# AMKASYN
# Bearing exchange for the Motor series DW13-60-4, DW13-100-4, DW13-150-4 without holding brake
## with encoder type I, L or E

Version: 2005/28
Part No.: 201013

**Table of contents**



## 1 Safety instructions

- There is **danger to life** if this is not complied with!
- Incorrect behaviour leads to personal injury and material damage.
- Observe the warning and information signs!
- Observe the national/international and plant- specific regulations and requirements
- Perform work only on stationary motor disconnected from the power supply.
- Work on electrical machines may be performed only by skilled personnel, under the use of suitable equipment and methods.
- Cleanliness in all maintenance work.
- Use only original AMK spare parts. No liability warranty if non-AMK parts are used!
- AMK motors consist of precision parts, therefore the greatest care and cleanliness in disassembly/assembly.
  Encoders and sensors contain electro statically sensitive devices (ESD). Observe protective measures!
- Draw off or fit drive elements on the shaft end of the motor only with suitable tools. **Under no circumstances** may you use blows (hammer blows) and open flames (welding burners, soldering lamps)! (Endangering the bearings and true running of the shaft end)
- AMK does not overtake any liability for damages which were caused by incorrect maintenance and repair.
- All guarantee demands defunct when the motor will be opened.

## 2 List of tools

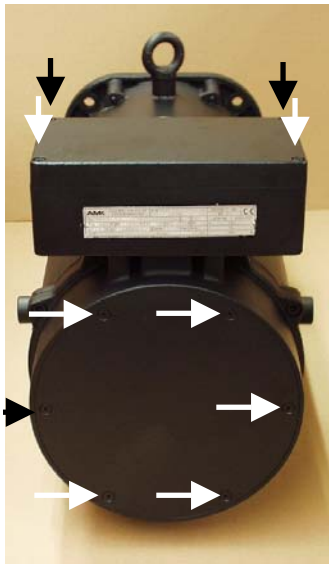
1.) Hexagon key, size 2
2.) Hexagon key, size 3
3.) Hexagon key, size 5
4.) Hexagon key, size 6
5.) Socket wrench, size 7
6.) Socket wrench, size 10
7.) Phillips screwdriver Ph 0
8.) Phillips screwdriver Ph 3
9.) Circlip pliers, size A3
10.) Diagonal cutting nippers
11.) Bearing extractor, size 3-200
12.) Induction Heater TIH 030
13.) Plastic tip hammer
14.) Torque wrench 0-100

## 3 Accessories

1.) Klüber Asonic HQ 72-102 (AMK Part-No. 14499)
2.) Klüber Montagepaste 31-52 (AMK Part-No. 19049)
3.) Ring ball bearing 6210-1Z D625 C3 (AMK Part-No. 18551)
4.) Ring ball bearing 6311 D625 C3 (AMK Part-No. 18134)
5.) Auxiliary screw M 8*95
6.) Cable tie 100mm
7.) Brass disc
8.) Loctite 241 [1)]

[1)] Loctite screw locking 241 (medium) is only used for special application. (e.g. vibrating table)

## 4 Dismantling



**Step 1**

Open the terminal box by using a Phillips screwdriver size Ph3.
Remove the terminal box cover plate.

**Step 2**

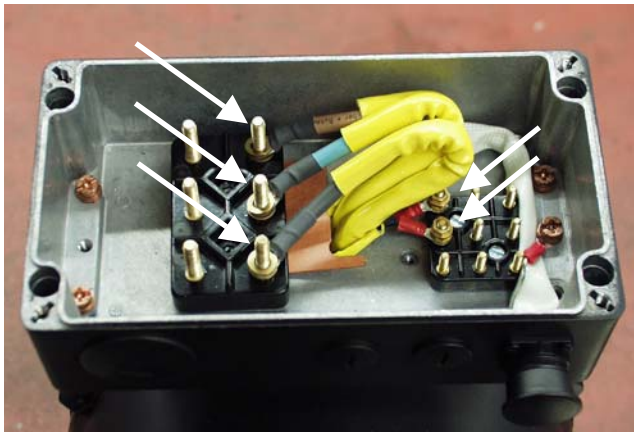
(Bearing side B)
Remove the casing cover
with the hexagon key, size 3.

**Step 3**

Remove the encoder cover by using a Phillips screwdriver size PH 0.

**Step 4**

Loose the cable tie.
Remove the encoder cable.

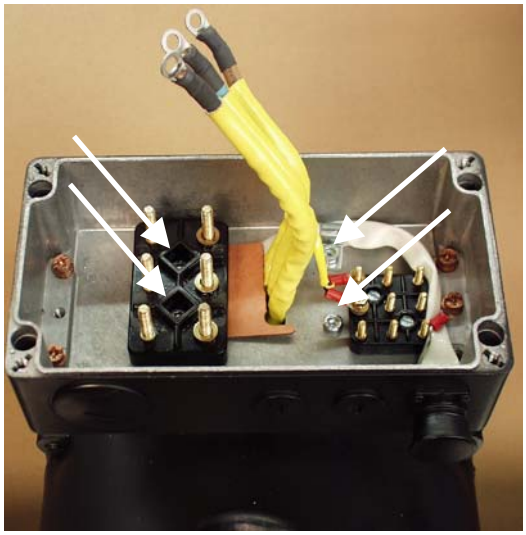


**Step 5**

Loose the screw nuts (motor cable) from the terminal board by using a socket wrench size 10.

**Step 6**

Loose the screw nuts (motor PTC resistor) from the terminal board by using a socket wrench size 7.

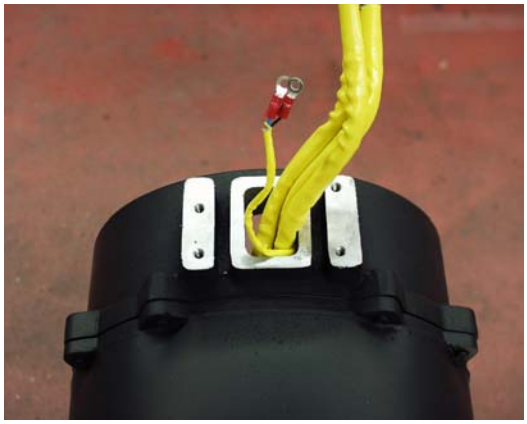


**Step 7**

Remove the terminal board by using a hexagon key size 5.

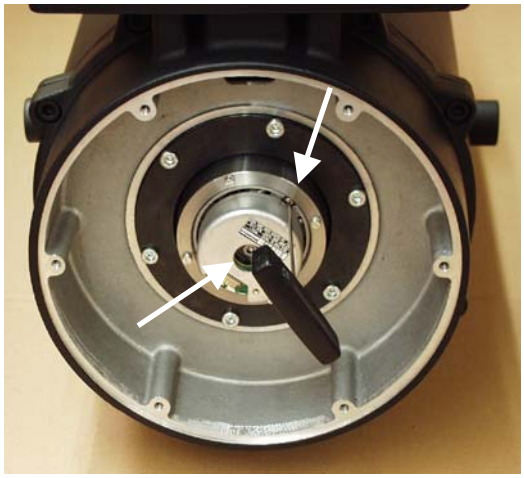
**Step 8**

Unscrew the hexagon socket screw and the cable clip by using a hexagon key size 5 for removing the terminal box.



**Step 9**

Remove the terminal box together with the encoder cable.

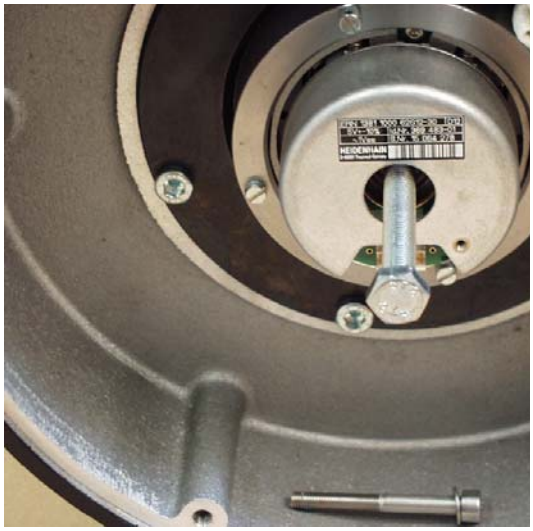


**Step 10**

(Bearing side B)
Open the hexagon socket screw by using a hexagon key size 2.

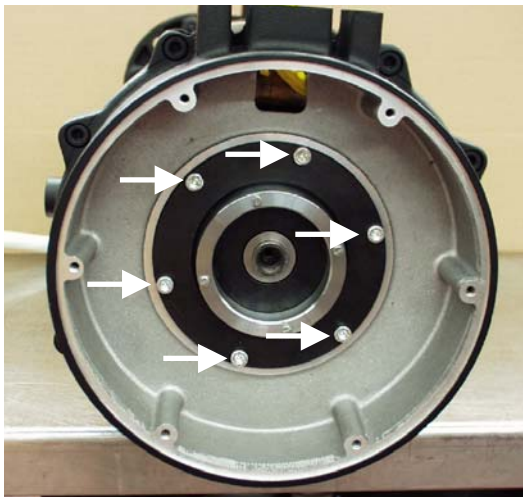
**Step 11**

Remove the hexagon socket screw from the encoder hollow shaft.
(Hexagon key, size 4)



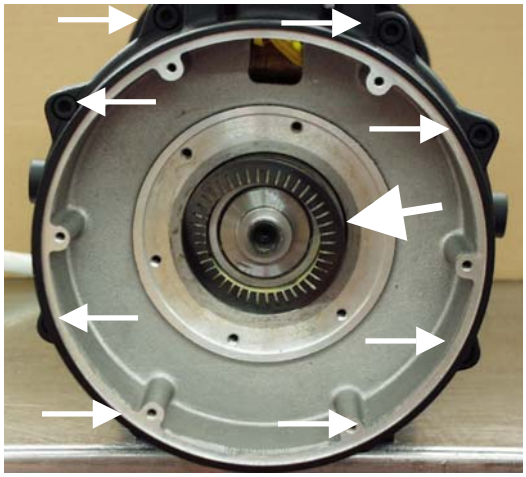
**Step 12**

To remove the encoder from the shaft
screw in the auxiliary hexagon bolt (M 8*95)



**Step 13**

(Bearing side B)
Remove the cap piece of the bearing by using a hexagon key size 5.



**Step 14**

(Bearing side B)
Demount the spider springs.

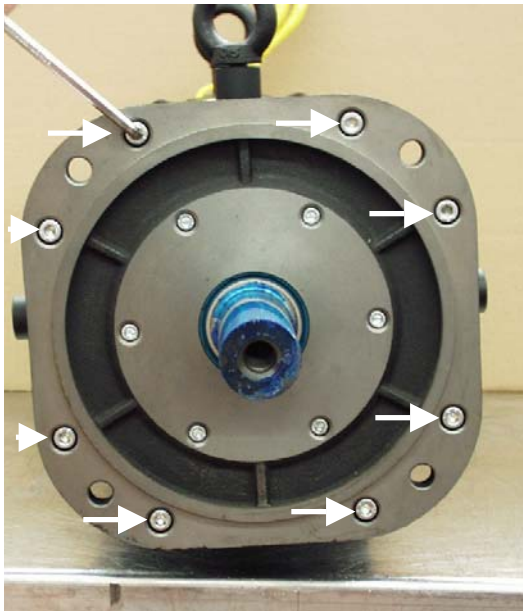
Take notes of the sequence.

**Step 15**

Unscrew the bearing shield side
B
by using a hexagon key size 6)

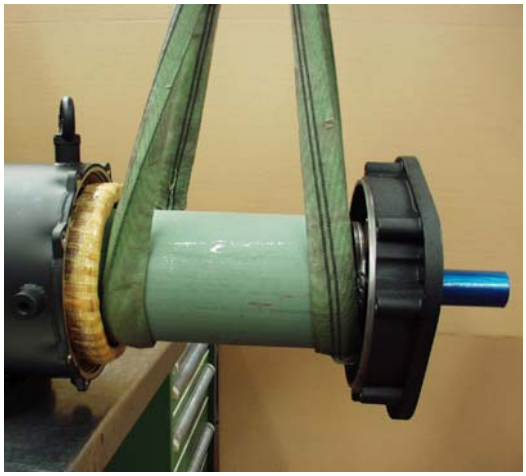
**Step 16**

Take off the bearing shield side B.



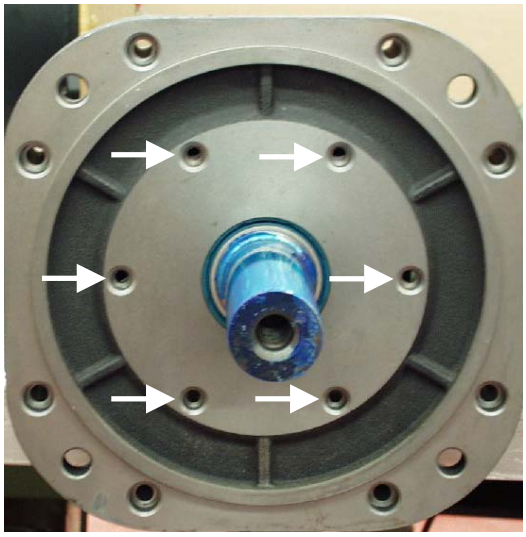
**Step 17**

Unscrew the bearing shield side A from the stator frame by using a hexagon key 6.



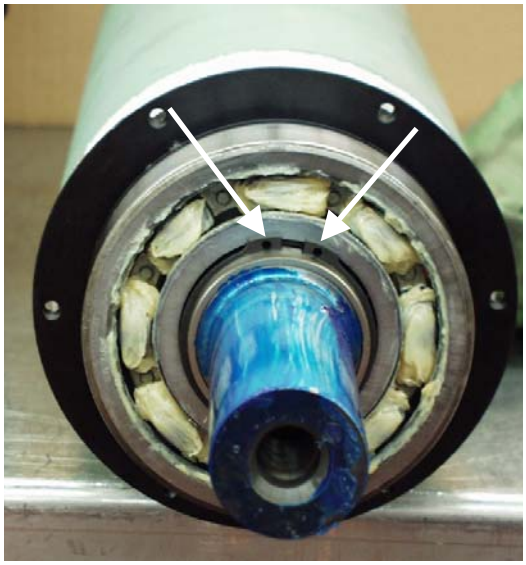
**Step 18**

Remove carefully the rotor with a pulley block.



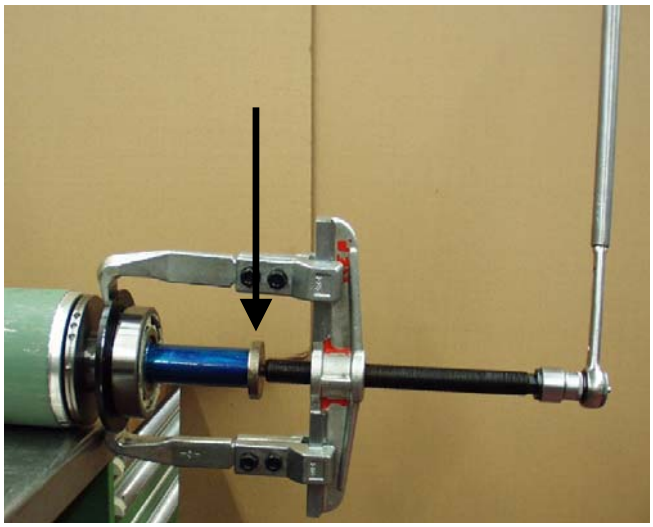
**Step 19**

Unscrew the hexagon socket screws to remove the bearing shield side A from the rotor by using a hexagon key size 5.



**Step 20**

Remove the locking ring by using circlip pliers size A3.



**Step 21**

(Bearing side A)
Remove the ball bearing A by using a ball bearing extractor size 3-200.

Protect the shaft with a brass disk!

**Step 22**

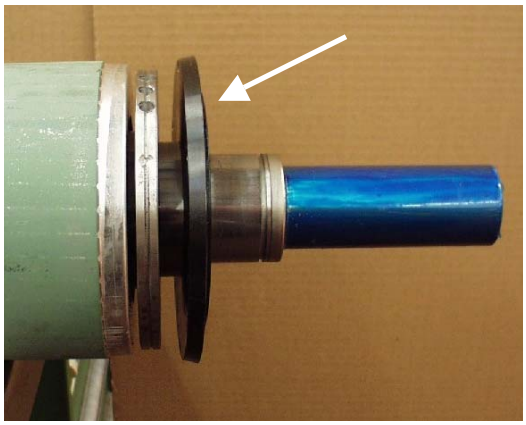
(Bearing side B)
Remove the ball bearing B
by using a ball bearing extractor
size 3-200.

Protect the shaft with a brass
disk!

## 5 Assembly

**Step 23**

Fill up the bell bearing A (SKF 6311 D625C3)
with ball bearing grease.
(Klüber Asonic HQ 72-102)



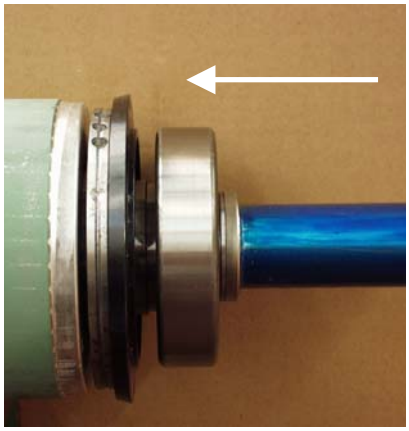
**Step 24**

(Bearing side A)

Push the cap piece of the bearing
over the shaft.

**Step 25**

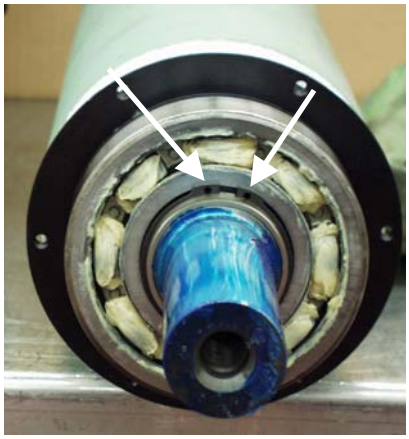
Carry the bell bearing A to a temperature of 90°C by using a Induction Heater TIH 030.



**Step 26**

(Bearing side A)
Push the heated bell bearing
over the shaft.

Grease the outer ring with
lubricating
paste (Klüber Montagepaste 31-52
(AMK Part-No. 19049))



**Schritt 27**

(Bearing side A)

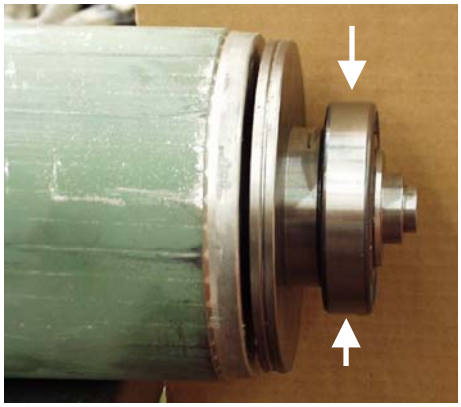
Mount the locking
ring
by using circlip pliers.


**Step 28**

Fill up the bell bearing B
(SKF 62101Z D625C3)
with ball bearing grease.
(Klüber Asonic HQ 72-102)

**Step 29**

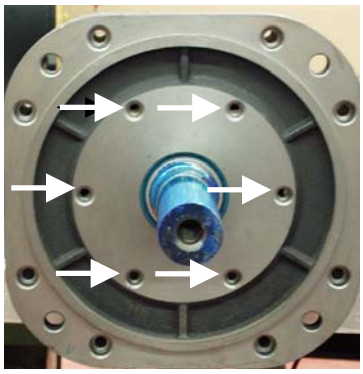
Carry the bell bearing B to a
temperature of 90°C by using a
Induction Heater TIH 030.



**Step 30**

(Bearing side B)
Push the heated bell bearing
over the shaft.

Grease the outer ring with
lubricating
paste (Klüber Montagepaste 31-52
(AMK Part-No. 19049))

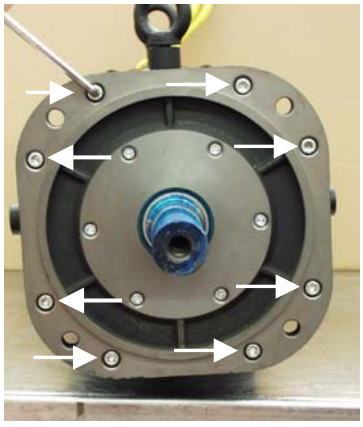


**Step 31**

Mounting the bearing shield side A with the
Hexagon socket screws M 6*45 on the rotor.
Using a hexagon key size 5.

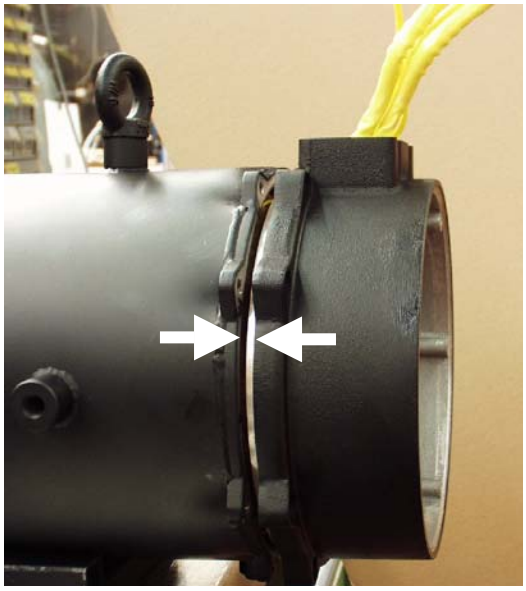
**Step 32**

Push the rotor with a pulley
block
carefully into the stator.



**Step 33**

Mounting the bearing shield side A on the stator
frame
by using a hexagon key 6.

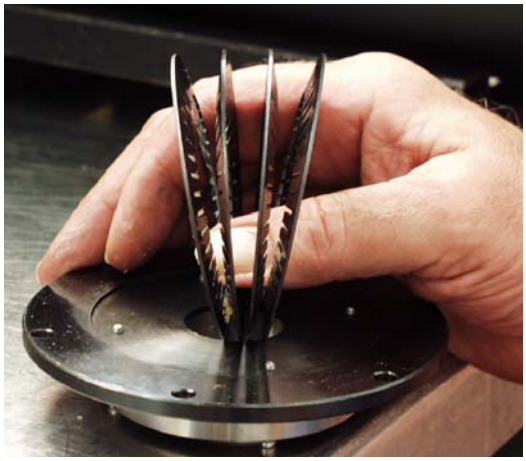


**Step 34**

(Bearing side B)
Push the motor cables trough the bearing
shield B.

Put the bearing shield on the housing.

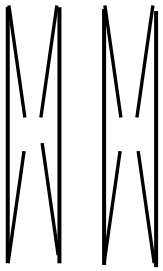
It must be 10 mm place between the bearing shield and the housing.

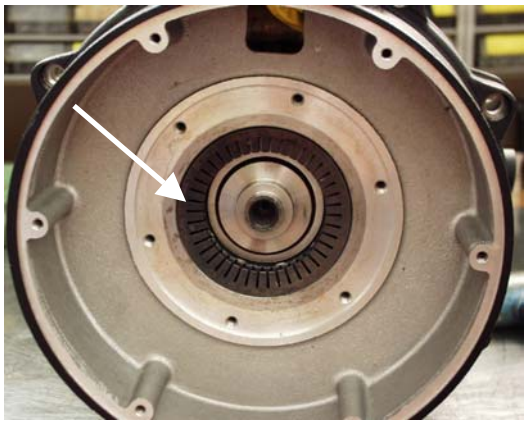


**Step 35**

Take care of the sequence of the spider springs.

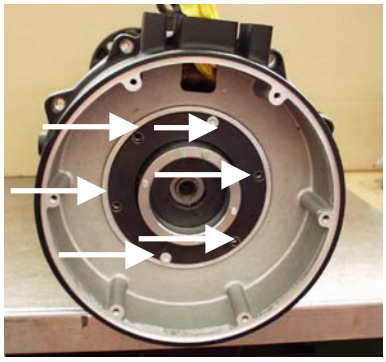
Grease spider springs with lubricating paste (Klüber Montagepaste 31-52 (AMK Part-No. 19049))





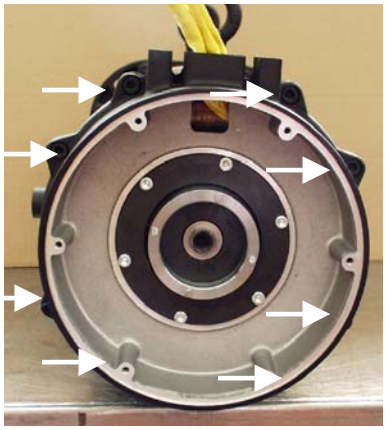
**Step 36**

Insert the spider springs.



**Step 37**

(Bearing side B)
Mounting the cap piece of the bearing with screws M 6*16.
(Hexagon key, size 5)



**Step 38**

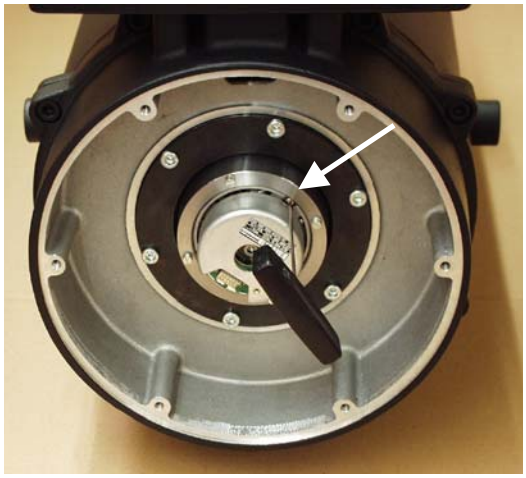
Mounting the bearing shield B with the hexagon screws M 8*20
(Hexagon key, size 6)

**Step 39**

Insert encoder.

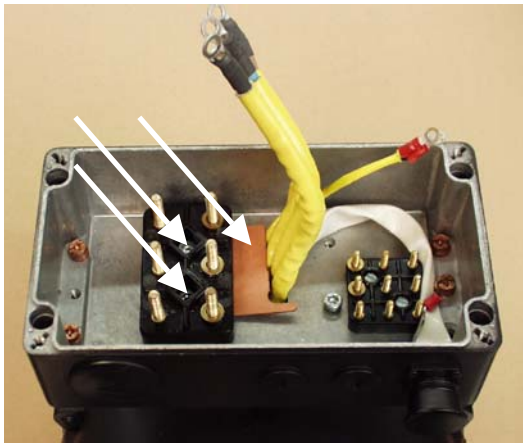
**Step 40**

Put the hexagon socket screw M 5*45 with the washer through the hollow shaft encoder.
Fasten the screw with **5,2Nm**.
(Torque wrench hexagon key, size 4)



**Step 41**

Fasten the hexagon socket screw with
**0,65Nm**.
(Torque wrench hexagon key, size 2)

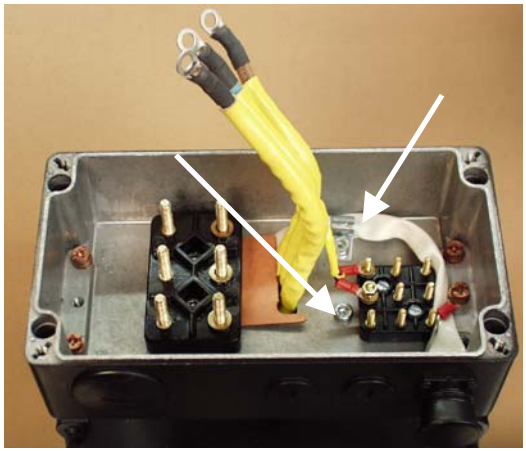


**Step 42**

Pull the motor and the PTC cables trough the terminal box.
Lead through the encoder cable from top to bottom.

**Step 43**

Mounting the terminal box with the cover plate.



**Step 44**

Mounting the hexagon socket screw and the cable clip by using a hexagon key size 5 to fix the terminal box.

**Step 45**

Connect the PTC resistor to the terminal board.
(Socket wrench size 7)

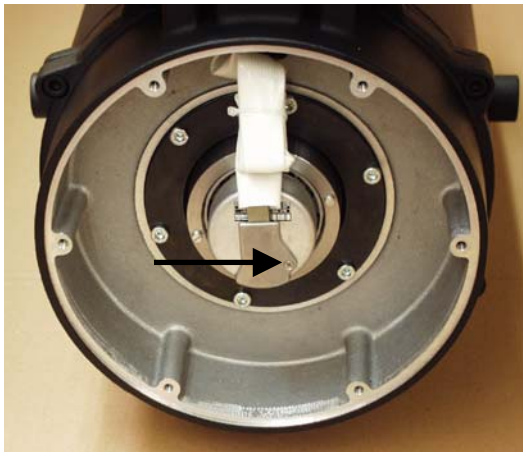
**Structure from bottom to top:**
tooth lock washer/washer/ring terminal
PTC resistor/washer/nut M4/2washers/
tooth lock washer /nut M4


**Step 46**

Connect the motor cables.
(Socket wrench, size 10)

Take care of the sequence of the
Motor cables.

**Structure from bottom to top:**
tooth lock washer/washer/ring terminal
PTC resistor/washer/nut M6/2washers/
tooth lock washer /nut M6



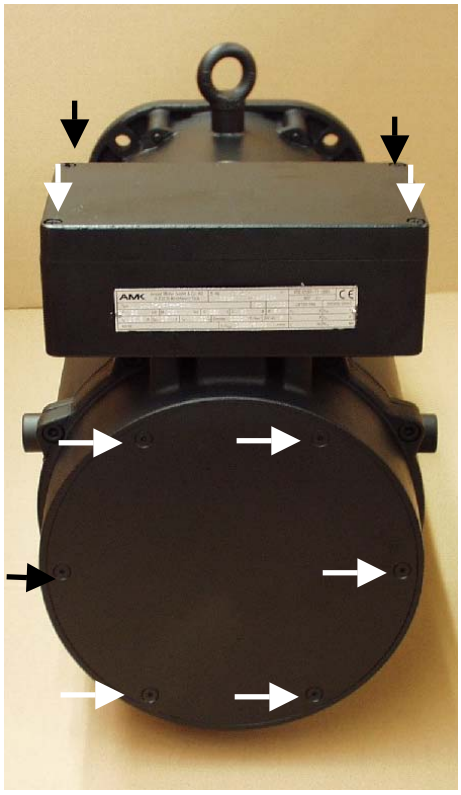
**Step 47**

Put on the encoder cable.

**Step 48**

Fix the encoder cover by using a Phillips screwdriver size PH 0.
(M 3*25)

Fix the encoder cable by using a cable tie.



**Step 49**

Mounting the terminal box by using a Phillips screwdriver size Ph3.
Remove the terminal box cover plate.

**Step 50**

Fix the casing cover by using a
hexagon key, size 3 and the screws
M 5*12.

# 6 Imprint

**Title** **PDK_201013_DW13_Lagerwechsel_e**

**Objective** **Description for the bearing exchange on DW 13 motors**

**Part number** **201013**

**History**

| Date |
|---|
| 2005/28 |
| |
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| |

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**Reservation**

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**Service**

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Office hours:
Mon.-Fri. 7:30 - 16:30, on weekends and public holidays the phone number of the standby service personnel is available on the answering machine.

You can assist us in finding a fast and reliable solution for the malfunction by providing our service personnel with the following:

- Information located on the ID plate of the devices
- The software version
- The device setup and the application
- The type of malfunction, suspected cause of the failure
- The diagnostic messages (error codes)

**Publisher**

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