

Insertion pinion
Replacement instructions

en-US
11/2026
ID 442066_en.01

STÖBER

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1 Information on this documentation

STOBER provides a defined procedure for replacing insertion pinions when service is required. Depending on the mounting type and the accessibility of the insertion pinion, there are various removal methods available. This documentation guides you through the process of selecting the appropriate removal method and helps you safely and properly replace insertion pinions. It provides instructions for removal and subsequent installation, highlights residual hazards, and contains clear instructions for protecting people and property.

Note on gender

We strive to use language that is gender-equitable and as gender-neutral as possible. Where this is not possible for reasons of readability, we use the generic masculine form. When we refer to people using generic masculine forms, these terms apply equally to all genders.

1.1 Timeliness

Check whether you have the latest version of this documentation. The latest document versions for our products are available for download on our website:
http://www.stoeber.de/en/downloads/.

1.2 Original language

The original language of this documentation is German; all other language versions are derived from the original language.

1.3 Limitation of liability

This documentation was created taking into account the applicable standards and regulations as well as the current state of technology.

No warranty or liability claims for damage shall result from failure to comply with the documentation or from use that deviates from the intended use of the product. This is especially true for damage caused by individual technical modifications to the product or the project configuration and operation of the product by unqualified personnel.

1.4 Formatting conventions

Orientation guides in the form of signal words, symbols and special text markups are used to emphasize specific information so that you are able identify it in this documentation quickly.

1.4.1 Distinction of text elements

Certain elements of the continuous text are distinguished as follows.

Important information	Words or expressions with a special meaning
Interpolated position mode	Optional: File or product name or other name
Detailed information	Internal cross-reference
http://www.samplelink.com	External cross-reference

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1.4.2 Display of warning messages and information

Warning messages are identified with symbols. They alert you to specific dangers associated with using the product and are accompanied by appropriate signal words that indicate the severity of the hazard. In addition, useful tips and recommendations for efficient, error-free operation are specially highlighted.

⚠ DANGER!

Danger

accompanied by a warning triangle indicates that fatal or serious injuries will occur if:

- the stated precautionary measures are not taken

⚠ WARNING!

Warning

accompanied by a warning triangle indicates that fatal or serious injuries may occur if:

- the stated precautionary measures are not taken

⚠ CAUTION!

Caution

accompanied by a warning triangle indicates that minor or moderate injuries may occur if:

- the stated precautionary measures are not taken

ATTENTION!

Attention

This indicates that damage to property may occur

- if the stated precautionary measures are not taken.

Information

Information indicates important information about the product or serves to emphasize a section in the documentation that deserves special attention from the reader.

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2 Safety

There are risks associated with the product described in this documentation that can be prevented by complying with the safety notes and the general technical rules and regulations.

2.1 Qualified personnel

In order to be able to perform the tasks described in this documentation, the persons instructed to perform them must have the appropriate professional qualification and be able to assess the risks and residual hazards when handling the products. For this reason, all work on the products as well as their operation and disposal may be performed only by professionally qualified personnel.

Qualified personnel are persons who have acquired the authorization to perform these activities either through training to become a specialist and/or instruction by specialists.

Furthermore, valid regulations, legal requirements, applicable basic rules, this documentation and the safety notes included in it must be carefully read, understood and observed.

2.2 Working on the machine

Before all work on machines and systems, apply the 5 safety rules in accordance with DIN VDE 0105-100 (Operation of electrical installations – Part 100: General requirements) in the order listed:

- Disconnect (also ensure that the auxiliary circuits are disconnected).
- Ensure power cannot be switched on again.
- Ensure that everything is de-energized.
- Ground and short-circuit.
- Cover adjacent live parts.

Information

Note the discharge time of the DC link capacitors in the general technical data for the devices. You can only determine the absence of voltage after this time period.

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2.3 Safety notes

⚠ WARNING!

Crushing hazard due to components moving unexpectedly when pulling off the insertion pinion or pressing it through

The insertion pinion or the device being used may come loose unexpectedly. Crushing and impact injuries are possible.

- Secure the insertion pinion and the device being used to prevent them from tipping over, slipping, or moving accidentally.
- Use only pulling and pressing devices that have been approved for the specific process.
- Apply the force axially and in a controlled manner.
- Keep your hands and body out of the path of the moving parts.

⚠ CAUTION!

Risk of burns from hot shaft and components

During removal, the shaft can be heated to approximately 180 °C. A maximum joining temperature of 150 °C is specified for installation. Contact with hot components can cause skin burns.

- Measure the temperature using a suitable approved measuring device.
- Do not touch hot components.
- Wear appropriate protective gloves that are approved for use at this temperature.
- Allow the components to cool sufficiently before continuing.

ATTENTION!

Property damage caused by excessive heating or improper application of force

Excessive temperature or off-center, misaligned, or sudden application of force can damage the shaft, insertion pinion, bearings, seals, or adjacent components.

- Use only approved heating, pulling, and pressing devices.
- Adhere to the approved temperature limits, and measure the temperature at the specified measurement point.
- Position the pulling devices, press, and pressure piece axially and centrally.
- Support the shaft on the B side in accordance with the technical specifications.
- Avoid direct or excessive impacts to the insertion pinion.

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3 Removal

Refer to this chapter when removing a damaged insertion pinion from a STOBER gearbox.

Before you begin removing the insertion pinion, the following requirements must be met:

- The gearbox has been removed.
- The motor or motor adapter is secured to prevent it from tipping over or slipping.
- The motor is de-energized and protected against accidental restart.
- The appropriate tools and resources are available; see Selecting the removal method [▶ 7].
- To determine the removal method, see the selection overview in Selecting the removal method [▶ 7].

3.1 Selecting the removal method

There are three methods available for removing the insertion pinion. Choose the method based on the type of installation and accessibility.

Method	Direction of access	Type of installation	Prerequisites	Resources
Method 1: Pulling off the insertion pinion [▶ 8]	Gearbox side	Direct installation or motor adapter	The insertion pinion is larger than the bore and can be gripped with a pulling device	Appropriate pulling device and heating element (e.g., hot-air gun, acetylene torch)
Method 2: Welding on screw and pulling off the insertion pinion [▶ 9]	Gearbox side	Direct installation or motor adapter	The pulling device cannot be applied directly to the insertion pinion	Screw, welding equipment, threaded pipe, appropriate pulling device and heating element (e.g., hot-air gun, acetylene torch)
Method 3: Pushing the insertion pinion out from the motor side [▶ 10]	Motor side	Only with motor adapter	Access to the motor side of the insertion pinion is required	Appropriate press and matching pressure piece

Tab. 1: Selection overview: Removal methods

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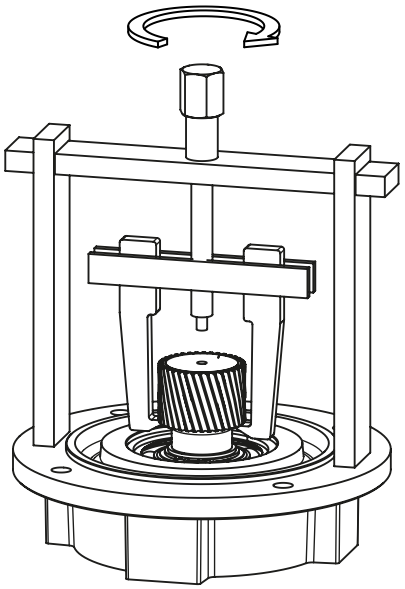
3.2 Method 1: Pulling off the insertion pinion

✓ A suitable pulling device is available.

✓ A heating element for heating the shaft is available (e.g., a hot-air gun or acetylene torch).

✓ The insertion pinion is larger than the bore and can be gripped with the pulling device.

1. Rest the pulling device on the flange.
2. Engage the pulling device with the insertion pinion.
3. Heat the shaft to about 180 °C.
4. Turn the pulling device.
   ⇨ Pull the insertion pinion out axially and in a controlled manner.



5. Check the shaft and adjacent components for damage.

⇨ The damaged insertion pinion has been removed.
You can proceed with installing the new insertion pinion; see Installation [▶ 11].

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3.3 Method 2: Welding on screw and pulling off the insertion pinion

⚠ WARNING!

Burns, health hazards, and fire risk from welding work on the insertion pinion

During welding, weld spatter and hot components can cause burns. Welding fumes can be harmful to your health. Flammable materials can catch fire.

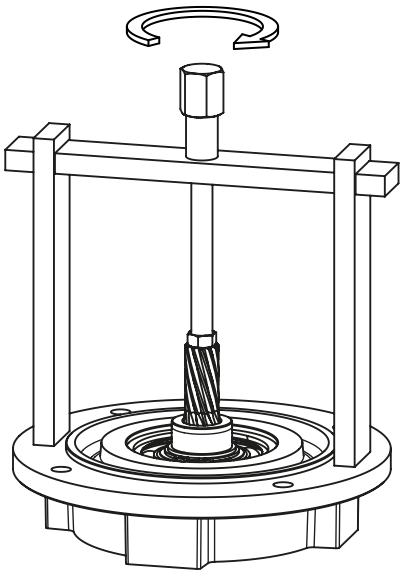
- Follow local regulations regarding welding.
- Ensure sufficient ventilation.
- Remove or protect flammable materials in the workspace.
- Use the personal protective equipment required for welding work.
- Allow welded components to cool sufficiently before continuing.

✓ The pulling device cannot be applied directly to the insertion pinion.

✓ A screw, welding equipment, a threaded pipe, and a suitable extraction tool are available.

✓ A heating element for heating the shaft is available (e.g., a hot-air gun or acetylene torch).

1. Weld a screw onto the insertion pinion.
2. Attach a threaded pipe and a pulling device to the welded screw.
3. Rest the pulling device on the flange.
4. Heat the shaft to about 180 °C.
5. Turn the pulling device.
   ⇨ Pull the insertion pinion out axially and in a controlled manner.



6. Check the shaft and adjacent components for damage.

⇨ The damaged insertion pinion has been removed.
You can proceed with installing the new insertion pinion; see Installation [▶ 11].

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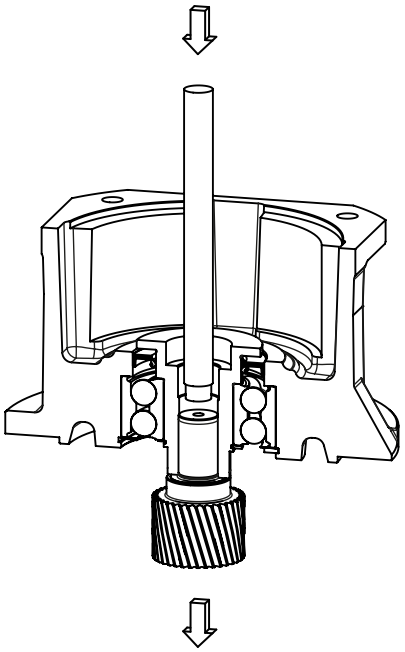
3.4 Method 3: Pushing the insertion pinion out from the motor side

✓ The insertion pinion is installed on a motor adapter.

✓ The motor is removed during removal of the insertion pinion.

✓ A suitable press with a matching pressure piece is ready for use.

1. Remove the retaining ring and set it aside.
2. Support the motor adapter on the gearbox side by resting it on the outer bearing ring.
3. Position the press and the pressure piece axially and centrally.
4. Press the insertion pinion out of the motor adapter from the motor side in a controlled manner.



5. Install the retaining ring.
6. Check the motor adapter, shaft, bearings, and adjacent components for damage.

⇨ The damaged insertion pinion has been removed.
You can proceed with installing the new insertion pinion; see Installation [▶ 11].

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4 Installation

Refer to this chapter when installing a new insertion pinion in a STOBER gearbox.

To install the insertion pinion, you need the following resources:

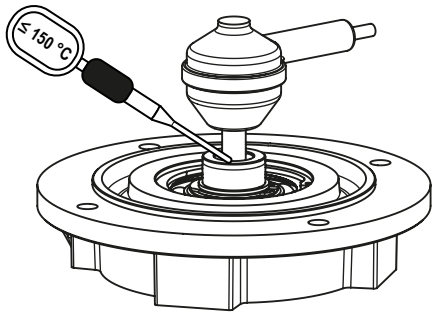
- Appropriate cleaning and degreasing agent
- Heating element with a matching insert for heating the bore (e.g., soldering iron)
- Loctite 648
- Rubber mallet (if necessary)

4.1 Installing the insertion pinion

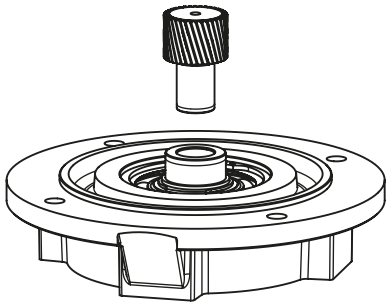
✓ The listed resources are available.

✓ The shaft is supported on the B side.

1. Remove any corrosion protection agent, grease, and dirt from the pin of the insertion pinion and the bore.
2. Insert the heating element into the bore and heat it.
3. Monitor the temperature during preheating (maximum 150 °C).



4. During preheating, apply Loctite 648 to the pin of the insertion pinion.
5. As soon as the joining temperature reaches a maximum of 150 °C, remove the heating element from the bore.
6. Insert the insertion pinion into the bore straight without tilting it.



7. If necessary, use a rubber mallet to quickly guide the insertion pinion into its intended final position without tilting.

⇨ The new insertion pinion is installed.

4.2 Checking and completing installation

Before installing the gearbox and subsequently commissioning it, check to make sure the insertion pinion is properly installed:

1. Check that the insertion pinion is properly seated and installed in the correct mounting position.
2. Visually inspect the product for damage, misalignment, and adhesive residue in areas where it is not intended to be present.
3. Be sure to allow the adhesive to cure for the specified amount of time.
4. Remove all installation devices and resources.

⇨ Once all checks have been completed without any issues, the gearbox can be reinstalled and then recommissioned.

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5 Further information

For more information on removal, installation, and commissioning of your STOBER gearbox or motor, please refer to the respective operating manual. The current status of the documentation can be found in our download center at: http://www.stoeber.de/en/downloads/.

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6 Contact

6.1 Consultation, service and address

We would be happy to help you!

We offer many forms of information and services to go with our products on our website:
http://www.stoeber.de/en/service

For additional information or individual details, please contact our consulting and support service:
http://www.stoeber.de/en/support

If you need our System Support:
Tel. +49 7231 582-3060
systemsupport@stoeber.de

If you need a replacement device:
Tel. +49 7231 582-3015
service.mechanics@stoeber.de

For our 24-hour service hotline:
Tel. +49 7231 582-3000

Our address:
STÖBER Antriebstechnik GmbH + Co. KG
Kieselbronner Strasse 12
75177 Pforzheim, Germany

6.2 Your opinion is important to us

We have prepared this documentation to the best of our knowledge with the aim of providing you with useful and efficient support as you build and expand your knowledge of our product.

Your suggestions, opinions, wishes, and constructive criticism help us to ensure the quality of our documentation and further refine it.
If you want to contact us for a specific reason, we would be happy to receive an e-mail from you at:
documentation@stoeber.de

Thank you for your interest.
Your STOBER editorial team

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6.3 Close to customers around the world

We offer you committed, expert advise and support in over 40 countries worldwide:

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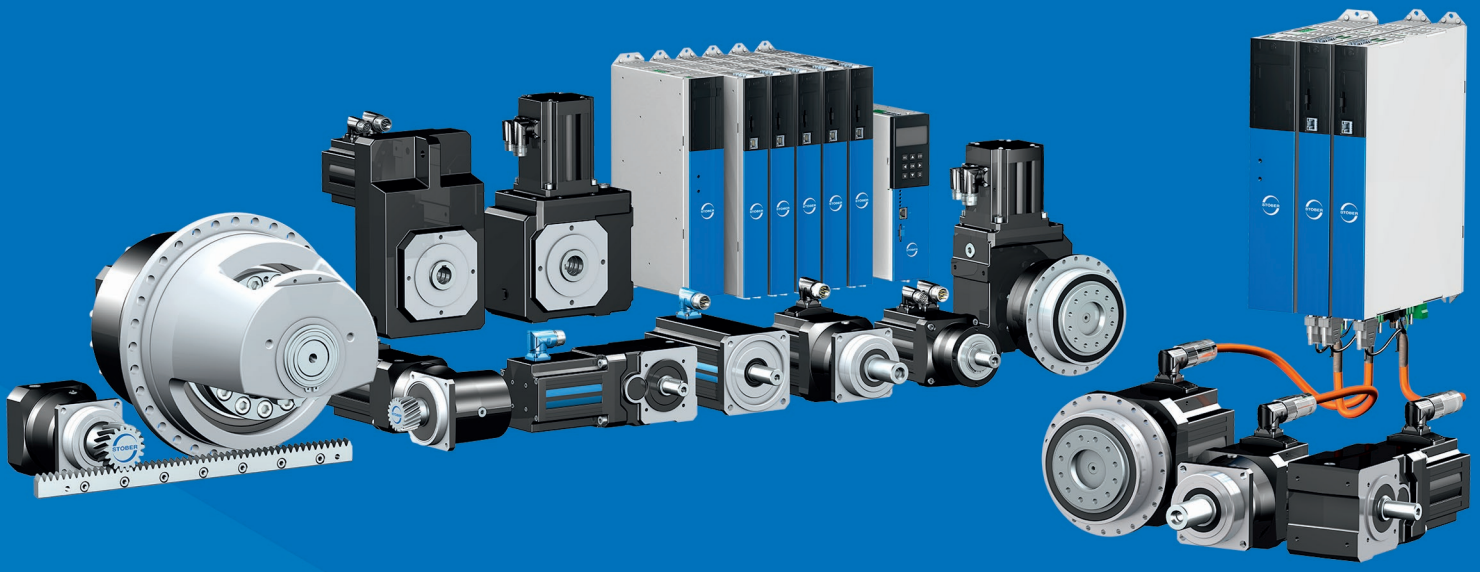
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