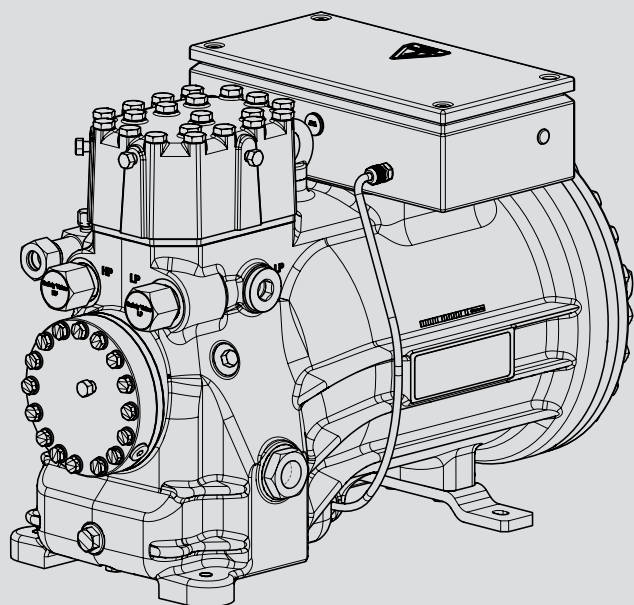
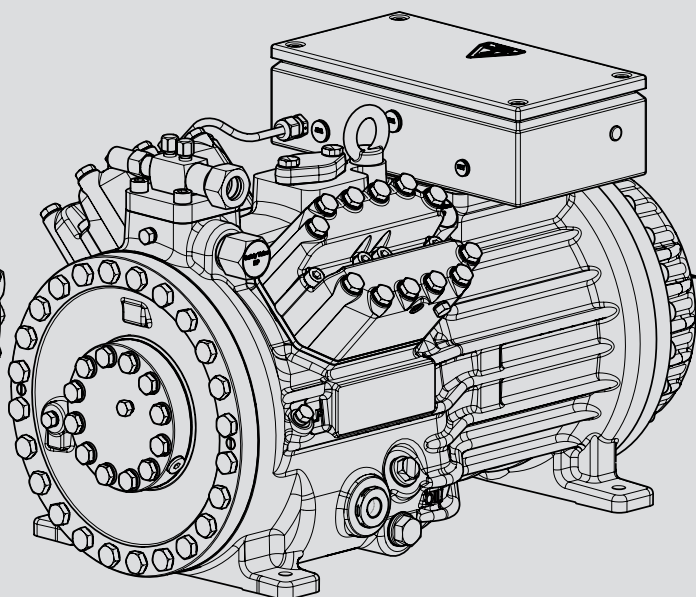




HGX2 CO₂ T



HGX34 CO₂ T

Bock HGX2 CO₂ T, HGX34 CO₂ T, HGX46 CO₂ T

Repair instruction electric motor

09430-06.2021-Gb

Translation of the original instructions

Contents

1	Liability and Warranty	2
2	Additional Safety Information	2
3	Disassembly	4
4	Assembly	10

1 Liability and Warranty

Liability and the manufacturer's warranty are excluded if

- Alterations and functional modifications have been carried out,
- no original replacement parts have been used.

2 Safety Information

Target group for this repair information

- Work on the compressor may only be carried out by persons whose technical training, skills and experience along with their knowledge of pertinent regulations and documentation means that they are capable of assessing the work to be carried out and detecting any possible dangers.
- A specialist can mean a refrigeration technician for example. Note that electrical work may only be carried out by a qualified electrician. Alternatively, on a country-specific basis, persons who have undergone electrotechnical instruction and who have proof of their qualification are also permitted to carry out the work.



- **DANGER!** This symbol refers to instructions for avoiding direct severe dangers to persons.



- **DANGER!** This symbol refers to instructions for avoiding direct severe dangers to persons or plant by electrical current.



- **WARNING!** This symbol is used to indicate that inaccurate compliance or total failure to comply with the instructions could cause injury to persons or damage to the compressor or refrigerating machine.



- **INFO!** Important information or tips on simplifying work.



- This symbol is used to indicate that parts with refrigeration oils (for oil types see compressor name plate) should be moistened prior to installing.



- This symbol indicates the permitted tightening torque for the screw.

Important prerequisites



DANGER

Risk of electric shock.

- ▶ Before you carry out any repair work, disconnect the compressor from the electricity network.
 - ▶ Turn the main switch to „O“ (OFF).
 - ▶ Secure the main switch against an unauthorised restart.
-



WARNING

The heavy weight of the compressor can be potentially dangerous.

Use all the seals included in the kit.

3 Disassembly



WARNING

Ensure that the compressor is depressurised before starting work.

3.1 Draining the oil



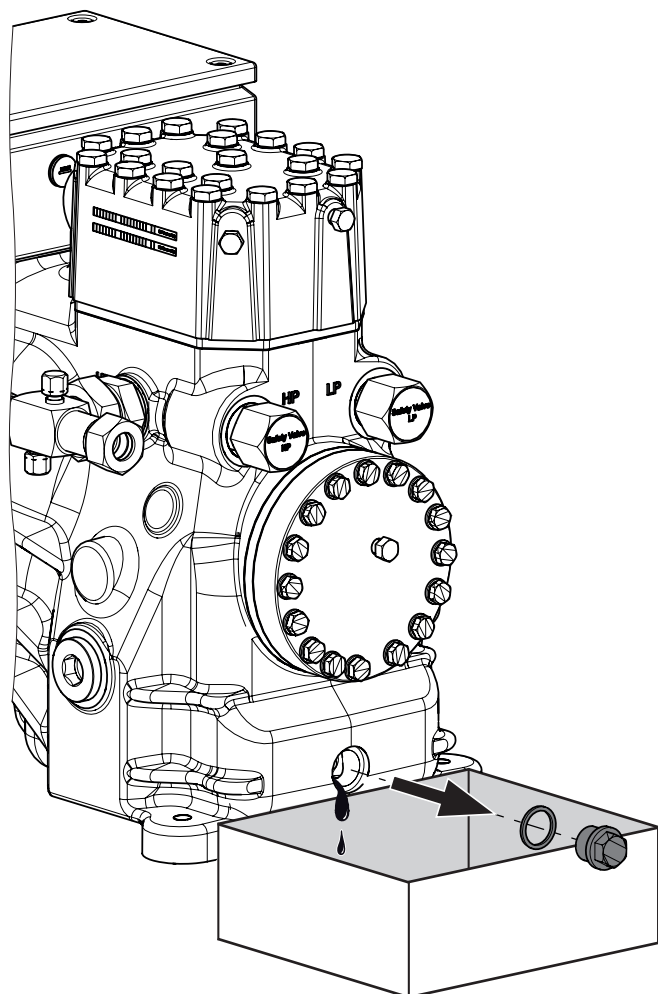
NOTE

Do not dispose of oil in domestic waste.

- Dispose of the old oil in accordance with the environmental regulations and observe national regulations

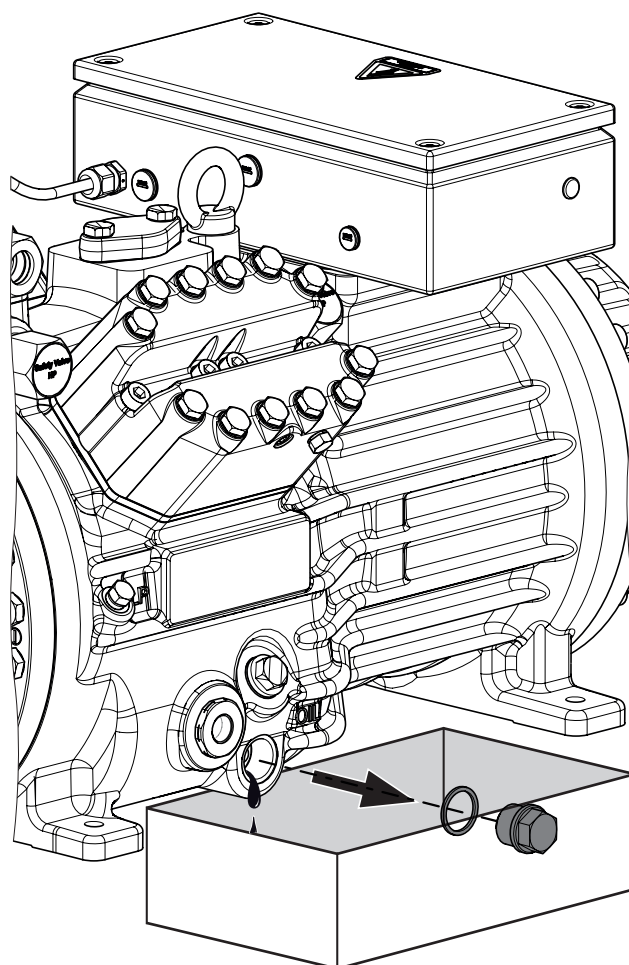
HGX2 CO₂ T

- Remove the screw plug (M22, AF19) and the seal ring.



HGX34 CO₂ T / HGX46 CO₂ T

- Remove the screw plug (M26, AF24) and the seal ring.

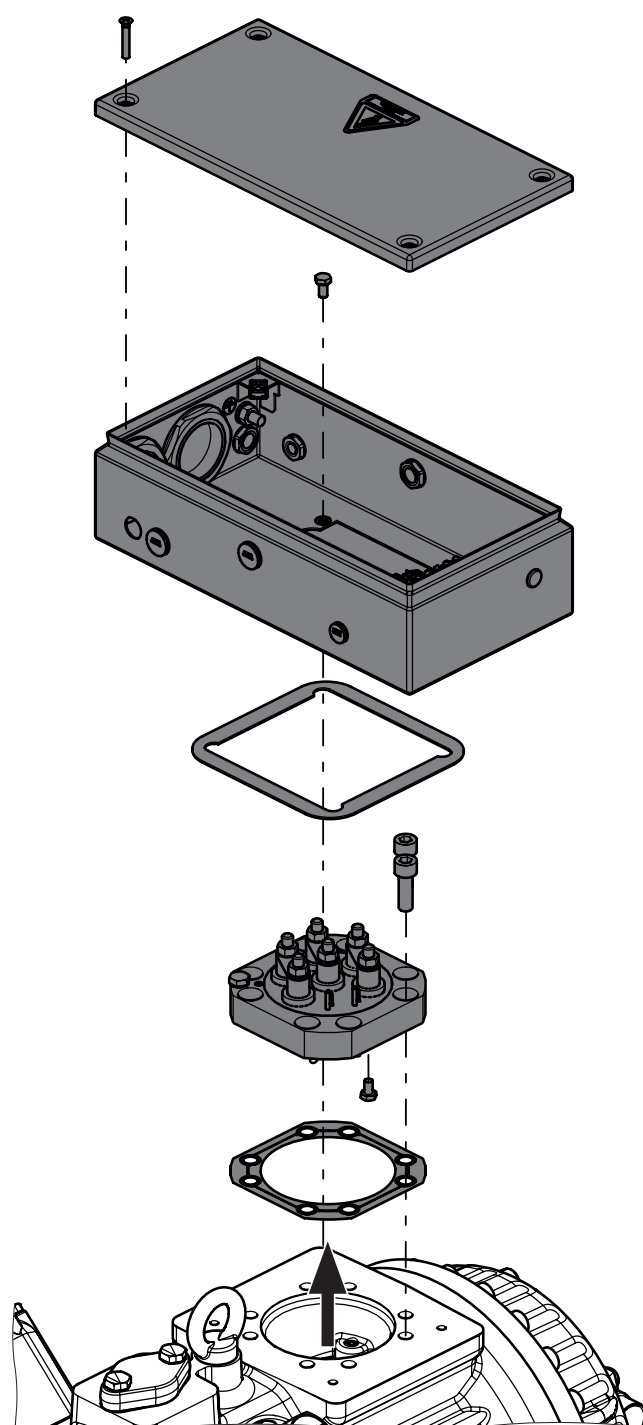
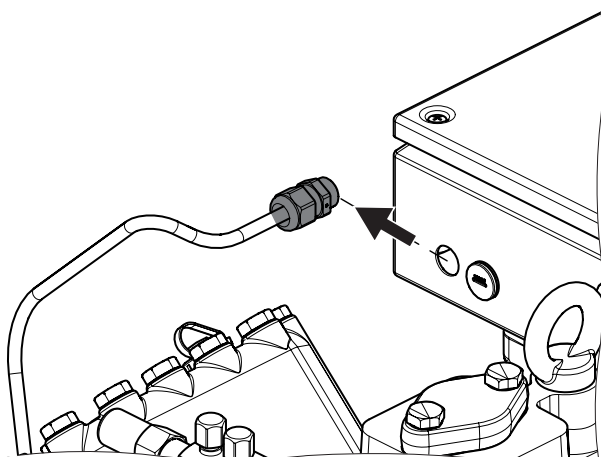


3.2 Disconnecting the electrical connections and the components

► **Do not damage any cables and components.**

Damaged parts must be repaired or replaced immediately.

- Remove the connection of the oil sump heater at the terminal box, the oil sump heater can remain in the compressor housing.
- Remove the terminal box cover (4 hexagon head screws, if available).
- Loosen the electrical connections on the terminal board and on the motor protection device.
- Remove the terminal box (4 hexagon head screws M6, AF10).
- Remove the terminal board (8 cylinder head screws M10, AF8).
- Remove the electrical lines from the underside of the terminal board (6 hexagon head screws M6, AF10).



3.3 Disassemble the motor cover



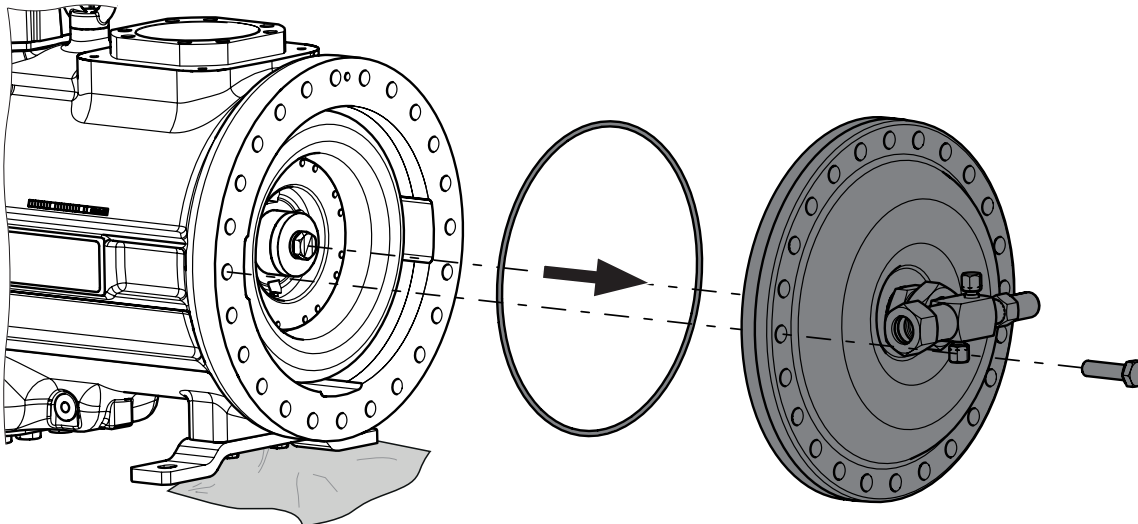
WARNING

The heavy weight of the compressor and parts can potentially be dangerous; risk of falling, danger of crushing.

- ▶ **ATTENTION! The residual oil flows out when the motor cover is removed.**
- ▶ Lay an absorbent material under the area and dispose of it in accordance with the environmental regulations.

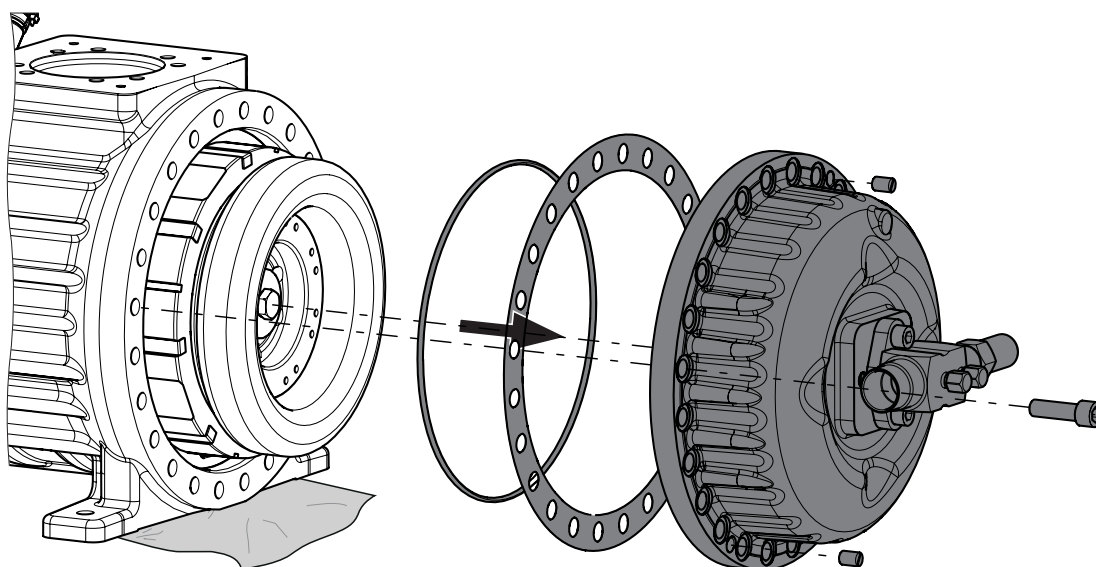
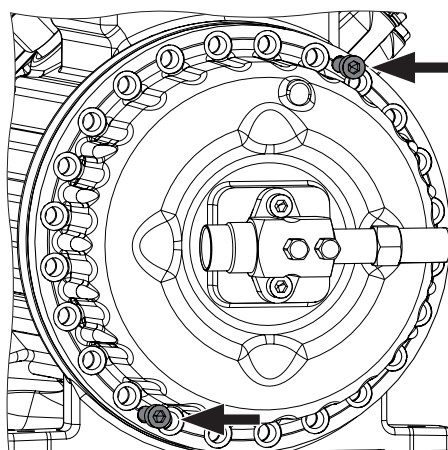
HGX2 CO₂ T

- Loosen the hexagon head screws (M12, AF19).
- Remove the motor cover with the seal ring.



HGX34 CO₂ T / HGX46 CO₂ T

- Loosen the cylinder head screws (M12, AF10).
- Remove both grub screws (M10).
- The motor cover must be pushed off the compressor housing.
For this purpose, screw two suitable screws (M10) evenly into both threads on the opposite side in order to squeeze off the motor cover. The flat gasket is destroyed in the process!
- Take off the motor cover with the seal and the O-ring.
- ▶ **Carefully clean the sealing surface from old flat gasket material.**



3.4 Disassemble the stator

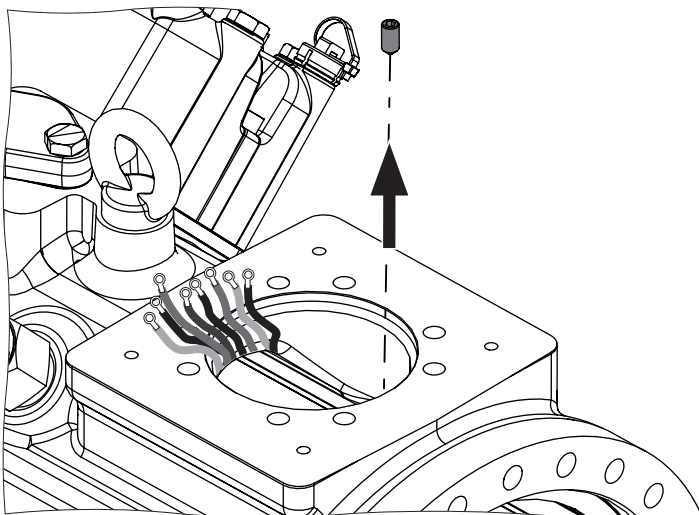


WARNUNG

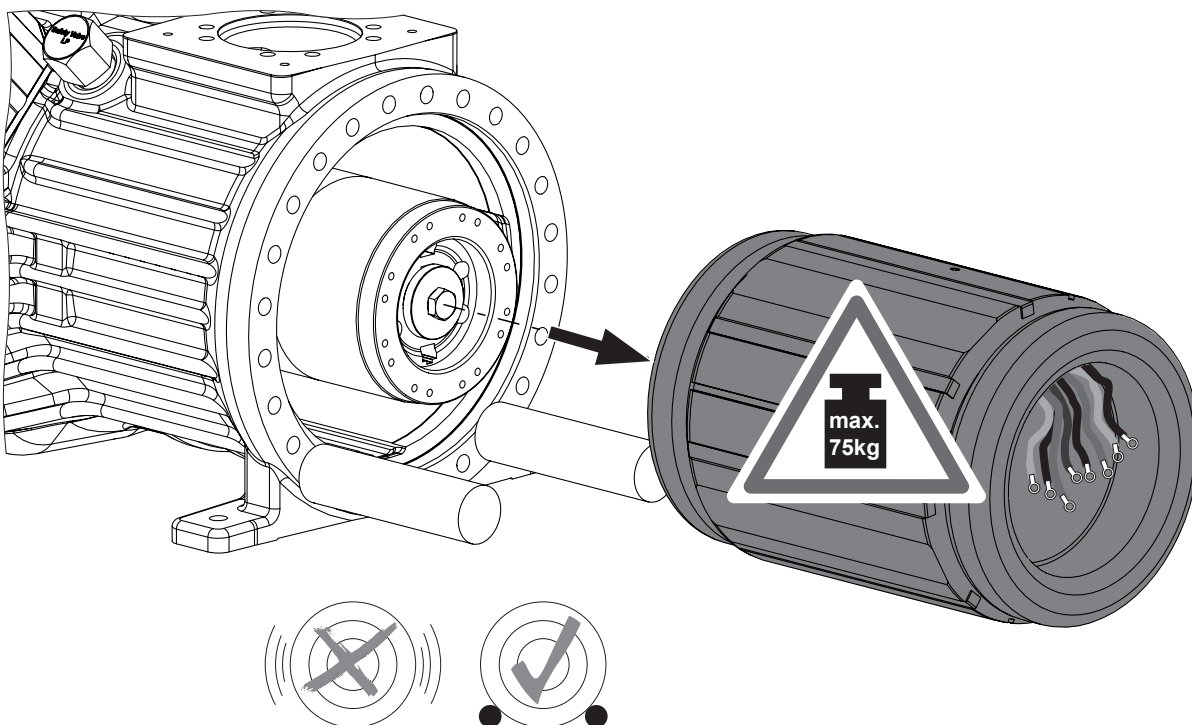
The heavy weight of the stator can potentially be dangerous; risk of falling, danger of crushing.

- ▶ Use a suitable hoist for the removal.
- ▶ Take the measures required to safely remove the stator, by screwing two round rods of the correct height in two holes opposite one another of the motor housing. Prevent inadvertent rolling of the removed stator.

- Loosen the threaded pin of the stator protection (M8, AF4).
- The threaded pin is glued in. For easier disassembly, warm up the threaded pin with an hot air blower.
- ▶ **Protect the electrical lines from heat!**

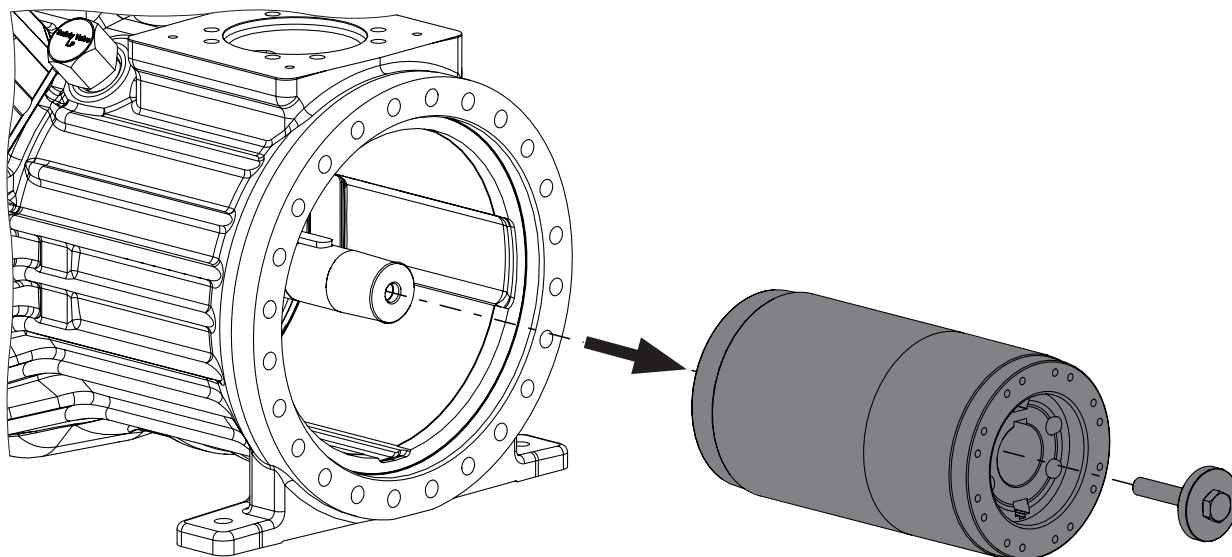


- Carefully pull the stator out of the compressor housing and pay attention to the cable!



3.5 Disassemble the rotor

- Loosen the rotor screw (M12, AF19).
- Pull off rotor from crankshaft. In case of stiffness, use take-off device.



4 Assembly

We recommend cleaning the inside of the case before the installation.
There must not be any particles and dirt in the compressor.

To assemble, reverse the order of the steps. Note any particular features such as observance of different torques.

4.1 Connecting the stator to the motor housing

- Assembly instructions for HGX46 CO₂ T up to design key A053, see page 13.



WARNING

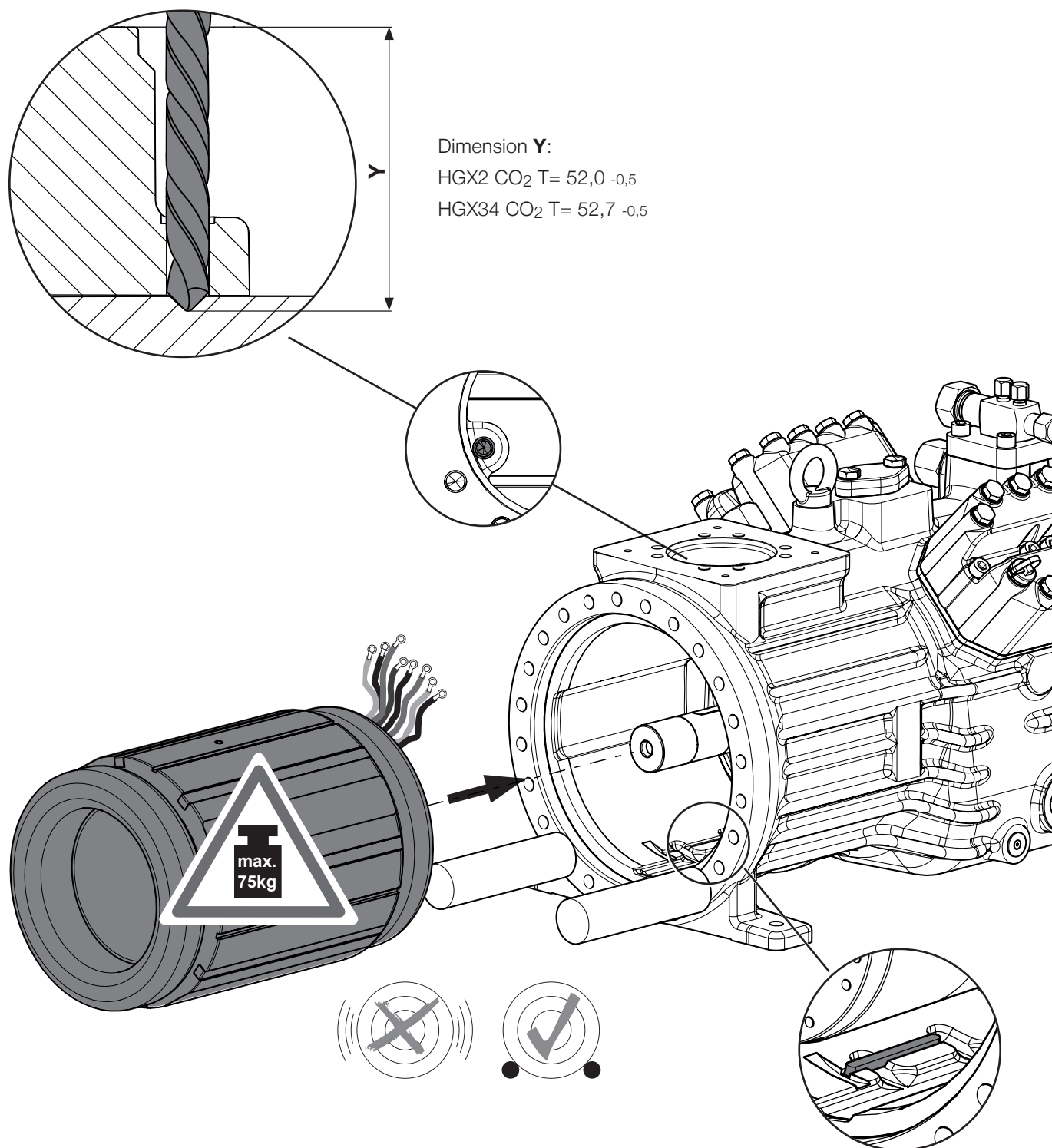
The heavy weight of the stator can potentially be dangerous; risk of falling, danger of crushing.

- ▶ Use a suitable hoist for the removal.
- ▶ Note the direction of the feather key — stator.
You must align the parts in order to install them.

-
- Align the stator so that the cable harness is positioned upwards and the feather key is aligned with the groove of the stator.
 - ▶ **Do not damage any cables and components.**

Assembly instructions for HGX2 CO₂ T and HGX34 CO₂ T up to design key A053

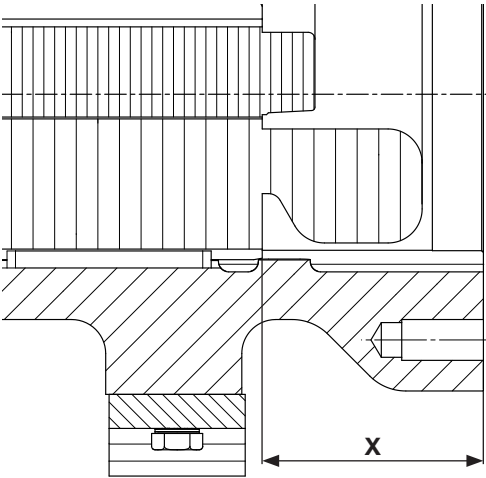
- Push the stator with the cables leading into the motor housing up until the dimension **X** (see table, page 12). At the same time, carefully pull the cables upwards through the terminal board opening. Motors without dimension **X** are inserted up to the stop into the compressor housing.
- For the threaded pin for securing the stator, a countersink has to be provided.
- ▶ **For this purpose use a drill with Ø 6.8 mm and a drill tip of 90°.**
- Bore a hole into the stator by observing the dimension **Y**, but only use a drill with cone tip.
- ▶ **Carefully remove the chips** (e.g. with a vacuum cleaner).



- Screw in the new threaded pin, see page 15.

Dimension and view of the dimension X

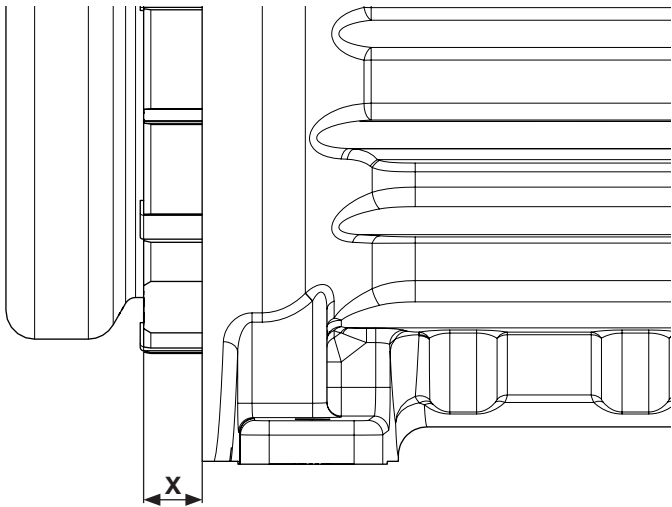
HGX2 CO₂ T



Description	X in mm
Distance CH-stator for the 9 kW motor	60 (±1,5)
Distance CH-stator for the 11 kW motor	45 (±1,5)
Distance CH-stator for the 15 kW motor	65 (±1,5)
Distance CH-stator for the 18,5 kW motor	49 (±1,5)

CH = compressor housing

HGX34 CO₂ T



Description	X in mm
Distance CH-stator for the 11 kW motor	32,8 (±1,5)
Distance CH-stator for the 15 kW motor	30,8 (±1,5)

CH = compressor housing

Assembly instructions for HGX46 CO₂ T up to design key A053

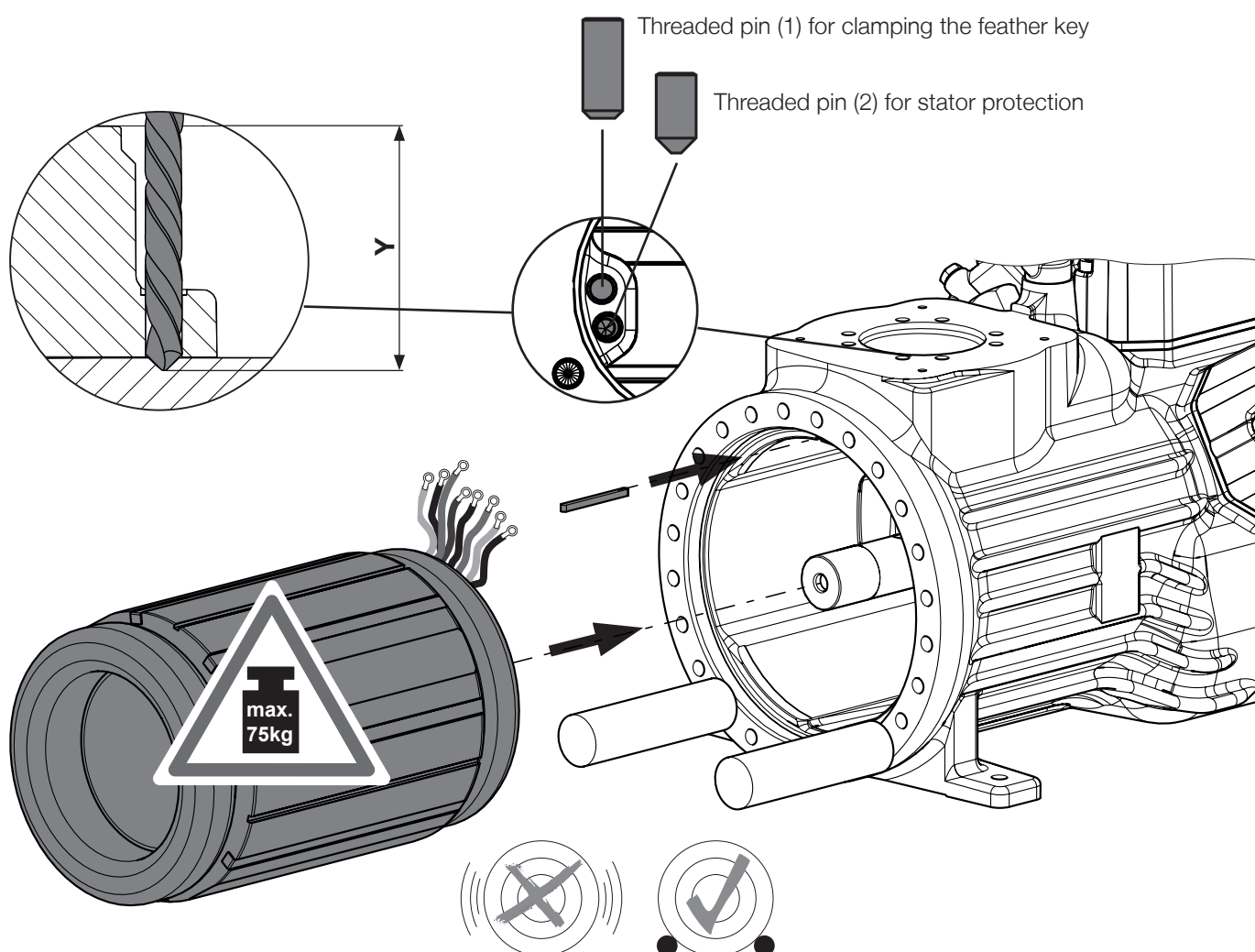


WARNING

The heavy weight of the stator can potentially be dangerous; risk of falling, danger of crushing.

- ▶ Use a suitable hoist for the removal.
- ▶ Note the direction of the feather key — stator.
You must align the parts in order to install them.

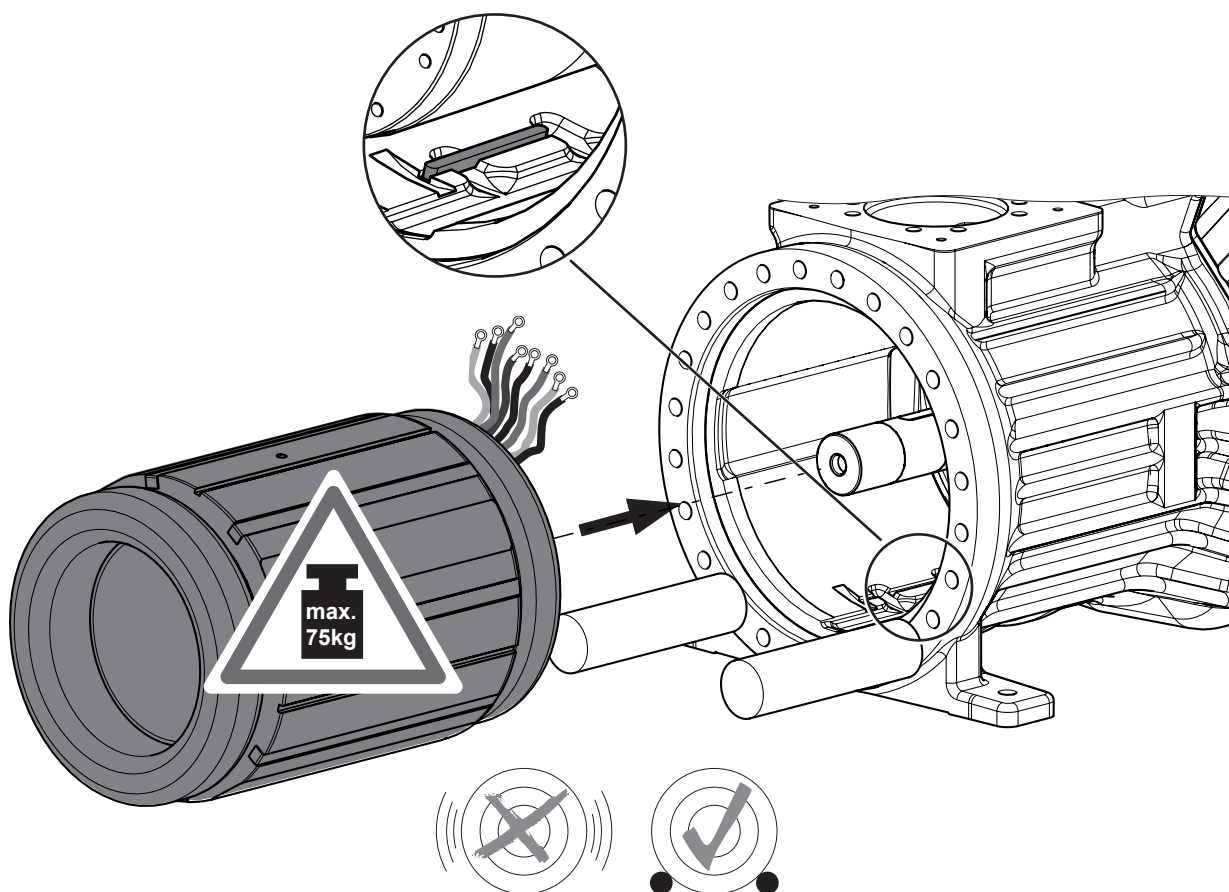
- Insert the feather key.
- Align the stator so that the cable harness is positioned upwards and the feather key is aligned with the groove of the stator.
- ▶ **Do not damage any cables and components.** Push the stator with the cables leading, into the motor housing until the stop. At the same time, carefully pull the cables upwards through the terminal board opening.
- For the threaded pin (2) (M8x16), a countersink has to be provided.
- ▶ **For this purpose use a drill with Ø 6.8 mm and a drill tip of 90°.**
- Bore a hole into the stator by observing the dimension $Y = 62,4 -0,5 \text{ mm}$, but only use a drill with cone tip.
- ▶ **Carefully remove the chips** (e.g. with a vacuum cleaner).



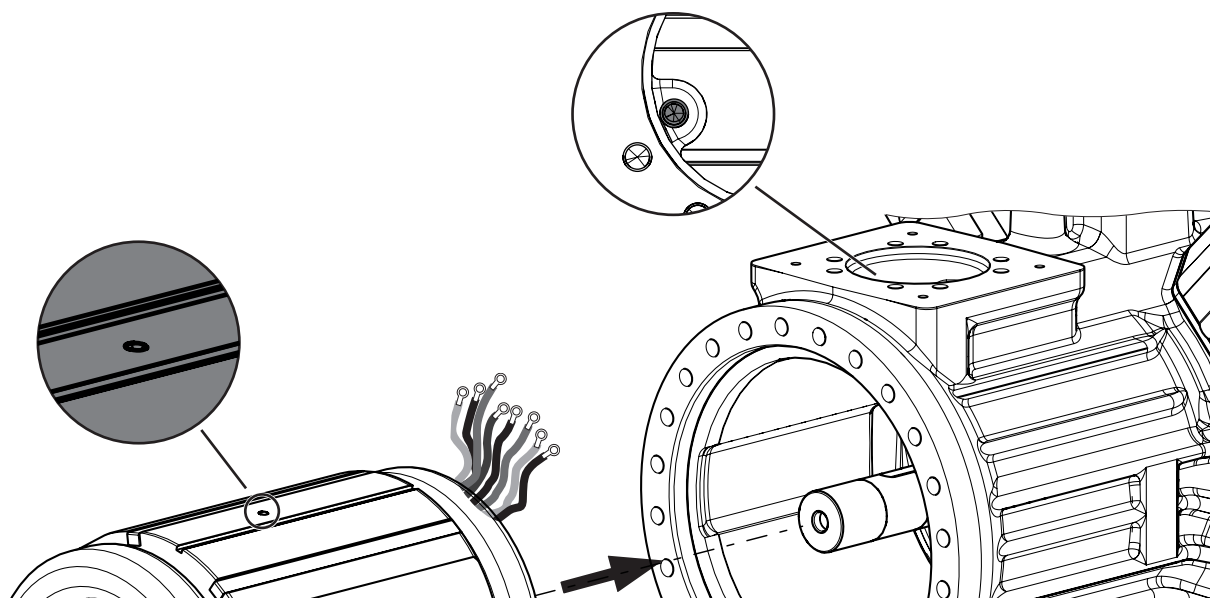
- For clamping the feather key to the stator, a threaded pin (1) (M8x20) without tip is used (see figure).
- Screw in the new threaded pins, see page 15.

Assembly instructions for HGX2 CO₂ T, HGX34 CO₂ T and HGX46 CO₂ T from design key A054

- Align the stator so that the cable harness is positioned upwards and the feather key is aligned with the groove of the stator.
- ▶ **Do not damage any cables and components.** Push the stator with the cables leading into the motor housing up until the dimension **X** (see table, page 12). Motors without dimension **X** are inserted up to the stop into the compressor housing.
- ▶ At the same time, carefully pull the cables upwards through the terminal board opening.



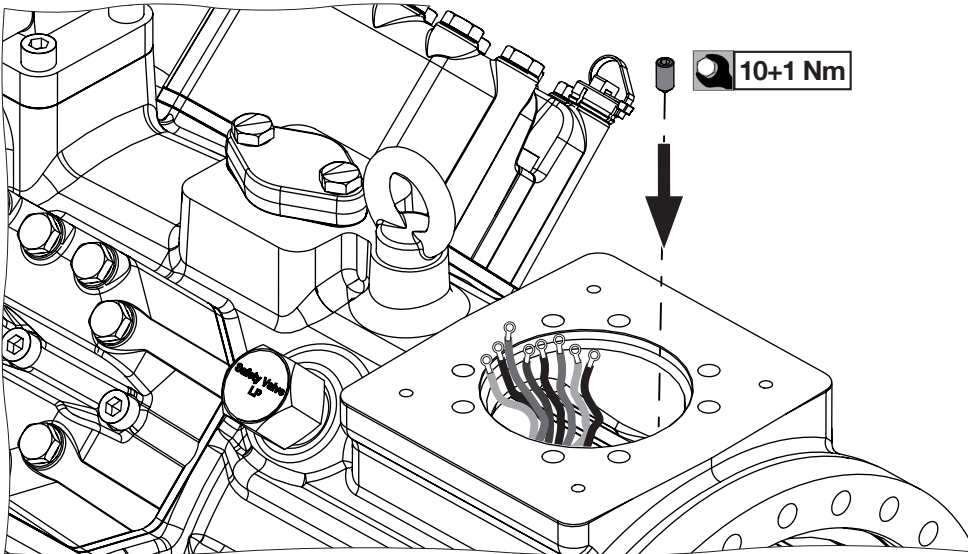
- Align the stator so that the countersink for the threaded pin in the stator is aligned with the countersink of the female thread in the compressor housing.



- Degrease the threaded hole for the threaded pin (e.g. with brake cleaner spray).
- ▶ Screw in the **new threaded pins**.

**INFO**

- ▶ The hardening time of the thread coating is 6 hours. **The threaded pin is coated and may only be used once.**
- ▶ **Observe the tightening torques!**



- Install the terminal board, see page 16.

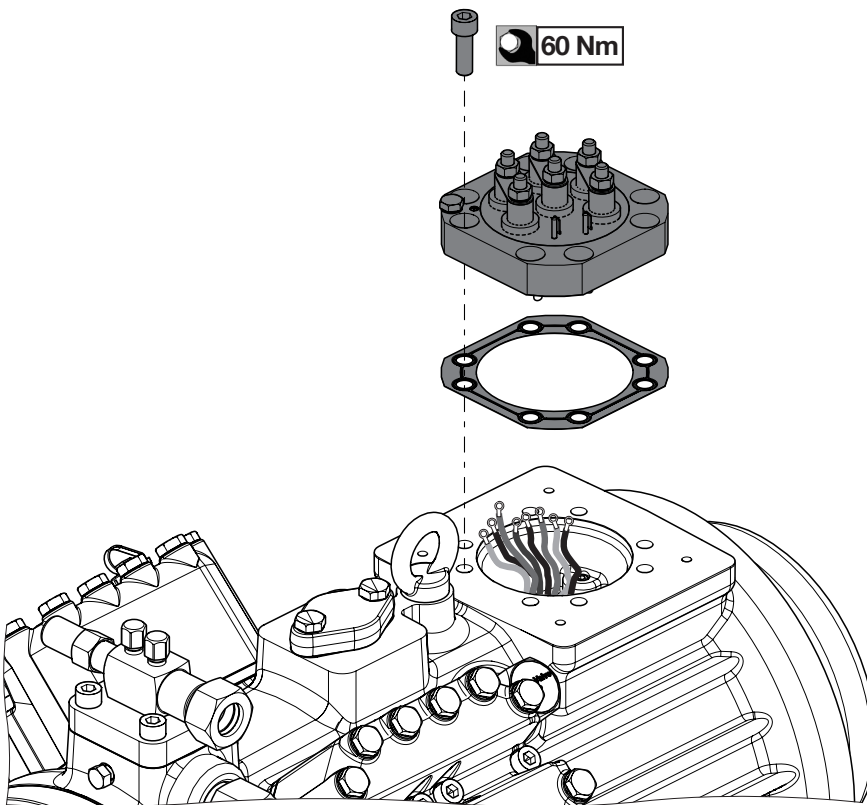
4.2 Assembling the terminal board

- Connect the electrical connections as per the illustration on page 17.
- Install the terminal board and the seal with 8 cylinder head screws M10x30.



INFO

- **Observe the tightening torques!**



4.3 Connecting the electrical connections on the terminal board



WARNING

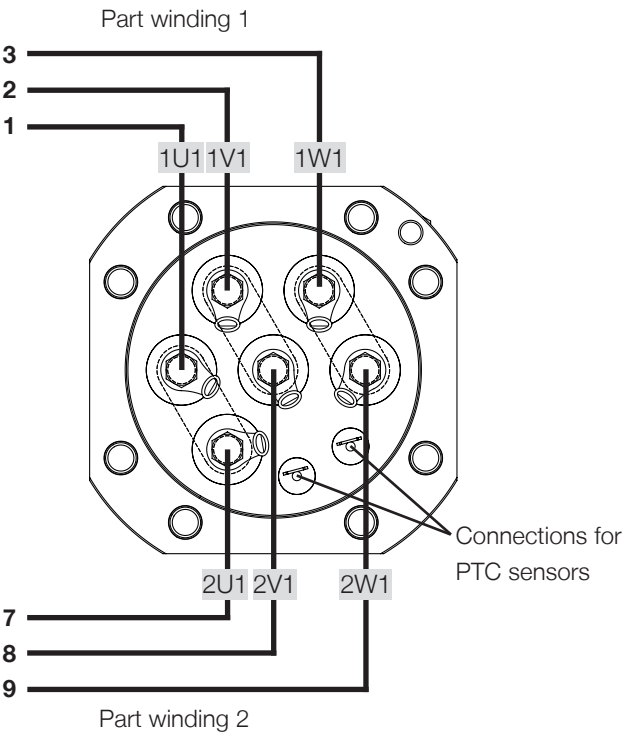
► Make sure that you use the correct connection on the cable harnesses!



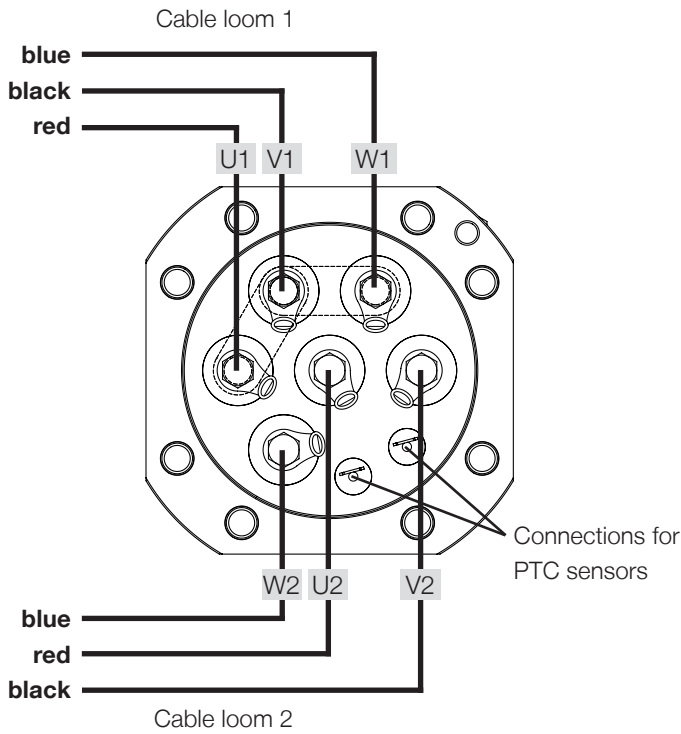
NOTE

The drawings show the underside of the terminal board.

Terminal assignment on the terminal board
Standard part winding



Terminal assignment on the terminal board
Star delta



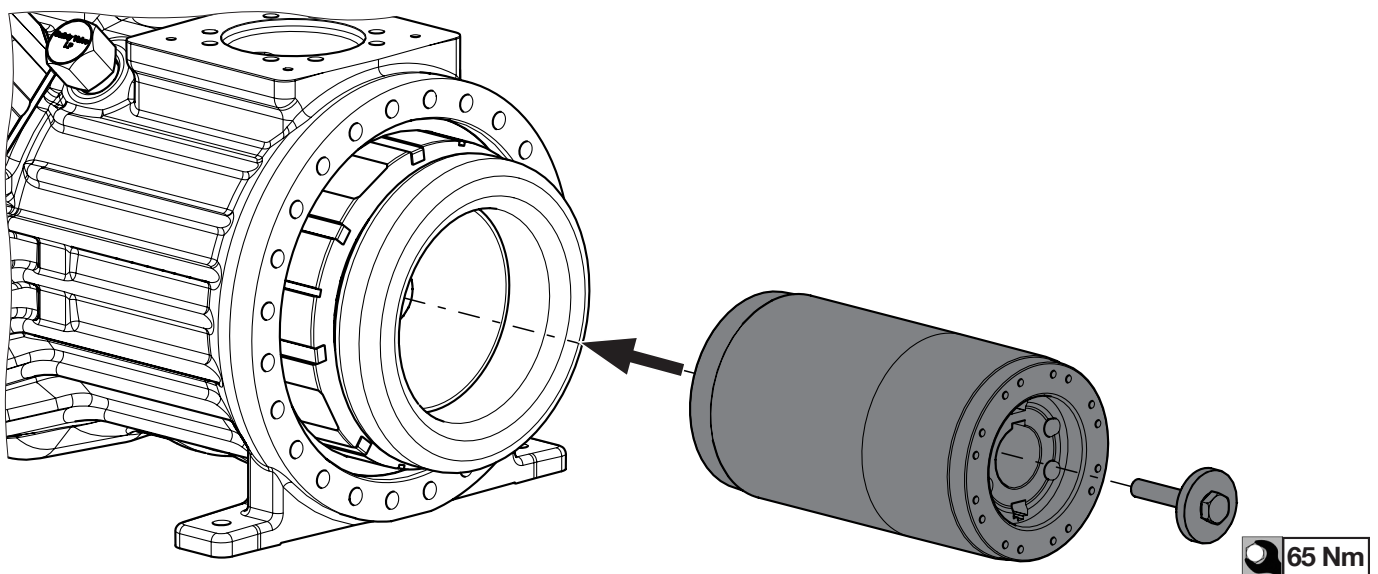
4.4 Assembling the rotor

- Push the rotor on the crankshaft.
- ▶ Screw in the **new screw M12x70** with the disk.



INFO

- ▶ Note the direction of the feather key — rotor.
You must align the parts in order to install them.
- ▶ **The screw is adhesive-coated and must only be used once!**
- ▶ **Observe the tightening torques!**



4.5 Assembling the motor cover

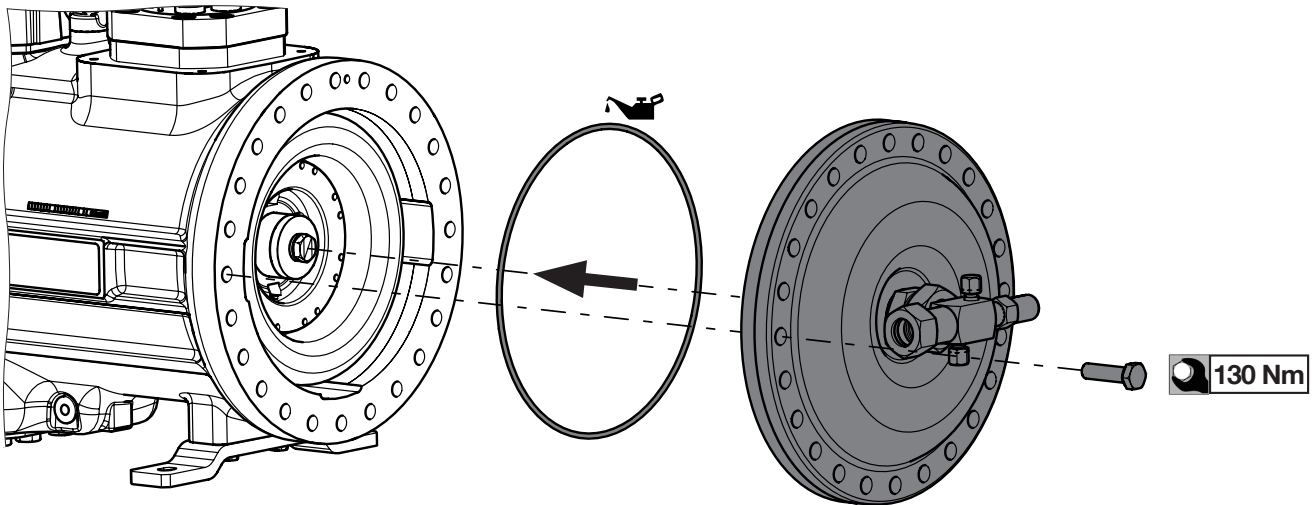


INFO

- Observe the tightening torques!

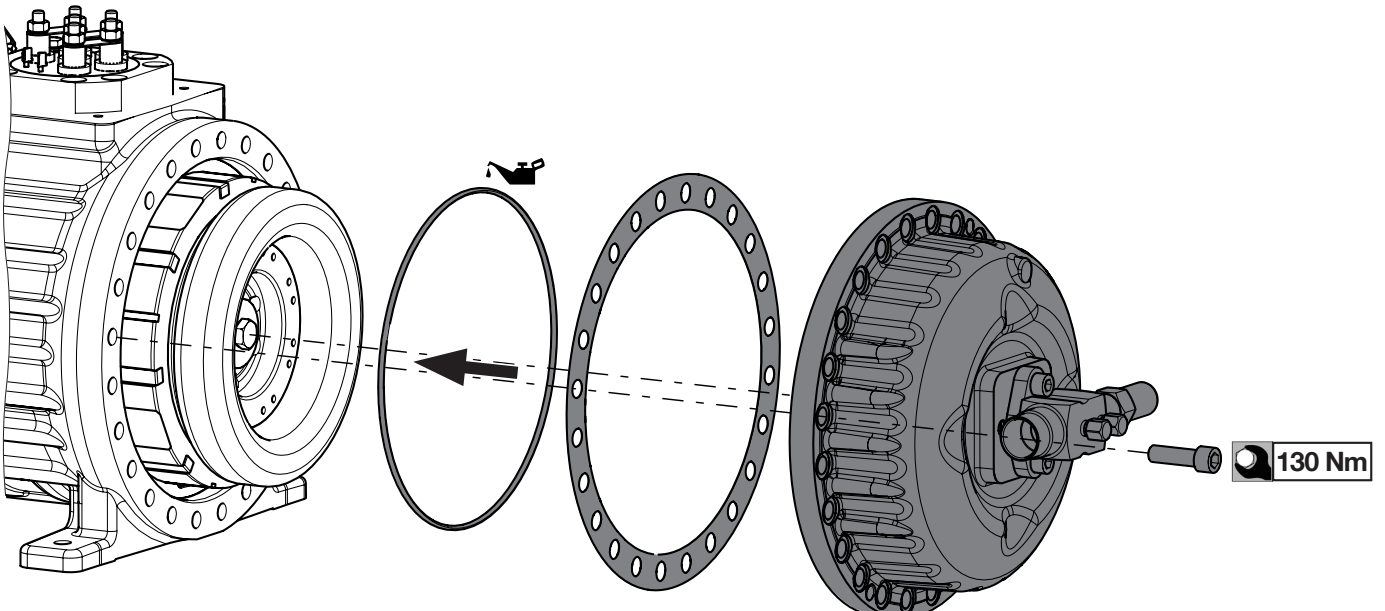
HGX2 CO₂ T

- Slightly oil the new O-ring.
- Install the motor cover and the O-ring with 24 hexagon head screws M12x45.



HGX34 CO₂ T / HGX46 CO₂ T

- Slightly oil the new O-ring.
- Insert the O-ring and place it into the groove on the motor cover.
- Install the motor cover and the new flat gasket with 24 cylinder head screws M12x40.



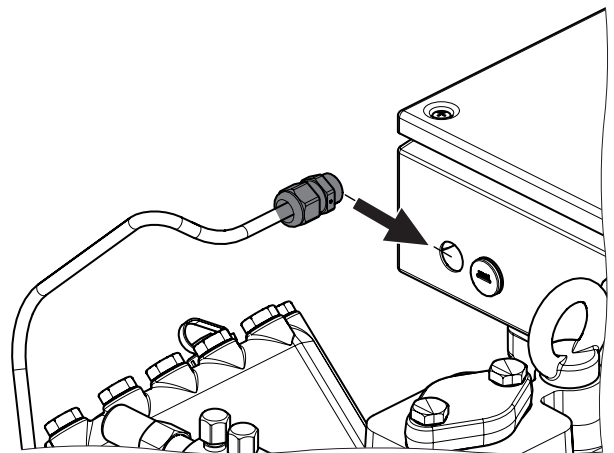
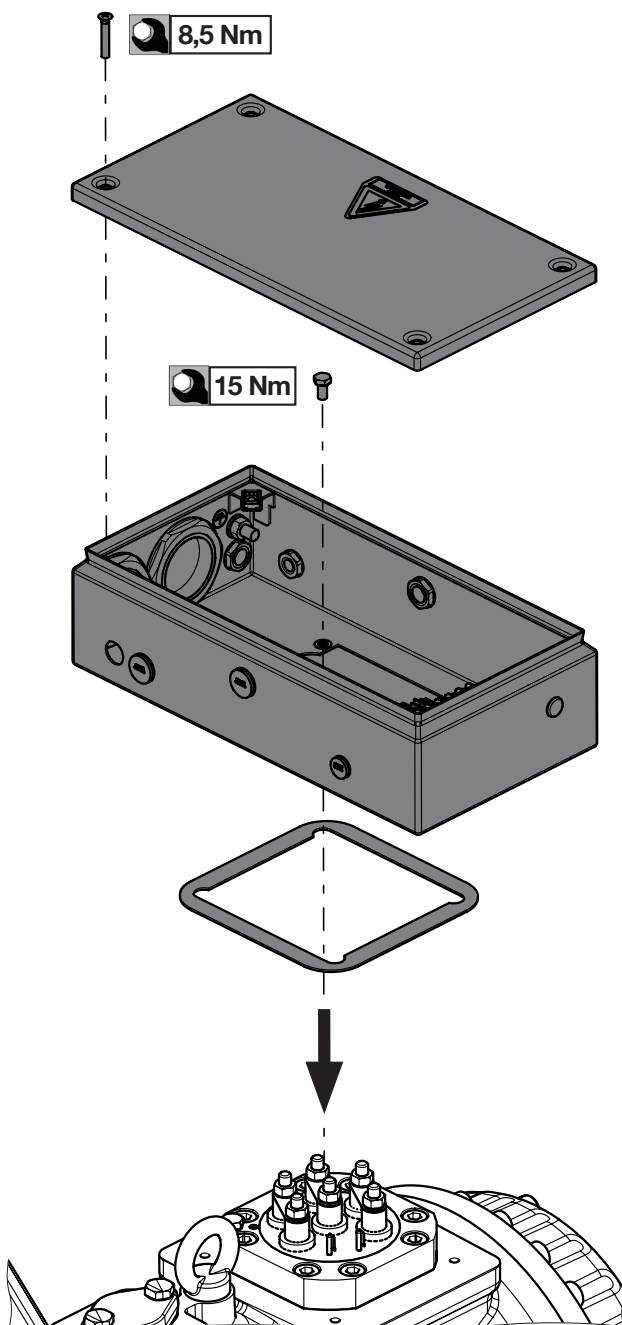
4.6 Assembling the terminal box

- Install the terminal box with the seal.
- Fasten the connections to the terminal board and the motor protection device.
- Install the terminal box cover. **Make sure that the sealing lip is not damaged!**
- Connect the oil sump heater on the terminal box.



INFO

- ▶ Mount all cable screws to the terminal box with care, so the the IP protection type continues to be guaranteed.
- ▶ Observe the tightening torques!



4.7 Assembling

- Install the screw plug and the seal ring.



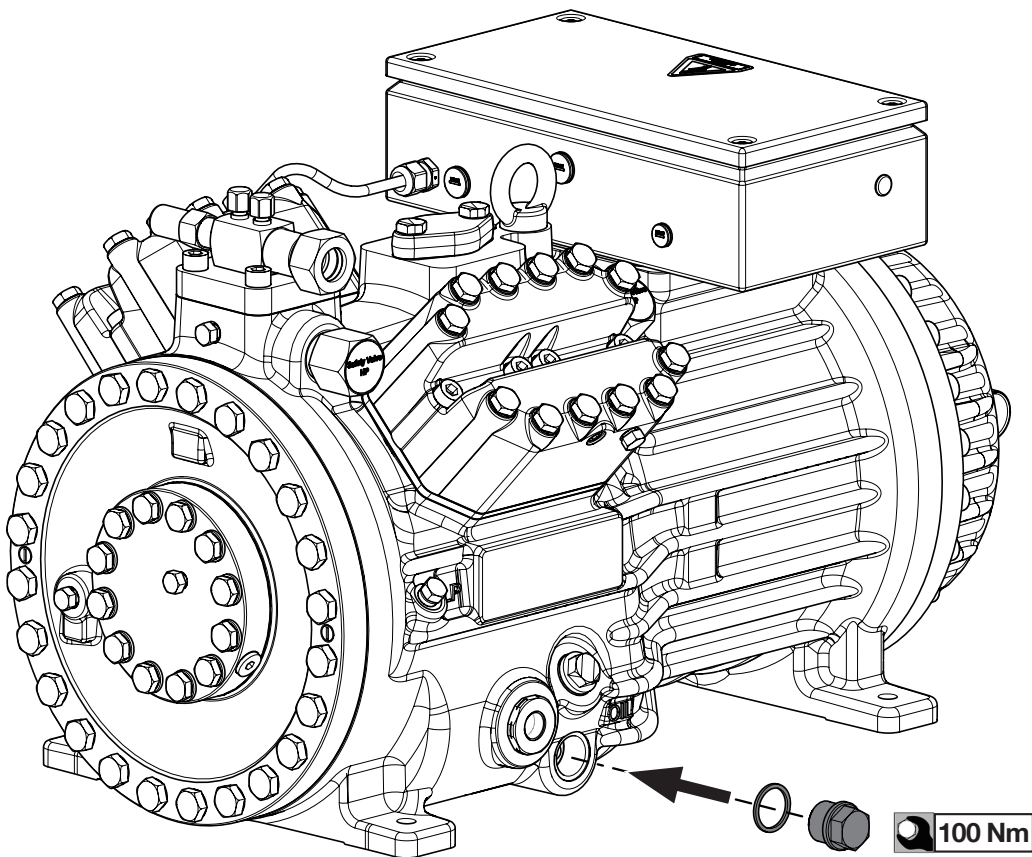
DANGER

- Carry out the additional work steps such as „filling the oil“ et c. as per the assembly instruction.
See the assembly instruction, in particular the „Start-up“ chapter.



INFO

- Observe the tightening torques!



Dear customer,

if you have any questions about installation, operation and accessories, please contact our technical service or your refrigerating system wholesaler or our representative.

The Bock service team can be contacted by phone **+49 (0)7022 9454-0** or via **service@bock.de**

Yours faithfully Bock GmbH



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