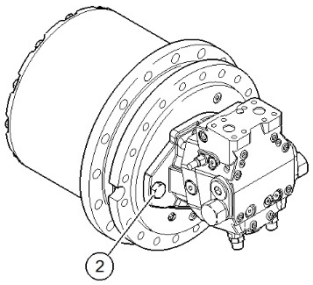
7.5.2 Installing the planetary gearbox with assembled axial-piston motor into the equipment frame or winch base/cable drum

If the planetary gearbox MOBILEX GFW 5000 is supplied together with the axial-piston motor, the axial-piston motor is mounted on the gearbox. Depending on the existing opening in the equipment frame or winch base, the axial-piston motor has to be removed from the planetary gearbox prior to assembly.

⚠ CAUTION
Failure or damage to the planetary gearbox! Depending on the design of the planetary gearbox, the carrier may be pulled out of the disk gearing of the static multiple-disk parking brake. This may result in a multiple-disk brake failure! ▶ When assembling the planetary gearbox, make sure that the carrier and the disks are in the same position as shown in the spare parts drawing, view “A”, in appendix D “Technical data / Drawings” of the material number-specific operating instructions.

Procedure For disassembling the axial-piston motor from the planetary gearbox:

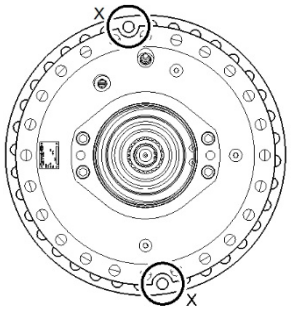
1. For installation, strictly observe the corresponding data in the dimensioned drawing of the planetary gearbox in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
2. Also observe the primary operating instructions of the crane or winch application and the manufacturer’s frame drawing.
3. For the planetary gearbox weight, refer to appendix D “Technical data / Drawings” of the material number-specific operating instructions.
4. In addition, observe the weight of the axial-piston motor. For the weight of the axial-piston motor, refer to the operating instructions of the motor in appendix C “Mounting parts” of the planetary gearbox's material number-specific operating instructions.
5. Transport the planetary gearbox to the crane or winch application with the axial-piston motor installed.
6. Make sure that the surface is stable.
7. Place the planetary gearbox with the cover plate down on two suitable squared timbers. Secure the planetary gearbox against tipping over.



8. Attach the axial-piston motor carefully using appropriate means of attachment e.g. eye bolts, swivel hooks, shackles or suitable equipment on an appropriate lifting equipment such as a crane hook. Observe the specifications in the supplied operating instructions of the axial-piston motor. These can be found in appendix C “Mounting parts” of the material number-specific operating instructions.
9. Tighten the means of attachment without lifting the axial-piston motor.
10. Loosen the motor fixing screws **2** and disassemble the axial-piston motor from the planetary gearbox.
11. Remove the axial-piston motor from the planetary gearbox fitting. Ensure that the axial-piston motor does not catch.
12. Put down the axial-piston motor. Observe the information in the axial-piston motor operating instructions in appendix C “Mounting parts” of the material number-specific operating instructions.
13. Remove all means of attachment, transport and lifting equipment.

Procedure To install the planetary gearbox on the cable drum and then in the equipment frame or winch base:

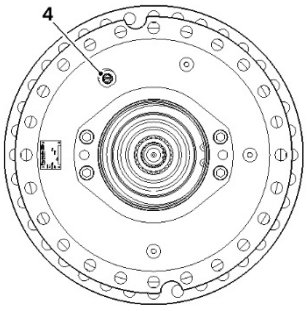
1. For installation, strictly observe the corresponding data in the dimensioned drawing of the planetary gearbox in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
2. Also observe the primary operating instructions of the crane or winch application and the manufacturer’s frame drawing or winch base.
3. For the planetary gearbox weight, refer to appendix D “Technical data / Drawings” of the material number-specific operating instructions.
4. Transport the planetary gearbox to the crane or winch application.
5. Make sure that the surface is stable.
6. Place the planetary gearbox with the cover plate down on two suitable squared timbers. Secure the planetary gearbox against tipping over.



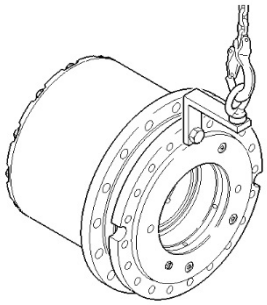
7 Check, whether the two recesses **X** in the spindle are exactly aligned over two holes in the ring gear (see adjacent graphic).

If the recesses **X** are aligned with each other, go to action step 11.

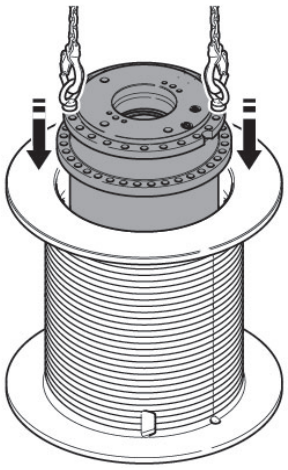
If the recesses **X** and the holes are not aligned with each other, proceed as follows:



1 Connect the multiple-disk parking brake, to release the brake. See chapter 7.6 “Connecting the static multiple-disk parking brake”.
2 Make sure that the installation point is free of dirt and foreign substances. Make sure that neither dirt nor foreign substances penetrate in the brake release connection. The brake release connection is shown and labelled in the planetary gearbox dimensioned drawing in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
3 Remove the screw plug on brake release connection **4** of the planetary gearbox.
4 Connect the brake release line to the brake release connection **4**.
5 Release the brake with min. 18 bar release pressure (see technical drawing in the dimensioned drawing in the appendix D “Technical data / Drawings” of the material number-specific operating instructions), to turn the spindle. Make sure that the max. release pressure of 50 bar is not exceeded.
6 Use a suitable auxiliary device to turn the spindle.
7 Align the two recesses **X** in the spindle exactly over two holes of the ring gear.
8 Afterwards depressurise the brake.
9 Loosen the brake release line.
10 Close the brake release connection **4** with the screw plug.



11 Attach the planetary gearbox carefully using appropriate means of attachment e.g. eye bolts, swivel hooks, shackles or suitable equipment on an appropriate lifting equipment such as a crane hook. Observe chapter 6.1 “Transporting the MOBILEX GFW 5000”.
12 Tighten the means of attachment without lifting the planetary gearbox.
13 Make sure that the part of the cable drum, the equipment frame or winch base to which the planetary gearbox is to be mounted is free of dirt and foreign objects.



14 Carefully lift the planetary gearbox and lower it into the cable drum (see adjacent graphic).
15 Pay attention when lowering, that the two recesses **X** in the spindle and the two holes in the ring gear are aligned with two threaded holes in the cable drum.
16 Attach the planetary gearbox to the cable drum with two mounting screws. For the required strength class of the mounting screws as well as the necessary tightening torques is the crane or winch application manufacturer liable. The required mounting screws are not included within the scope of supply.
17 Color mark the already tightened fixing screws.
18 Remove the screw plug on brake release connection **4** of the planetary gearbox.
19 Connect the brake release line to the brake release connection **4**.

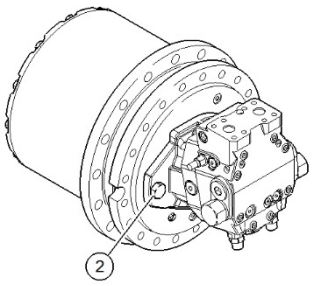
20 Release the brake with min. 18 bar release pressure (see technical drawing in the dimensioned drawing in the appendix D “Technical data / Drawings” of the material number-specific operating instructions), to turn the spindle. Make sure that the max. release pressure of 50 bar is not exceeded.
21 Use a suitable auxiliary device to turn the spindle.
22 Tighten the rest of the mounting screws.
23 Color mark the already tightened fixing screws.
24 Afterwards depressurise the brake.
25 Loosen the brake release line.
26 Close the brake release connection **4** with the screw plug.

If the cable drum is delivered by Rexroth, then the action steps from 7 to 26 are not applicable. The planetary gearbox and the cable drum are screwed together in one unit and are ready for assembly.

27 Lift the pre-assembled assembly - consisting of planetary gearbox and cable drum - into the equipment frame or winch base.
28 Attach the planetary gearbox to the equipment frame or winch base. For the required strength class of the mounting screws as well as the necessary tightening torques is the crane or winch application manufacturer liable. The required mounting screws are not included within the scope of supply.
29 Remove all means of attachment, transport and lifting equipment.

Procedure Re-installing the axial-piston motor to the planetary gearbox:

1 Check the control dimension and whether the carrier and the disks are in the position where they should be according to the spare parts drawing, view “A” (refer to appendix D “Technical data/Drawings” of the material number-specific operating instructions). Correct the position of the carrier or the disks if required.
2 Attach the axial-piston motor carefully to a suitable means of attachment on a suitable lifting equipment, e.g. a crane hook.
3 Tighten the means of attachment without lifting the axial-piston motor.
4 Lift the axial-piston motor to the planetary gearbox in the equipment frame or winch base.
5 Assemble the axial-piston motor to the planetary gearbox. Proceed as described in chapter “Assembly” of the supplied axial-piston motor operating instructions. You can find the axial-piston motor operating instructions in chapter C “Mounting parts” of the material number-specific operating instructions.
6 When installing the axial-piston motor, ensure careful sealing (O-ring). Ensure that the O-ring is installed correctly in the corresponding O-ring groove of the axial-piston motor.



7 Attach the axial-piston motor with the motor fastening screws **2**. Tighten the motor fastening screws with a torque wrench. Take the tightening torques from the spare parts drawing in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
8 Remove all means of attachment, transport and lifting equipment.
9 Connect all power units and mounting parts required for operation of the planetary gearbox. For this, observe the instructions in chapter 7 “Assembly”.

7.5.3 Connecting the planetary gearbox's axial-piston motor to the hydraulic system

The crane or winch application manufacturer is responsible for laying the lines. The axial-piston motor or the static multiple-disk parking brake (parking brake) has to be connected to the hydraulic system according to the crane or winch application manufacturer's hydraulic diagram.

⚠ CAUTION

Failure or damage to the planetary gearbox!
Operation of the axial-piston motor without reading the general operating instructions of the axial-piston motor first or observing the hydraulic circuit diagram of the crane or winch application manufacturer may cause damage to the axial-piston motor/planetary gearbox/crane or winch application!

- For installation of the axial-piston motor, please refer to the general operating instructions in chapter C “Mounting parts” of the material number-specific operating instructions.
- Observe the hydraulic circuit diagram of the crane or winch application manufacturer.

7.5.4 Installing the planetary gearbox with axial-piston motor connection (axial-piston motor is not included in the scope of supply)

⚠ CAUTION

Failure or damage to the planetary gearbox!
If you install the planetary gearbox in any other installation position than the one permitted by Rexroth, the planetary gearbox may be damaged or fail. The warranty claim lapses!

- ▶ Only install the planetary gearbox in an approved Rexroth mounting position as indicated in the dimensioned drawing in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
- ▶ Observe the operating instructions of the axial-piston motor manufacturer (not included in the scope of supply). This is where you will find all the required information on assembly and commissioning of the axial-piston motor.

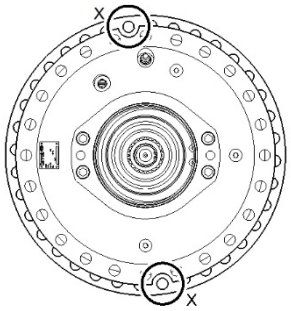
If the planetary gearbox is delivered without the axial-piston motor, install as follows:

- Assemble the planetary gearbox to the cable drum
- Assemble the planetary gearbox to the equipment frame or winch base.
- Then assemble the axial-piston motor to the planetary gearbox.

Procedure

To install the planetary gearbox on the cable drum and then in the equipment frame or winch base:

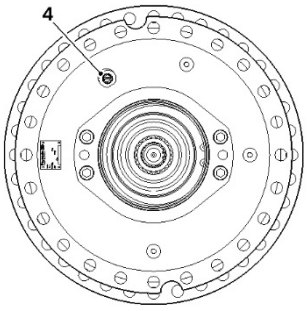
1. For installation, strictly observe the corresponding data in the dimensioned drawing of the planetary gearbox in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
2. Also observe the primary operating instructions of the crane or winch application and the manufacturer’s frame drawing or winch base.
3. For the planetary gearbox weight, refer to appendix D “Technical data / Drawings” of the material number-specific operating instructions.
4. Transport the planetary gearbox to the crane or winch application.
5. Make sure that the surface is stable.
6. Place the planetary gearbox with the cover plate down on two suitable squared timbers. Secure the planetary gearbox against tipping over.



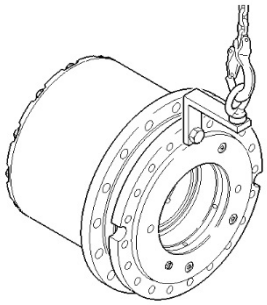
7 Check, whether the two recesses **X** in the spindle are exactly aligned over two holes in the ring gear (see adjacent graphic).

If the recesses **X** are aligned with each other, go to action step 11.

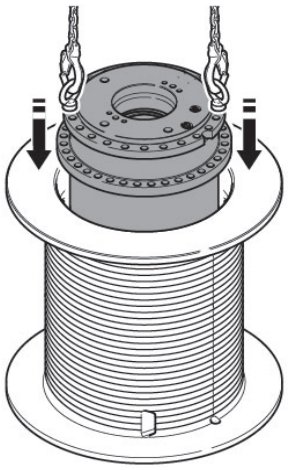
If the recesses **X** and the holes are not aligned with each other, proceed as follows:



1 Connect the multiple-disk parking brake, to release the brake. See chapter 7.6 “Connecting the static multiple-disk parking brake”.
2 Make sure that the installation point is free of dirt and foreign substances. Make sure that neither dirt nor foreign substances penetrate in the brake release connection. The brake release connection is shown and labelled in the planetary gearbox dimensioned drawing in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
3 Remove the screw plug on brake release connection **4** of the planetary gearbox.
4 Connect the brake release line to the brake release connection **4.**
5 Release the brake with min. 18 bar release pressure (see technical drawing in the dimensioned drawing in the appendix D “Technical data / Drawings” of the material number-specific operating instructions), to turn the spindle. Make sure that the max. release pressure of 50 bar is not exceeded.
6 Use a suitable auxiliary device to turn the spindle.
7 Align the two recesses X in the spindle exactly over two holes of the ring gear.
8 Afterwards depressurise the brake.
9 Loosen the brake release line.
10 Close the brake release connection **4** with the screw plug.



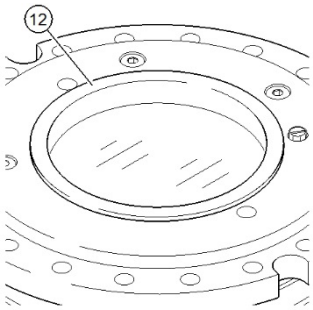
11 Attach the planetary gearbox carefully using appropriate means of attachment e.g. eye bolts, swivel hooks, shackles or suitable equipment on an appropriate lifting equipment such as a crane hook. Observe chapter 6.1 “Transporting the MOBILEX GFW 5000”.
12 Tighten the means of attachment without lifting the planetary gearbox.
13 Make sure that the part of the cable drum, the equipment frame or winch base to which the planetary gearbox is to be mounted is free of dirt and foreign objects.



14 Carefully lift the planetary gearbox and lower it into the cable drum (see adjacent graphic).
15 Pay attention when lowering, that the two recesses **X** in the spindle and the two holes in the ring gear are aligned with two threaded holes in the cable drum.
16 Attach the planetary gearbox to the cable drum with two mounting screws. For the required strength class of the mounting screws as well as the necessary tightening torques is the crane or winch application manufacturer liable. The required mounting screws are not included within the scope of supply.
17 Color mark the already tightened fixing screws.
18 Remove the screw plug on brake release connection **4** of the planetary gearbox.
19 Connect the brake release line to the brake release connection **4**.

20 Release the brake with min. 18 bar release pressure (see technical drawing in the dimensioned drawing in the appendix D “Technical data / Drawings” of the material number-specific operating instructions), to turn the spindle. Make sure that the max. release pressure of 50 bar is not exceeded.
21 Use a suitable auxiliary device to turn the spindle.
22 Tighten the rest of the mounting screws.
23 Color mark the already tightened fixing screws.
24 Afterwards depressurise the brake.
25 Loosen the brake release line.
26 Close the brake release connection **4** with the screw plug.

If the cable drum is delivered by Rexroth, action steps from 7 to 26 are not applicable. The planetary gearbox and the cable drum are screwed together in one unit and are ready for assembly.



27 Lift the pre-assembled assembly - consisting of planetary gearbox and cable drum - into the equipment frame or winch base.
28 Attach the planetary gearbox to the equipment frame or winch base. For the required strength class of the mounting screws as well as the necessary tightening torques is the crane or winch application manufacturer liable. The required mounting screws are not included within the scope of supply.
29 Remove all means of attachment, transport and lifting equipment.
30 Remove the dust cap **12** and the thrust cup.

Procedure Installing the axial-piston motor to the planetary gearbox:

CAUTION

Failure or damage to the planetary gearbox!
An O-ring forgotten during assembly or installed improperly may cause leakage or failure of the planetary gearbox!
- Observe correct O-ring size depending on the O-ring groove of the axial-piston motor.
- Ensure that the O-ring is installed correctly in the corresponding O-ring groove of the axial-piston motor.

If Rexroth delivers the hydrostatic winch drive without axial-piston motor, the operating instructions of the motor are not included in the scope of supply. Observe the operating instructions of the axial-piston motor (provided by the manufacturer of the axial-piston motor). This is where you will find all the required information on assembly and commissioning of the axial-piston motor.

7.5.5 Assembling the counter-bearing (optional) on the cable drum or on the equipment frame/winch base

⚠ CAUTION

Failure or damage to the counter-bearing!
A counter-bearing which is not filled with grease after assembly may lead to the failure of the counter-bearing or the entire winch!

- ▶ If necessary, grease the counter-bearing after assembly using the grease nipple provided on the bearing cover/bearing housing.
- ▶ Observe the maintenance intervals for the counter-bearing, as indicated in the maintenance schedule in chapter 10.3 “Planetary gearbox/counter-bearing maintenance schedule”.

If the planetary gearbox is delivered with the counter-bearing, install as follows:
- Mount the pre-assembled bearing pin/spindle to the cable drum
- Mount the pre-assembled bearing cover/bearing housing to the equipment frame or winch base.

Procedure

To install the counter-bearing on the cable drum or equipment frame/winch base:

1. Remove the transport lock (e.g. cable ties) from the counter-bearing.
2. Disassemble the pre-assembled counter-bearing into two parts, e.g. by removing the bearing cover/bearing housing.
3. For installation of the counter-bearing, strictly observe the corresponding data in the dimensioned drawing of the planetary gearbox in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
4. Also observe the primary operating instructions of the crane or winch application, the winch base and the manufacturer’s frame drawing.
5. Transport the counter-bearing to the crane or winch application.
6. Make sure that the part of the cable drum or winch base to which the counter-bearing is to be mounted is free of dirt and foreign objects.

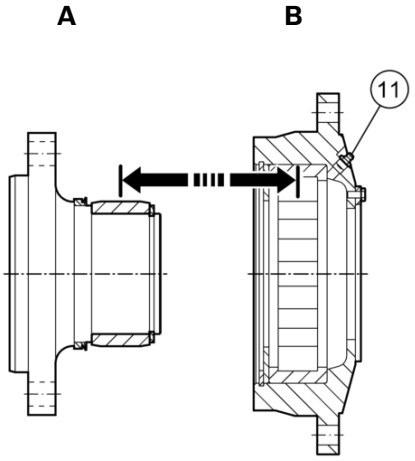


Fig 3: Counter-bearing with cylindrical roller bearings, consisting of part A and part B

Part A	**Part B**
Bearing pin with mounted inner ring of cylindrical roller bearing	Bearing pin with mounted outer ring of cylindrical roller bearing
11 Grease nipple	

Procedure Assemble the disassembled counter-bearing with cylindrical roller bearing

1. Use a suitable means of attachment e.g. eye bolt to carefully attach part **A** of the counter-bearing (bearing pin with mounted inner ring of cylindrical roller bearing) to a suitable lifting means e.g. crane hook.
2. Tighten the means of attachment without lifting part **A** of the counter-bearing.
3. Lift part **A** of the counter-bearing through the existing frame bore of the equipment frame or winch base.
4. Attach part **A** of the counter-bearing on the cable drum. For the required strength class of the mounting screws as well as the necessary tightening torques is the crane or winch application manufacturer liable. The required mounting screws are not included within the scope of supply.
5. Use a suitable means of attachment e.g. eye bolt to carefully attach part **B** of the counter-bearing (bearing cover with mounted outer ring of cylindrical roller bearing) to a suitable lifting means e.g. crane hook.
6. Tighten the means of attachment without lifting part **B** of the counter-bearing.
7. Lift part **B** of the counter-bearing through the existing mounting hole of the equipment frame or winch base.
8. Mount part **B** of the counter-bearing on part **A** of the counter-bearing.
9. Attach part **B** of the counter-bearing on the equipment frame or winch base. For the required strength class of the mounting screws as well as the necessary tightening torques is the crane or winch application manufacturer liable. The required mounting screws are not included within the scope of supply.
10. If necessary, use the grease nipple **11** on the bearing cover to grease the counter-bearing with L-XBCHA3 (GB 7324 – 94) grease or with FAG Arcanol MULTI3 bzw. Klüberplex BE 31-222.

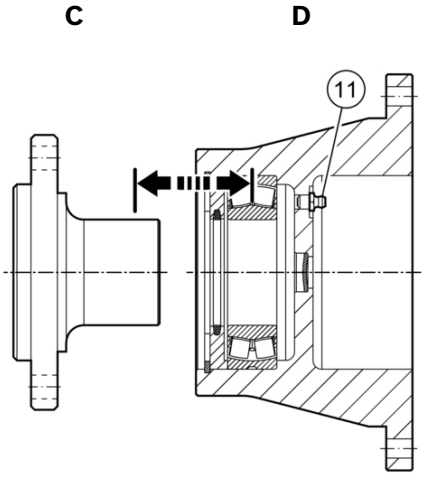


Fig 4: Counter-bearing with spherical roller bearings, consisting of part C and part D

Part C	**Part D**
Spindle without spherical roller bearing	Bearing housing with completely mounted spherical roller bearing

11 Grease nipple

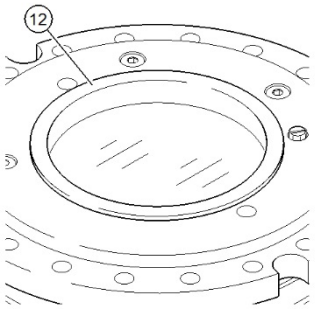
Procedure Assemble the disassembled counter-bearing with the spherical roller bearing

1. Use a suitable means of attachment e.g. eye bolt to carefully attach part **C** of the counter-bearing (spindle without spherical roller bearing) to a suitable lifting means e.g. crane hook.
2. Tighten the means of attachment without lifting part **C** of the counter-bearing.
3. Lift part **C** of the counter-bearing through the existing frame bore of the equipment frame or winch base.
4. Attach part **C** of the counter-bearing on the cable drum. For the required strength class of the mounting screws as well as the necessary tightening torques is the crane or winch application manufacturer liable. The required mounting screws are not included within the scope of supply.
5. Use a suitable means of attachment e.g. eye bolt to attach part **D** of the counter-bearing (bearing housing with completely mounted spherical roller bearing) to a suitable lifting means e.g. crane hook.
6. Tighten the means of attachment without lifting part **D** of the counter-bearing.
7. Lift part **D** of the counter-bearing through the existing mounting hole of the equipment frame or winch base.
8. Mount part **D** of the counter-bearing on part **C** of the counter-bearing.
9. Attach part **D** of the counter-bearing on the equipment frame or winch base. For the required strength class of the mounting screws as well as the necessary tightening torques is the crane or winch application manufacturer liable. The required mounting screws are not included within the scope of supply.
10. If necessary, use the grease nipple **11** on the bearing housing to grease the counter-bearing with L-XBCHA3 (GB 7324 – 94) grease or with FAG Arcanol MULTI3 and Klüberplex BE 31-222.

11 If a dust cap, fastened with hexagon screws, is mounted on part **D** of the counter-bearing, loosen and remove the hexagon screws and the dust cap. Observe the corresponding data in the dimensioned drawing of the planetary gearbox in appendix D “Technical data / Drawings” of the material number-specific operating instructions.

7.5.6 Assembling the cable drum with planetary gearbox on the equipment frame or winch base

Upon delivery of the cable drum by Rexroth, the planetary gearbox and the cable drum are screwed together, forming one unit ready to be installed.



1 Lift the pre-assembled subassembly - consisting of planetary gearbox and cable drum - into the equipment frame or winch base.
2 Attach the planetary gearbox to the equipment frame or winch base. For the required strength class of the mounting screws as well as the necessary tightening torques is the crane or winch application manufacturer liable. The required mounting screws are not included within the scope of supply.
3 Remove all means of attachment, transport and lifting equipment.
4 If necessary, remove the dust cap **12** and the thrust cup.

7.6 Connecting the static multiple-disk parking brake

Your planetary gearbox is equipped with a static multiple-disk parking brake to serve as parking brake.

⚠ WARNING

Risk caused by the failure of the static multiple-disk parking brake!

The static multiple-disk parking brake is a safety device of the planetary gearbox. The improper connection of the static multiple-disk parking brake or its use as dynamic brake (using the multiple-disk parking brake for braking the load hook or the load) may result in its destruction!

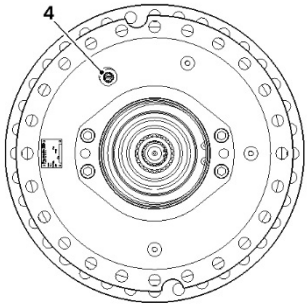
- Operate the static multiple-disk parking brake only after a complete stop of the load hook or the load.
- Always observe that the integrated multiple-disk brake that is only intended as parking brake must be inspected and maintained by our service after dynamic braking.
- Always replace the disks, the springs and the sealing elements after a functional impairment or thermal overload and by any repair work on the multiple-disk parking brake.
- Ensure maximum cleanliness when connecting the multiple-disk parking brake.
- Make sure that neither dirt nor foreign substances penetrate in the brake release connection.
- Ensure that the brake release connection is carefully sealed.
- Assemble hydraulic lines and hoses without mechanical stress.
- Use e.g. copper sealing rings according to DIN 7603 as sealing means.
- Make sure that no dynamic pressure occurs in the brake line.
- Only use pressure fluid based on mineral oil for operating the static multiple-disk parking brake.
- Avoid contamination caused by unclean pressure fluids, rubbed-off parts or residual dirt from system components.
- Observe by all means the specifications for release pressure and maximum brake release pressure. Also make sure that the minimum release pressure is observed so that the multiple-disk parking brake can be completely released.
- Observe by all means the specifications on the gear unit dimensioned drawing when connecting the static multiple-disk parking brake. These can be found in appendix D “Technical data / Drawings” of the material number-specific operating instructions.

Danger of delayed holding of the static multiple-disk parking brake!

The delayed application of the static multiple-disk parking brake can lead to unintentional lowering of the load / load hook.

- Make sure that the brake line of the static piston is pressureless within 0.5 s.

Procedure



To connect the static multiple-disk parking brake to the hydraulic system:

1. Make sure that the installation point is free of dirt and foreign substances. Make sure that neither dirt nor foreign substances penetrate in the brake release connection. The brake release connection is shown and labelled in the planetary gearbox dimensioned drawing in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
2. Remove the plug on brake release connection **4** of the planetary gearbox.
3. Connect the brake release line to the brake release connection **4**.
4. Connect the static multiple-disk parking brake according to the hydraulic diagram of the of the crane or winch application manufacturer with the remaining hydraulics system.

7.7 Performing a flushing cycle

Rexroth recommends to flush the planetary gearbox when changing the lubricating oil type or the lubricating oil manufacturer as well as after carrying out a major repair.

Before commissioning the axial-piston motor, Rexroth recommends a rinsing run of the entire system. Observe the information in the operating instructions of the axial-piston motor manufacturer.

The flushing cycle is to be performed using an additional flushing unit. Observe the specifications of the flushing unit manufacturer for the exact procedure when performing the flushing cycle.

7.8 Assembling mounting parts

If your planetary gearbox has additional mounting parts, you will find information on them in the following documents, which are included in the material number-specific operating instructions:

- Chapter “Scope of supply”
- Appendix C “Mounting parts”
- Appendix D “Technical data / Drawings”

▶ Connect all units, supply lines, and connections necessary for operating the planetary gearbox and its mounting parts.

7.9 Completing the assembly

▶ Remove all means of attachment such as eye bolts, straps, swivel hooks, shackles or devices which are still attached.
▶ Once again check all connecting parts for proper fit and tightness.

All connections used for connecting lines are sealed with plugs or screw plugs during transport. Plastic plugs are not pressure-resistant.

▶ Seal the unused connections with metallic, pressure-resistant screw plugs.

8 Commissioning

⚠ WARNING

Dangers caused by work in the danger zone of a crane/winch application!
Mortal danger, risk of injury or severe physical injury!
- ▶ Be aware of potential hazards and eliminate such hazards before taking the planetary gearbox into operation.
- ▶ Nobody should be in the danger zone of the crane or winch application.
- ▶ The “Emergency Stop” button for the crane or winch application must be within reach of the operator.
- ▶ Necessarily observe the information provided by the crane or winch application manufacturer during commissioning.
- ▶ Never step or put your hands under suspended loads.

⚠ CAUTION

Commissioning improperly installed products!
Risk of injury and property damage! Improperly installed products may cause injuries or damages to the product!
- ▶ Make sure that all electrical or hydraulic connections are connected or sealed.
- ▶ Only commission a completely installed product.

8.1 Initial commissioning

Before commissioning the planetary gearbox, following documents must be at hand:
- Dimensioned drawing of the planetary gearbox
- Technical data of the planetary gearbox

- ▶ Only commission the planetary gearbox if it has been mounted and installed according to the instructions and information in these operating instructions, the material number-specific operating instructions and the operating instructions of the overall crane or winch application.

For all work related commissioning of the planetary gearbox, observe the general safety instructions and intended use as specified in chapter 2 “Safety instructions”.

8.1.1 Initial commissioning the axial-piston motor/axial-piston motor connection

If the planetary gearbox is delivered with an axial-piston motor or with a connection to attach an axial-piston motor:

- With delivered axial-piston motor, strictly observe the instructions of the axial-piston motor operating instructions. You will find these in appendix C “Mounting parts” in the material number-specific operating instructions of the planetary gearbox.

If Rexroth delivers the hydrostatic winch drive without axial-piston motor, the operating instructions of the motor are not included in the scope of supply. Observe the operating instructions of the axial-piston motor (provided by the manufacturer of the axial-piston motor). This is where you will find all the required information on assembly and commissioning of the axial-piston motor.

8.1.2 Before filling the planetary gearbox with lubricating oil

NOTE
Danger of environmental contamination by leaking lubricating oil Ground water and/or soil contamination by escaping lubricating oil ▶ Install the axial piston motor before filling the planetary gearbox with lubricating oil.

This chapter describes how to fill the planetary gearbox with lubricating oil.
In order to fill the planetary gearbox with lubricating oil, you need the following fundamental information:

- ▶ Refer to the dimensioned drawing for:
- Position of the oil filler opening
- Position of the oil level control system
- Position of the oil drain opening

- ▶ Refer to the selection list – industrial gear oils for:
  – Approved lubricating oils
- ▶ Refer to the technical data for
  – Lubricating oil viscosity and oil quantity
- ▶ Always record the used oil designation.

8.1.3 Filling the planetary gearbox with lubricating oil

Fill the planetary gearbox MOBILEX GFW 5000 only with lubricating oil which has been approved for this planetary gearbox according to the selection list – industrial gear oils in appendix B “Required and supplementary documentations” in the material number-specific operating instructions for these planetary gearbox.

8.1.4 Filling lubricating oil via the oil filler opening

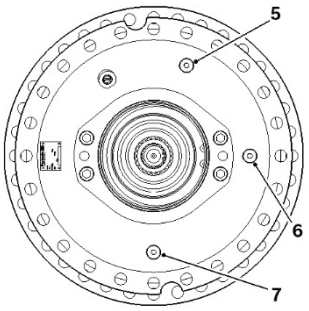
CAUTION

Danger of burns!
The planetary gearbox heats up to a max. of 90 °C during operation in the oil sump, so that you can burn yourself!
- ▶ Allow the planetary gearbox to cool down to approx. 50 °C before touching it.
- ▶ To protect yourself from burns, wear appropriate protective clothing such as heat-resistant safety gloves.
- ▶ Always wear protective goggles.

Risk of injury!
Solid particles, such as metal particles or metal abrasion, which are in the lubricating oil or on the screw plug can cause injury!
- ▶ Wear appropriate protective clothing.

Due to the preserving oil already in the planetary gearbox, the oil quantity can differ from the oil quantity indicated in the technical data sheet of the material number-specific operating instructions when filling the planetary gearbox for the first time. The exact oil volume has therefore to be determined on the planetary gearbox.

Procedure Filling the planetary gearbox with lubricating oil:
- ▶ Refer to the figure on the left (the position of the bores may be different depending on the gearbox version)



- Bore **5**: for filling the lubricating oil
- Bore **6**: for checking the lubricating oil
- Bore **7**: for draining the lubricating oil

1. Place a catch basin with sufficient capacity under the planetary gearbox.
2. Loosen the screw plug of the bore **5** slowly, so that any existing pressure can be released.
3. Remove afterwards the screw plugs from the bores **5** and **6**.
4. Refer to the technical data sheet in appendix D “Technical data / Drawings” of the material number-specific operating instructions for information on oil viscosity and oil capacity.
5. Fill the planetary gearbox with clean lubricating oil via the bore **5**. Fill sufficient lubricating oil until some oil drains from bore **6**.
6. Check whether the seals on the screw plug threads of bore **5** and bore **6** are still in perfect condition and can be reused. Replace the damaged seals.
7. Seal bore **5** and bore **6** with the corresponding screw plugs.
8. Let the MOBILEX GFW 5000 planetary gearbox run for approx. 5-10 minutes.
9. Allow the planetary gearbox to cool down to approx. 50 °C after switching off.
10. To check the oil level, loosen the screw plug of the bore **5** slowly, so that any existing pressure can be released. Remove afterwards the screw plugs from the bores **5** and **6** again. The oil level is correct if some lubricating oil escapes from the bore **6** when the planetary gearbox is at standstill.

11 If the oil level is too low, fill lubricating oil via bore **5** until it drains from bore **6**.
12 Check whether the seals on the screw plug threads of bore **5** and bore **6** are still in perfect condition and can be reused. Replace the damaged seals.
13 Seal bore **5** and bore **6** with the corresponding screw plugs.

8.1.5 Completing commissioning and run-in period

NOTE
Property damage caused by low viscosity! Due to high temperature of the hydraulic fluid/lubricating oil, the viscosity may fall to low values and cause damage to the product! ▶ Monitor the operating temperature during run-in period, e.g. by measuring the leakage fluid temperature (axial-piston motor). ▶ Reduce the load (pressure, speed) of the planetary gearbox axial-piston motor if inadmissible operating temperatures and/or viscosity occur. ▶ Too high operating temperatures indicate faults that have to be analyzed and eliminated.

- ▶ Check after approx. 10 hours of full load operation that all mounting screws are tightly secured. Proceed as described in chapter 10.2.4 “Checking and retightening screw connections”.
- ▶ For this, put the planetary gearbox out of service. Proceed as described in the instructions of the crane or the winch application.
- ▶ After reaching the operating temperature, check that the planetary gearbox does not show any leakage. The maximum operating temperature is 90 °C. This test can be performed during operation. Proceed as described in chapter 10.2.1 “Visual inspections”.

8.2 Recommissioning after standstill

Depending on the assembly and ambient conditions, certain changes in the hydraulic system can make recommissioning necessary.
The following criteria may make recommissioning necessary:
- Air and/or water in the hydraulic system
- Aged hydraulic fluid
- Other contaminations

- ▶ Proceed for recommissioning as described in chapter 8.1 “Initial commissioning”.

9 Operation

The planetary gearbox is a subassembly that does not require any settings or changes in operation. The chapter of these operating instructions does therefore not include any information on setting possibilities. Only use the planetary gearbox within the performance range described in the technical data. The crane/winch application manufacturer is responsible for the correct design of the hydraulic system and its control.

⚠ CAUTION

Danger of property damage and personal injury!
The static multiple-disk parking brake (parking brake) of the planetary gearbox is a safety device. If the pressure liquid for the static multiple-disk parking brake is contaminated, the static multiple-disk parking brake and thus the planetary gearbox can block in undefined position. This way, the stopping function of the static multiple-disk parking brake is no longer warranted!

- Switch off hydraulic pressure when the planetary gearbox is blocked.
- Avoid contamination caused by unclean pressure fluids, rubbed-off parts or residual dirt from system components.
- Ensure proper installation of an emergency stop function, so that the consumer driven machine can be brought into a safe situation.
- Always replace the disks, the springs and the sealing elements after a functional impairment or thermal overload and by any repair work on the multiple-disk parking brake.

The service life of the MOBILEX GFW 5000 planetary gearbox depends on the proper assembly, installation, commissioning and application conditions, such as for following factors, for example: speed, torque, duty cycle, operating conditions and temperatures.

10 Servicing and repair

NOTE

Unpunctual inspection and maintenance work!
Property damage!
- Perform the required inspection and maintenance work at the intervals described in these instructions.

Regular care, maintenance and inspection extend the service life of the planetary gearbox.

During warranty, repair work on the MOBILEX GFW 5000 planetary gearbox should only be performed by the Rexroth Service. The warranty expires if the product is opened, modified or changed during warranty.
- Take the crane or winch application out of service for all inspection, maintenance and repair works.
- Allow the planetary gearbox to cool down to approx. 50 °C before touching it.

10.1 Cleaning and care

NOTE

Penetrating dirt and liquids!
Damage to the planetary gearbox!
- Extreme cleanness is required when working on the planetary gearbox.
- Do not use a high-pressure cleaner for the cleaning of the planetary gearbox.
- Seal all openings with suitable protective caps and/or protection devices, so that no detergents can penetrate into the system.
- Check all seals and plug-in connector covers for tight fit to make sure that no humidity can enter the planetary gearbox during cleaning.
- Remove coarse dirt on the outside and keep sensitive and important components such as valves clean.

Damage to the seals!
Damage to the seals by aggressive detergent or solvent!
- Do not use any aggressive detergents or solvents.
- Use a dry cloth made of lint-free fabric to clean the planetary gearbox.

10.2 Inspection

- Perform visual controls and inspections as specified in chapter 10.3 “Planetary gearbox/counter-bearing maintenance schedule”.

10.2.1 Visual inspections

- Check for leakage in accordance with the intervals specified in the maintenance schedule in chapter 10.3 “Planetary gearbox/counter-bearing maintenance schedule”. Signs of leakage include more and more frequent moisture areas on the partition seams or even oil drops.

10.2.2 Checking the oil level of the planetary gearbox

⚠ CAUTION

Danger of burns!
The planetary gearbox heats up to a max. of 90 °C during operation in the oil sump, so that you can burn yourself!

- Allow the planetary gearbox to cool down to approx. 50 °C before touching it.
- To protect yourself from burns, wear appropriate protective clothing such as heat-resistant safety gloves.
- Always wear protective goggles.

Risk of injury!
Solid particles, such as metal particles or metal abrasion, which are in the lubricating oil or on the screw plug can cause injury!

- Wear appropriate protective clothing.

NOTE

Risk of damaging the planetary gearbox!
If the oil level is too high or too low, damage or failure may result to the planetary gearbox. If the oil level is too high, this may indicate that a foreign fluid, e.g. pressure fluid or water, may have ingressed. If the oil level is too low, this may indicate an oil leak!

- Check for any leaks if the oil level is too low.
- Determine the cause before refilling. Contact the Rexroth Service located in your area, for the address refer to appendix
  A “Address directory” in the material number-specific operating instructions.

NOTE

Risk of damaging the planetary gearbox!
If you mix different oil types or the same oil types from different oil manufacturers, this may change the oil properties!

- For re-filling, always use the same oil type from one oil manufacturer.
- Never mix synthetic lubricating oils with mineral oils or with other synthetic lubricating oils.
- Fill the planetary gearbox with the oil quantity indicated in the technical data.
- Make sure to determine the exact oil quantity on the gearbox.

- Check the lubricating oil level of the planetary gearbox in accordance with the intervals specified in the maintenance schedule in chapter 10.3 “Planetary gearbox/counter-bearing maintenance schedule”.
- Refer to the dimensioned drawing of the planetary gearbox for information about the position of the oil filler opening, the oil level control system and the oil drain.

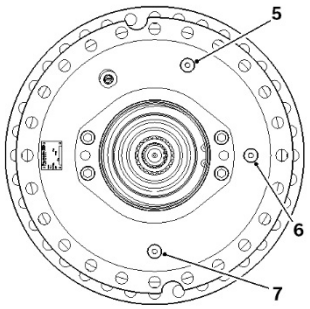
Strictly observe the lubricating oil manufacturer's product data sheets and safety data sheets when handling lubricating oil. These are not included within the scope of supply.

Procedure

Check the planetary gearbox oil level:
Observe the information on the planetary gearbox dimensioned drawing in appendix D “Technical data / Drawings” of the material number-specific operating instructions.

- Refer to the figure on the left (the position of the bores may be different depending on the gearbox version)

- Bore **5**: for filling the lubricating oil
- Bore **6**: for checking the lubricating oil
- Bore **7**: for draining the lubricating oil

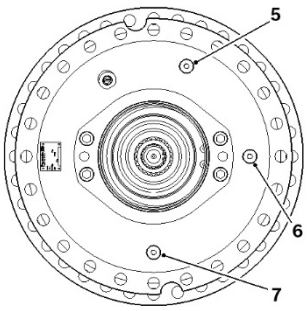


1. Allow the planetary gearbox to cool down to approx. 50 °C after standstill.
2. Place a catch basin with sufficient capacity under the planetary gearbox.
3. Loosen the screw plug of the bore **5** slowly, so that any existing pressure can be released.
4. Remove afterwards the screw plugs from the bores **5** and **6**. The oil level is correct if some lubricating oil escapes from the bore **6**.
5. If the oil level is too low, fill in lubricating oil. Proceed as described in chapter 8.1.3 “Filling the planetary gearbox with lubricating oil”.
6. Check whether the seals on the screw plug threads of bore **5** and bore **6** are still in perfect condition and can be reused. Replace the damaged seals.
7. Seal bore **5** and bore **6** with the corresponding screw plugs.

10.2.3Acoustic inspections

- Perform daily noise tests. A grinding or whistling noise that possibly occurs at high speeds indicates a malfunction. Inform the competent superior or operator without delay of any changes during planetary gearbox operation such as unusual running noise.

10.2.4 Checking and tightening screw connections



- Check, as specified in the maintenance plan, that all screw connections are tightly secured. Especially check:
  – the gearbox mounting screws
  – the screw plugs of bores **5**, **6** and **7**
  – the motor fixing screws

- Tighten the screws of the planetary gearbox at the torque specified for the corresponding screws in the planetary gearbox spare parts drawing in appendix D “Technical data / Drawings” of the material number-specific operating instructions. Observe the frame drawing of the crane or winch application manufacturer.

10.2.5 Grease counter-bearing

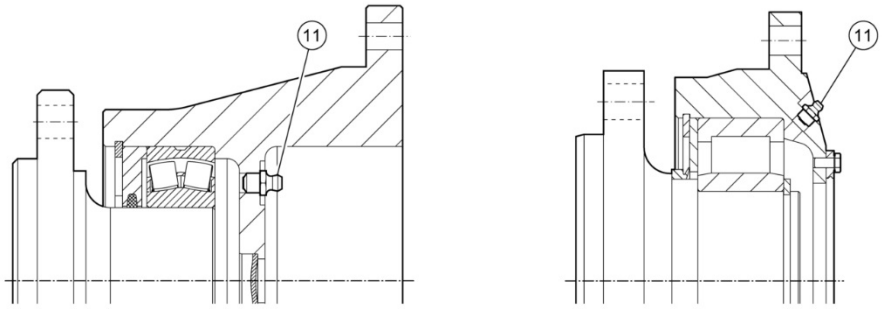


Fig 5: Counter-bearing lubricating points

11 Grease nipple

- Grease the counter-bearing at the intervals specified in the maintenance schedule. If necessary, use the grease nipple **11** on the bearing cover/bearing housing to grease the counter-bearing with L-XBCHA3 (GB 7324 – 94) grease or with FAG Arcanol MULTI3 or Klüberplex BE 31-222.

10.3 Planetary gearbox/counter-bearing maintenance schedule

The material number-specific operating instructions may include a maintenance schedule which is different from the maintenance schedule in the general operating instructions. The maintenance schedule in the material number-specific operating instructions always applies.

- Check whether there is a different maintenance schedule for your planetary gearbox in the material number-specific operating instructions.
- The maintenance schedule shown in table 6 "Planetary gearbox/counter-bearing maintenance schedule" applies only to the planetary gearbox and for the counter-bearing (if included in the Rexroth scope of supply). Therefore observe not only with the maintenance schedule of the planetary gearbox but also with the maintenance schedule included in the crane or winch application manufacturer's operating instructions.

Table 6 Planetary gearbox/counter-bearing maintenance schedule

Interval	Action	NOTE
After 150 motor operating hours	Perform the first oil change.	refer to chapter 10.4.2
Daily	Perform noise test	refer to chapter 10.2.3
Weekly	Perform visual inspection	refer to chapter 10.2.1
	Perform oil level check	refer to chapter 10.2.2
Monthly	Check that the planetary gearbox mounting screws are tightly secured	If necessary, retighten mounting screws
Every six months	Grease counter-bearing	refer to chapter 10.2.5
Every year, however not later than after 1500 motor operating hours	Perform oil change.	refer to chapter 10.4.2

10.4 Maintenance

If used in accordance with the intended purpose, the planetary gearbox is low-maintenance.
The service life of the planetary gearbox essentially depends on the quality of its lubricating oil. We therefore recommend changing the lubricating oil at least once a year or every 1,500 operating hours (whichever is earlier).

10.4.1 Approved lubricating oils

Fill the planetary gearbox MOBILEX GFW 5000 only with lubricating oil which has been approved for this planetary gearbox according to the selection list – industrial gear oils in appendix B “Required and supplementary documentations” in the material number-specific operating instructions for these planetary gearbox.

10.4.2 Changing the lubricating oil

NOTE

Risk of damaging the planetary gearbox!
If you mix different oil types or the same oil types from different oil manufacturers, this may change the oil properties!
- ▶ For re-filling, always use the same oil type from one oil manufacturer.
- ▶ Never mix synthetic lubricating oils with mineral oils or with other synthetic lubricating oils.
- ▶ Fill the planetary gearbox with the oil quantity indicated in the technical data.
- ▶ Make sure to determine the exact oil quantity on the gearbox.

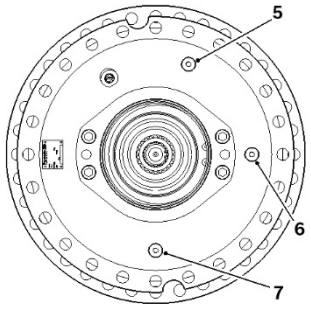
Carry out the oil change before the planetary gearbox has completely cooled down. This ensures that solid particles have not yet settled.

Strictly observe the lubricating oil manufacturer's product data sheets and safety data sheets when handling lubricating oil. These data sheets are not included within Rexroth's scope of supply.

Change the lubricating oil at the intervals specified in the maintenance schedule. If existing, observe the maintenance schedule in the material number-specific operating instructions.

Procedure

Performing the lubricating oil change:
Observe the information on the planetary gearbox dimensioned drawing in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
- ▶ Refer to the figure on the left (the position of the bores may be different depending on the gearbox version)
- Bore **5**: for filling the lubricating oil
- Bore **6**: for checking the lubricating oil
- Bore **7**: for draining the lubricating oil



1. Put the planetary gearbox out of service. Proceed as described in the instructions of the crane or the winch application.
2. Check the oil level as described in chapter 10.2.2 “Checking the oil level of the planetary gearbox”.
3. Place a catch basin with sufficient capacity under the planetary gearbox.
4. Loosen the screw plug of the bore **5** slowly, so that any existing pressure can be released.
5. Remove afterwards the screw plugs from the bores **6** and **7**.
6. Drain the lubricating oil completely in the catch tank.
7. Check visually whether e.g. water, metal particles or mud are in the drained lubricating oil.
8. In case of important contamination, find out the cause before refilling. Contact the Rexroth Service located in your area, for the address refer to appendix A “Address directory” in the material number-specific operating instructions.

9 If the lubricating oil is contaminated, flush the lubricating oil system carefully before filling the planetary gearbox with new lubricating oil.
10 Dispose of this drained lubricating oil in accordance with local country regulations.
11 Check whether the seals on the screw plug threads of bore **6** and bore **7** are still in perfect condition and can be reused. Replace the damaged seals.
12 Seal bore **6** and bore **7** with the corresponding screw plugs.
13 Then fill the planetary gearbox with clean lubricating oil according to the selection list – industrial gear oils. Proceed as described in chapter 8.1.3 “Filling the planetary gearbox with lubricating oil”.

10.4.3 Maintenance of the static multiple-disk parking brake

The static multiple-disk parking brake integrated in the planetary gearbox is maintenance-free if used as intended.

⚠ WARNING

Risk caused by the failure of the static multiple-disk parking brake!
The use of the static multiple-disk parking brake for braking the load hook or the load may cause its destruction!
- ▶ Operate the static multiple-disk parking brake only after a complete stop of the load hook or the load.
- ▶ Always replace the disks, the springs and the sealing elements after a functional impairment or thermal overload and by any repair work on the multiple-disk parking brake.

Danger of delayed holding of the static multiple-disk parking brake!
The delayed application of the static multiple-disk parking brake can lead to unintentional lowering of the load / load hook.
- ▶ Make sure that the brake line of the static piston is pressureless within 0.5 s.

10.5 Repair

Rexroth offers a comprehensive range of service for repair of the MOBILEX GFW 5000 planetary gearbox.
During warranty, the planetary gearbox has to be repaired by Rexroth Service. The warranty expires if the product is opened, modified or changed during warranty.
- ▶ Please contact Rexroth Service in your area in case repairs are required. The corresponding contact is indicated in appendix A “Address directory” of the material number-specific operating instructions.

10.5.1 Repairing the static multiple-disk parking brake

⚠ WARNING

Hazard from multiple-disk parking brake failure!
Risk of injury or material damage caused by malfunctions as well as thermal overload of the multiple-disk parking brake! This can lead to damage to the multi-disk package and to decreasing brake action or failure of the multiple-disk parking brake.

- Always replace the disks, the springs and the sealing elements after a functional impairment or thermal overload and by any repair work on the multiple-disk parking brake.
- Please contact Rexroth Service in your area in case repairs are required. The corresponding contact is indicated in appendix A “Address directory” of the material number-specific operating instructions.

If functional impairment or thermal overload makes repairs necessary, these must only be performed by trained staff or employees of the Rexroth Service. The corresponding contact is indicated in appendix A “Address directory” of the material number-specific operating instructions. The disks, springs and sealing elements always have to be replaced in such repair. Rexroth does not assume any liability for damage of any kind due to non-observance of these provisions.

10.6 Spare parts

⚠ CAUTION

Use of improper spare parts!
Spare parts that do not meet the technical requirements defined by Rexroth may cause damage to persons and property!

- Only use Rexroth original spare parts for repairing the Rexroth planetary gearbox, otherwise the planetary gearbox functional safety cannot be guaranteed and the warranty expires.

Only part of the items of the parts list shown in the appendix of the material number-specific operating instructions can be supplied as spare parts kits, e.g.:

- Sealing kit
- Planet carrier complete
- Brake repair kit

- Ask our Spare Parts Sales Department for the corresponding spare parts kits.
- Place spare parts orders in writing. In cases of urgency, you can also order by phone if you confirm your order promptly by fax or e-mail.
- The parts list of the HYDROTRAC GFT 5000 planetary gearbox is material number-specific.
- Place spare parts orders with the Rexroth Service.
- Please provide the following information from the name plate with your order:
  - Material number (planetary gearbox)
  - Serial number
- Provide the following data from the parts list:
  - Drawing number
  - Item number
  - Exact designation
  - Material number/order no. (single part)
- Also provide this information:
  - Quantity of the desired spare parts
  - Desired shipping mode (e.g., express, freight, air freight, parcel service, etc.)

Refer to www.boschrexroth.com and the address directory in appendix A “Address directory” of the material number-specific operating instructions for the addresses of our national agencies.

11 Decommissioning

The MOBILEX GFW 5000 planetary gearbox is a subassembly that does not have to be decommissioned. For this reason the chapter in this manual contains no information. How to disassemble and replace the MOBILEX GFW 5000 planetary gearbox is described in chapter 12 “Disassembly and replacement”.

12 Disassembly and replacement

Prior to disassembly, the following documents must be readily accessible:
- Dimensioned drawing of the planetary gearbox
- Spare parts drawing of the planetary gearbox
- Hydraulic diagram for the crane or the winch application (supplied by the manufacturer)
- if necessary, "Electrical" connection diagram for the crane or the winch application (supplied by the manufacturer)
- Material number-specific operating instructions of the planetary gearbox
- Assembly drawing for the crane or the winch application (supplied by the manufacturer)

If present, you also require the following documents:
- General operating instructions of the axial-piston motor
- Product-specific operating instructions of the axial-piston motor

In addition, observe the instructions of the crane or winch application manufacturer. If the material number-specific operating instructions includes action steps for “Disassembly” that deviate from the general operating instructions, the action steps in the in the material number-specific operating instructions apply.

12.1 Required tools

The planetary gearbox can be disassembled with standard tools. No special tool is required.

12.2 Preparing the disassembly

⚠ WARNING

Danger to life!
If the crane or winch application is not put out of service before disassembling the planetary gearbox, you may suffer serious injuries and/or the product or parts of the crane or the winch application may be damaged!
- ▶ Relieve any system pressure and switch the relevant part of the crane or winch application free of voltage. Refer to the manufacturer’s operating instructions for more information on how to do this.
- ▶ Protect the crane or winch application against restarting.

12.3 Disassembling the planetary gearbox and the counter-bearing from the equipment frame or winch base and the cable drum

⚠ CAUTION

Danger of burns!
The planetary gearbox heats up to a max. of 90 °C during operation in the oil sump, so that you can burn yourself!
- Allow the planetary gearbox to cool down to approx. 50 °C before touching it.
- To protect yourself from burns, wear appropriate protective clothing such as heat-resistant safety gloves.
- Always wear protective goggles.

Risk of injury!
Solid particles, such as metal particles or metal abrasion, which are in the lubricating oil or on the screw plug can cause injury!
- Wear appropriate protective clothing.

NOTE

Risk of damaging the planetary gearbox / counter-bearing!
Improper procedure when removing the planetary gearbox / counter-bearing may damage the planetary gearbox / counter-bearing!
Avoid strong impacts on the planetary gearbox / counter-bearing during disassembly.
- Avoid exerting axial forces and high compression forces on the gearbox housing, bearing cover / bearing housing, bearing pin / spindle.
- Make sure that the planetary gearbox is not tilted during disassembly.

This chapter describes how the planetary gearbox / counter-bearing is disassembled from the equipment frame or winch base and the cable drum. It is assumed that the crane or winch application part has been prepared for disassembly as described in chapter 12.2 “Preparing the disassembly”.

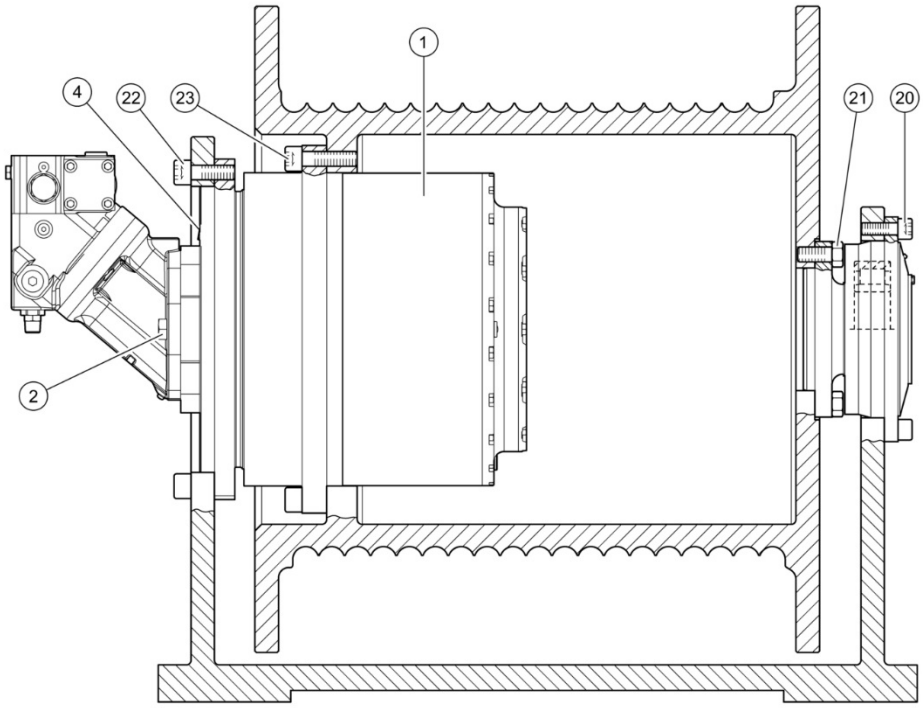
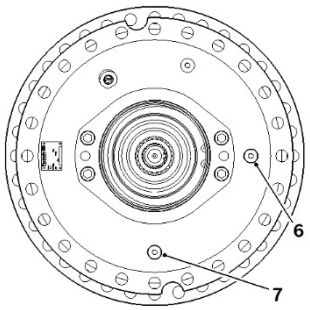


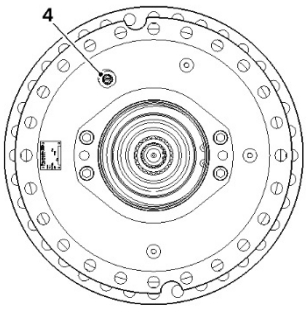
Fig 6: Disassembling planetary gearbox/counter-bearing/cable drum from the equipment frame or the winch base

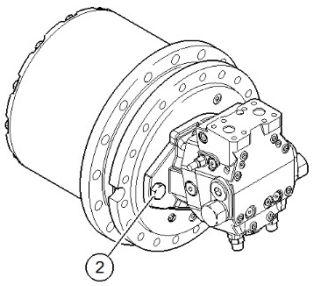
Procedure To disassemble the planetary gearbox and the counter-bearing from the equipment frame or winch base and the cable drum:

1. Power down the crane system or the winch application in question.
2. Check whether the hydraulic system is pressure relieved.
3. Secure the deactivated crane system or deactivated part of the winch application against inadvertent activation.
4. Let the planetary gearbox cool down until it can be disassembled without any risk.
5. Place a catch basin under the planetary gearbox in order to collect any leaking hydraulic fluid or lubricating oil.



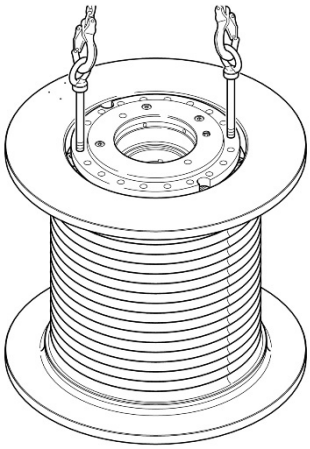
6. Loosen the screw plug of the bore **6** slowly, so that any existing pressure can be released.
7. Remove afterwards the screw plugs from the bores **6** and **7**.
8. Drain the lubricating oil completely in the catch basin.
9. Dispose of this drained lubricating oil in accordance with the local country regulation.
10. Check whether the seals on the screw plug threads are still in perfect condition and can be reused. Replace the damaged seals.
11. Seal bore **6** and bore **7** with the corresponding screw plugs.
12. Loosen the supply lines of the axial-piston motor. Proceed as described in the crane / winch application operating instructions or the operating instructions of the axial-piston motor.
13. Seal the hydraulic lines on the axial-piston motor using the appropriate plugs.



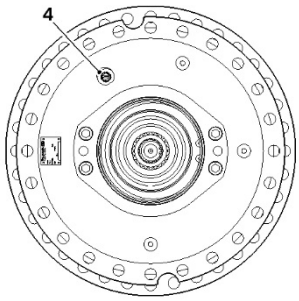


14 Loosen the brake release line on the planetary gearbox. The corresponding connections are shown and labeled in the planetary gearbox dimensioned drawing in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
15 Close the brake release connection **4** at the planetary gearbox with a corresponding screw plug according to the parts list. For this, observe appendix E “Parts list” of the material number-specific operating instructions.
16 Loosen the connections of all units and mounting parts that are required for planetary gearbox operation. Observe the information on the planetary gearbox dimensioned drawing in appendix D “Technical data / Drawings” of the material number-specific operating instructions.
17 Protect the supply lines against contamination.
18 Make sure that neither dirt nor foreign substances penetrate in the lines or the planetary gearbox.
19 The axial-piston motor has to be removed from the planetary gearbox before disassembling the planetary gearbox.
20 The axial-piston motor weight is indicated in the operating instructions of the axial-piston motor manufacturer.
21 Attach the axial-piston motor carefully on an appropriate lifting equipment using appropriate means of attachment, e.g. crane hook.
22 Tighten the means of attachment without lifting the axial-piston motor.
23 Loosen and remove, depending on the axial-piston motor model, the two to four motor fastening screws **2** on the planetary gearbox.
24 Remove the axial-piston motor from the planetary gearbox fitting.
25 Pay attention when dismantling the axial piston motor, make sure that the engaging carrier is not pulled out of the disk toothing of the static multiple disc parking brake.
26 Put the disassembled axial-piston motor down. For this, observe the operating instructions of the axial-piston motor.
27 Remove all means of attachment and lifting equipment of the axial-piston motor.
28 Attach the cable drum (with attached planetary gearbox and counter-bearing) carefully on an appropriate lifting equipment using appropriate means of attachment, e.g. crane hook.
29 Refer to Appendix D “Technical data / Drawings” of the material number-related operating instructions as well as the operating instructions of the crane or winch application manufacturer for the total weight (cable drum, planetary gearbox, counter-bearing, equipment frame or winch base).
30 Tighten the means of attachment without lifting the cable drum with attached planetary gearbox and counter-bearing.

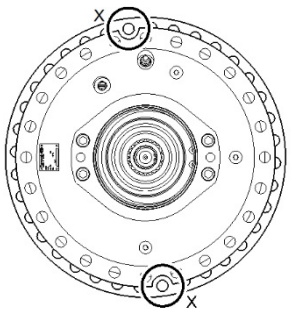
Depending on the size and weight of the counter-bearing, a suitable lifting equipment or crane is required for disassembly. For the planetary gearbox weight, refer to appendix D “Technical data / Drawings” of the material number-specific operating instructions. Also observe the primary operating instructions of the crane or winch application.



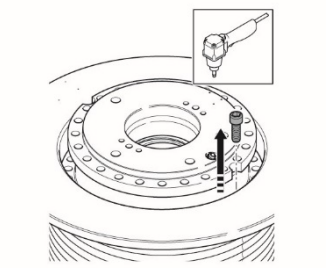
31 Loosen and remove the fastening screws **20** on the bearing cover/bearing housing.
32 Remove part **B** or **D** of the counter-bearing (see chapter 7.5.5 ”Assembling the counter-bearing (optional) to the cable drum or the equipment frame/winch base") from the respective frame bore of the equipment frame or winch base.
33 Loosen and remove the fastening screws **21** on the bearing pin/spindle. The screw size, number and strength class may vary depending on the gearbox nominal size.
34 Remove part **A** or **C** of the counter-bearing (see chapter 7.5.5 ”Assembling the counter-bearing (optional) to the cable drum or the equipment frame/winch base") from the respective fitting of the cable drum.
35 Secure the planetary gearbox and the cable drum against uncontrolled movements, e.g. sliding.
36 Loosen and remove the fastening screws **22** of the equipment frame/winch base connection and the planetary gearbox.
37 Carefully lift the cable drum with the attached planetary gearbox out of the equipment frame or winch base.
38 Ensure that the ground is able to bear the weight when lowering the cable drum with attached planetary gearbox.

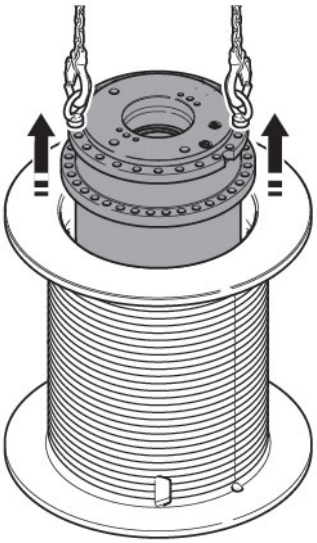


39 Vertically lower the disassembled cable drum with attached planetary gearbox. As shown in the figure on the left, the planetary gearbox must be on top.
40 Secure the cable drum with the attached planetary gearbox in order to prevent tilting.
41 Connect the multiple-disk parking brake, to release the brake. See chapter 7.6 “Connecting the static multiple-disk parking brake”.
42 Make sure that the installation point is free of dirt and foreign substances. Make sure that neither dirt nor foreign substances penetrate in the brake release connection. The brake release connection is shown and labelled in the planetary gearbox dimensioned drawing in appendix D “Technical data / Drawings” of the material number-specific operating instructions.



43 Remove the screw plug on brake release connection **4** of the planetary gearbox.
44 Connect the brake release line to the brake release connection **4**.
45 Release the brake with min. 18 bar release pressure (see technical drawing in the dimensioned drawing in the appendix D “Technical data / Drawings” of the material number-specific operating instructions), to turn the spindle. Make sure that the max. release pressure of 50 bar is not exceeded.
46 Use a suitable auxiliary device to turn the spindle.
47 Align the two recesses **X** in the spindle exactly to two mounting screws **23**.
48 Loosen and remove the mounting screws **23** of the connection cable drum with planetary gearbox.
49 Continue to rotate the spindle and realign the two recesses **X** in the spindle with two mounting screws **23**.
50 Loosen and remove the mounting screws **23** of the connection cable drum with planetary gearbox.
51 Repeat the action steps 49 and 50 until you have removed all mounting screws **23**.





52 Attach the planetary gearbox carefully using appropriate means of attachment, as for example eye bolts, swivel hooks, shackles or suitable equipment on an appropriate lifting equipment such as a crane hook. Observe chapter 6.1 “Transporting the MOBILEX GFW 5000”.
53 Carefully lift the planetary gearbox out of the cable drum.
54 Make sure that the surface is stable.
55 Place the disassembled planetary gearbox vertically with the cover plate down on appropriate squared timbers on a stable underground.
56 Secure the planetary gearbox against tipping over.
57 Remove all means of attachment such as eye bolts, straps, chains, swivel hooks, shackles or devices which are still attached.
58 Assemble the axial-piston motor to the planetary gearbox again. Proceed as described in Chapter 7, "Assembly".

12.4 Preparing the planetary gearbox for storage reuse

This chapter only describes how to prepare the planetary gearbox for storage reuse.

For queries, please contact a Rexroth's subsidiary located near you or the main plant directly. Refer to www.boschrexroth.com and the address directory in appendix A “Address directory” of the material number-specific operating instructions for the addresses of our national agencies.

1 Carefully close all the openings of the planetary gearbox.
2 Clean the planetary gearbox as described in chapter 10.1 “Cleaning and Care”.
3 Fill the planetary gearbox with lubricating oil for preservation according to the selection list – industrial gear oils in appendix B “Required and supplementary documentations” in the material number-specific operating instructions. Fill the planetary gearbox as described in chapter 8.1.3 “Filling the planetary gearbox with lubricating oil” of this operating instructions.
4 Preserve the surfaces of external flanges, shaft ends and flange surfaces with a preservative (e.g. PERIGOL VCI 230 or CUSTOS 10-38). Observe chapter 6.2.1 “Preservation” and the associated product data sheets and safety data sheets.
5 Store the planetary gearbox as described in chapter 6 “Transport and storage”.

13 Disposal

13.1 Environmental protection

NOTE
Ground water and/or soil contamination caused by careless disposal! Damage to property and the environment caused by careless disposal of the planetary gearbox, the packaging material, the lubricating oil, the hydraulic fluid! ▶ Eliminate leaks immediately. ▶ Dispose of the gearbox, the packaging material, the lubricating oil and the hydraulic fluid or the pressure fluid according to the national regulations of your country. ▶ Dispose of the lubricating oil residues and/or hydraulic fluid/pressure fluid residues according to the respective valid safety data sheets. ▶ Dispose of mounting parts and cabling according to the respective manufacturer's regulations.

Careless disposal of the planetary gearbox, the hydraulic fluid, the lubricating oil and the packaging material may lead to environmental pollution.

- ▶ Dispose of the planetary gearbox, the hydraulic fluid, the lubricating oil and the packaging material according to the national regulations of your country.
- ▶ Dispose of hydraulic fluid or lubricating oil remains according to the applicable product data sheets and the safety data sheets for hydraulic fluids or lubricating oils.
- ▶ Observe the following supplied instructions for disposing of the planetary gearbox in an environmentally friendly manner:
  - RE 77943: Information on the environmentally sound disposal of “Gearboxes for mobile and stationary applications” in the appendix of the material number-specific operating instructions.

14 Extension and conversion

You may not modify the MOBILEX GFW 5000 planetary gearbox.

Warranty by Rexroth shall only apply to the delivered configuration and extensions which were provided for in the configuration. After a conversion or extension by the customer, the warranty will expire.

The axial-piston motor adjusting screws are protected by safety caps against unauthorized adjusting. Removing the safety caps will void any warranty claims. If the setting has to be changed, contact the responsible Rexroth Service. For the address, please refer to chapter 10.6 “Spare parts”.

15 Troubleshooting and fault correction

The following troubleshooting table 7 may assist you in troubleshooting. The table does not claim to be complete.
In practice, problems may arise that cannot be considered here.

15.1 Troubleshooting procedure

- Even when under time pressure, proceed in a systematic and targeted manner. Random and unplanned disassembly and adjustment of individual values can make it impossible to determine the original cause of a malfunction.
- Get an overview of the planetary gearbox operation in connection with the crane or the winch application.
- Try to clarify whether the planetary gearbox has performed the required function in the crane or in the winch application before the error occurred.
- Try to understand the changes of the crane, winch application where the planetary gearbox is installed:
  - Were there changes in the conditions of use or the area where the gearbox was deployed?
  - Has maintenance work been performed recently? Does an inspection or maintenance log exist?
  - Have changes (e.g. conversions) or repairs been performed on the overall system of the planetary gearbox? If yes: What were these?
  - Has the lubricating oil or the hydraulic fluid been changed?
  - Has the gear unit or the crane, the winch application been operated in accordance with the intended purpose?
  - How is the malfunction evident?

- Gain a clear picture of what caused the malfunction. As necessary, ask the direct operator.
- If appropriate, record the situation as you encountered it by taking digital photographs and send these to Rexroth Customer Service.

Table 7 Malfunction table of the MOBILEX GFW 5000

Malfunction	Possible cause	Remedy
Changed gearbox noises	Damaged gears	Notify Customer Service. Check toothed components for flaws such as pittings. Let the damaged parts be replaced by Rexroth Service.
	Bearing play	Notify the Rexroth Service.
	Bearing defective	
Noises	Gearbox fastening has become loose	Tighten screws with the required tightening torque.
The operating temperature is substantially higher than normal	The oil level is too high or too low	Allow the planetary gearbox to cool down to approx. 50 °C. Check the oil filling level. If required, fill with lubricating oil or drain off lubricating oil if oil level is too high.
	The lubricating oil is too old or badly contaminated	Check in the operating instructions of the system, crane or winch application when the last oil change took place, if appropriate proceed to an oil change. Proceed as described in chapter 10.2 “Inspection”.
Leaking oil	Defective output seal.	Check seals as far as possible, replace if necessary. If the leak cannot be eliminated, Rexroth Service must be notified.
	Seals on partition seams or on the locking screws are defective	
Lubricating oil is foaming	Incompatibility of the filled in lubricating oil with the oil remains or the preservation oil of the planetary gearbox.	Replace the lubricating oil and rinse with appropriate purging oil.
Decreasing or non-existent brake action	Thermal overload of the multiple-disk brake	Contact the Rexroth Service. Let trained staff or Rexroth Service employees carry out an inspection on the multiple-disk brake. Replace the disks, springs and sealing elements.

If the malfunctions occurred cannot be eliminated, contact one of the contact addresses indicated on `www.boschrexroth.com` or in the address directory in appendix A “Address directory” of the material number-specific operating instructions.

16 Technical data

For the technical data of the MOBILEX GFW 5000 planetary gearbox, please refer to appendix D “Technical data / Drawings” of the material number-specific operating instructions.

17 Appendix

The documents of chapter 17 “Appendix” are enclosed in the appendix of the material number-specific operating instructions. Also refer to chapter 1.2 “Required and supplementary documentations”.

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