

## W113 fan motor - modification to ball bearing

### A) Cutting



Loosening the nuts to the continuous threaded rods



Dismantled half (carbon brush / Commutator- Page)



Dismantled housing halves



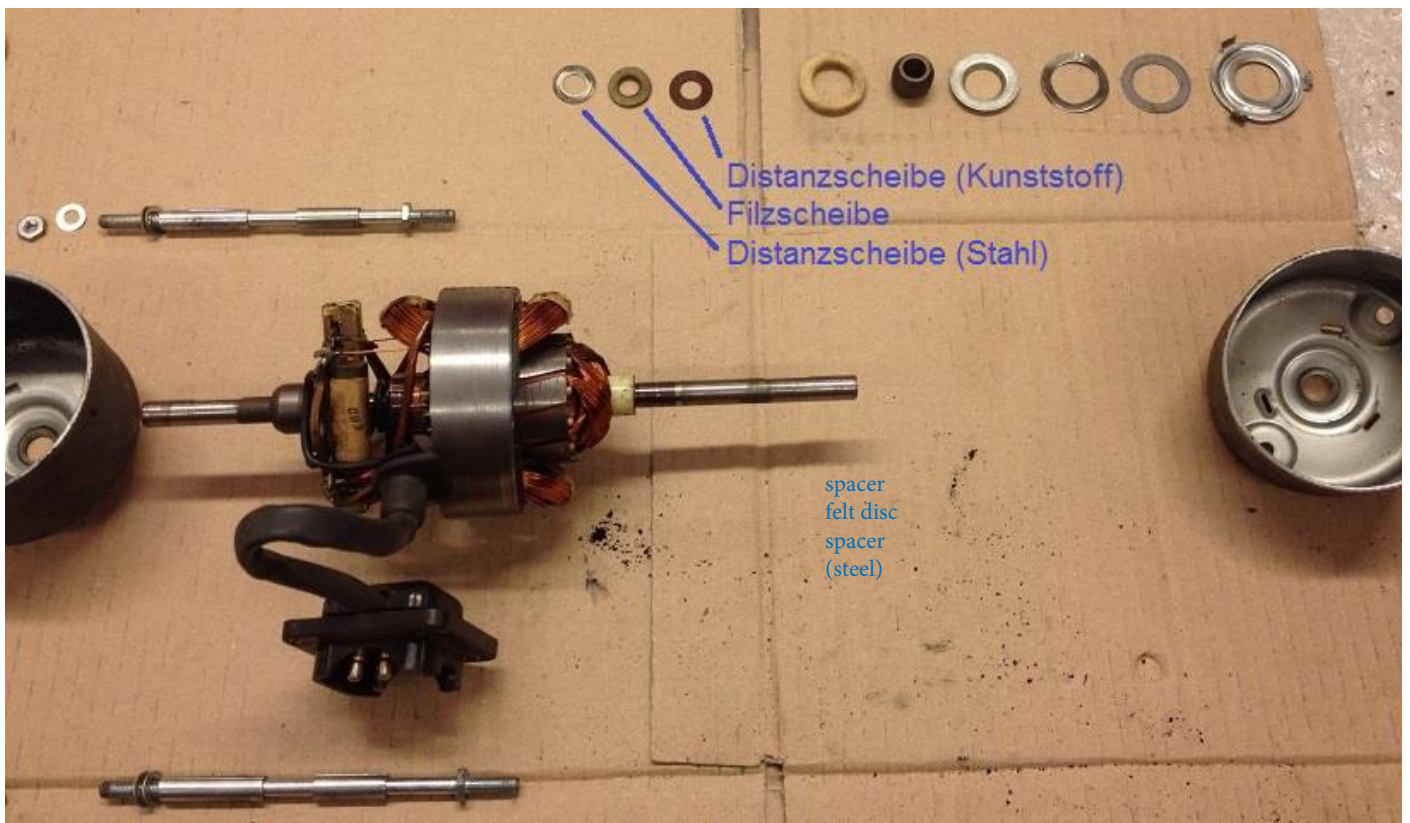
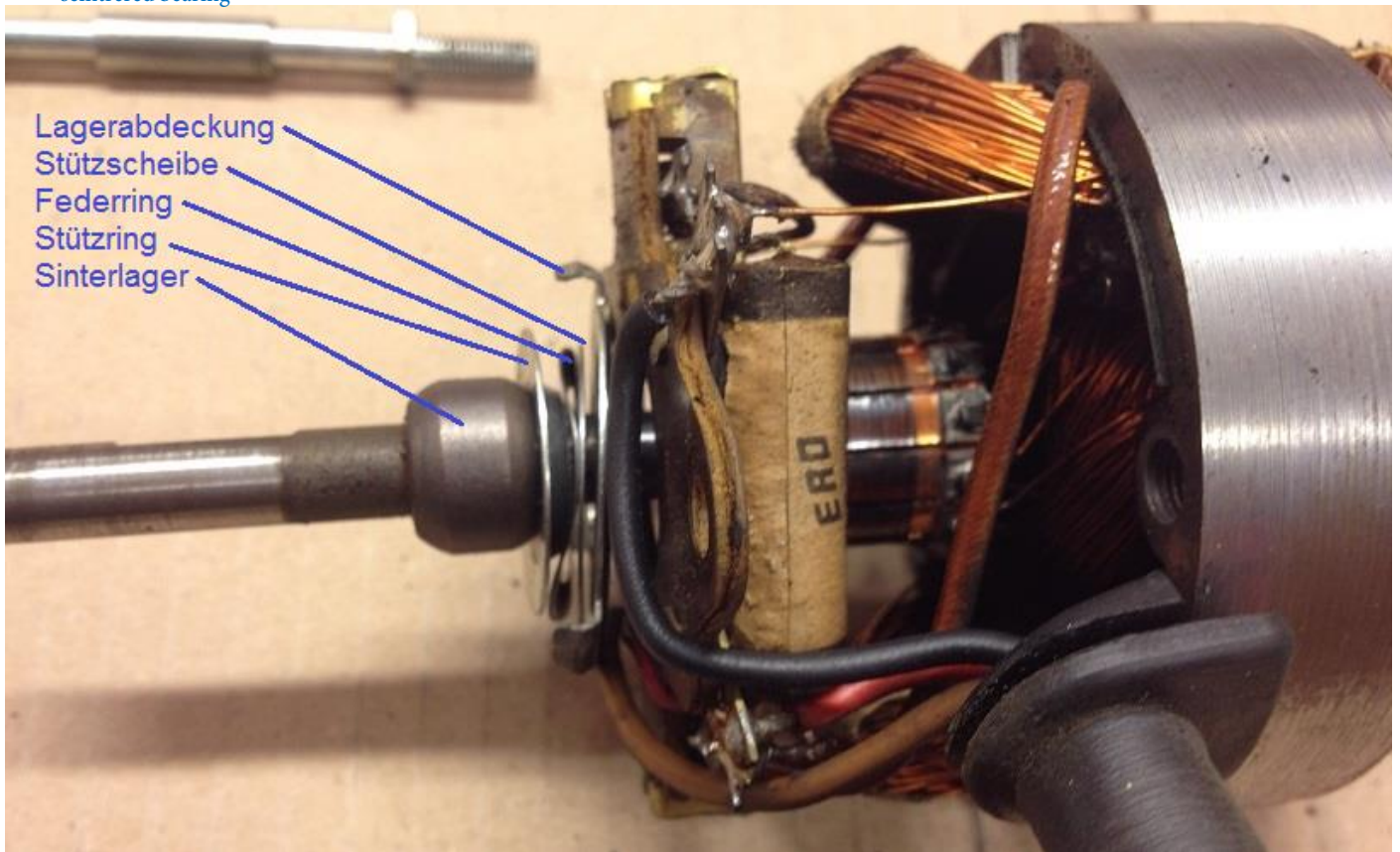
Anchor- page :

From left to right in the picture above➤ Felt ring, sintered bearings, support ring, spring washer, support plate, bearing cover

from left to right on the shaft > Shim (steel), felt ring, spacer (plastic / Bakelite)

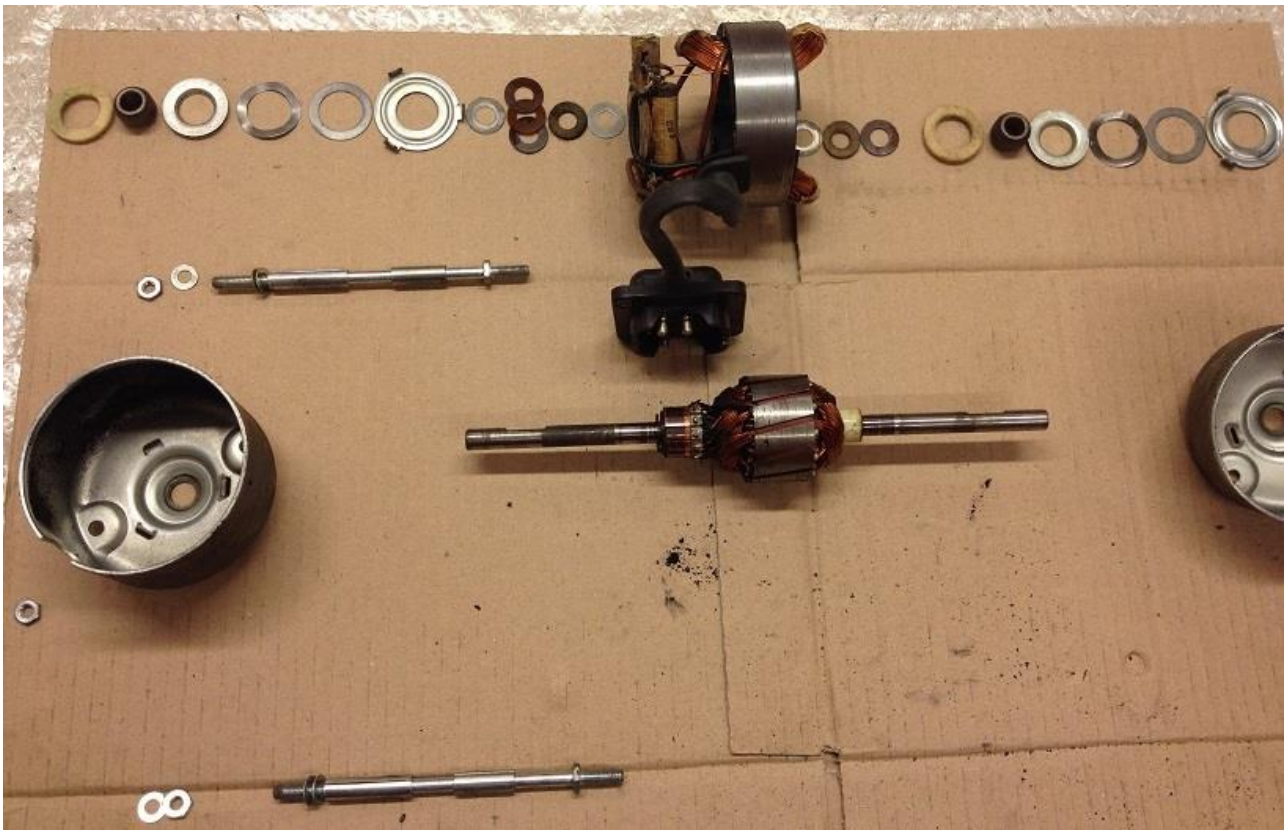


bearing cover  
support disc  
spring washer  
sintered bearing



General view items [Anchor- page](#)





runner completely removed / disassembled



individual parts **Commutator**- page



individual parts **Anchor**- page





runner



Assignment housing halves: **Commutator-** (Left)

**Anchor-** (Right)

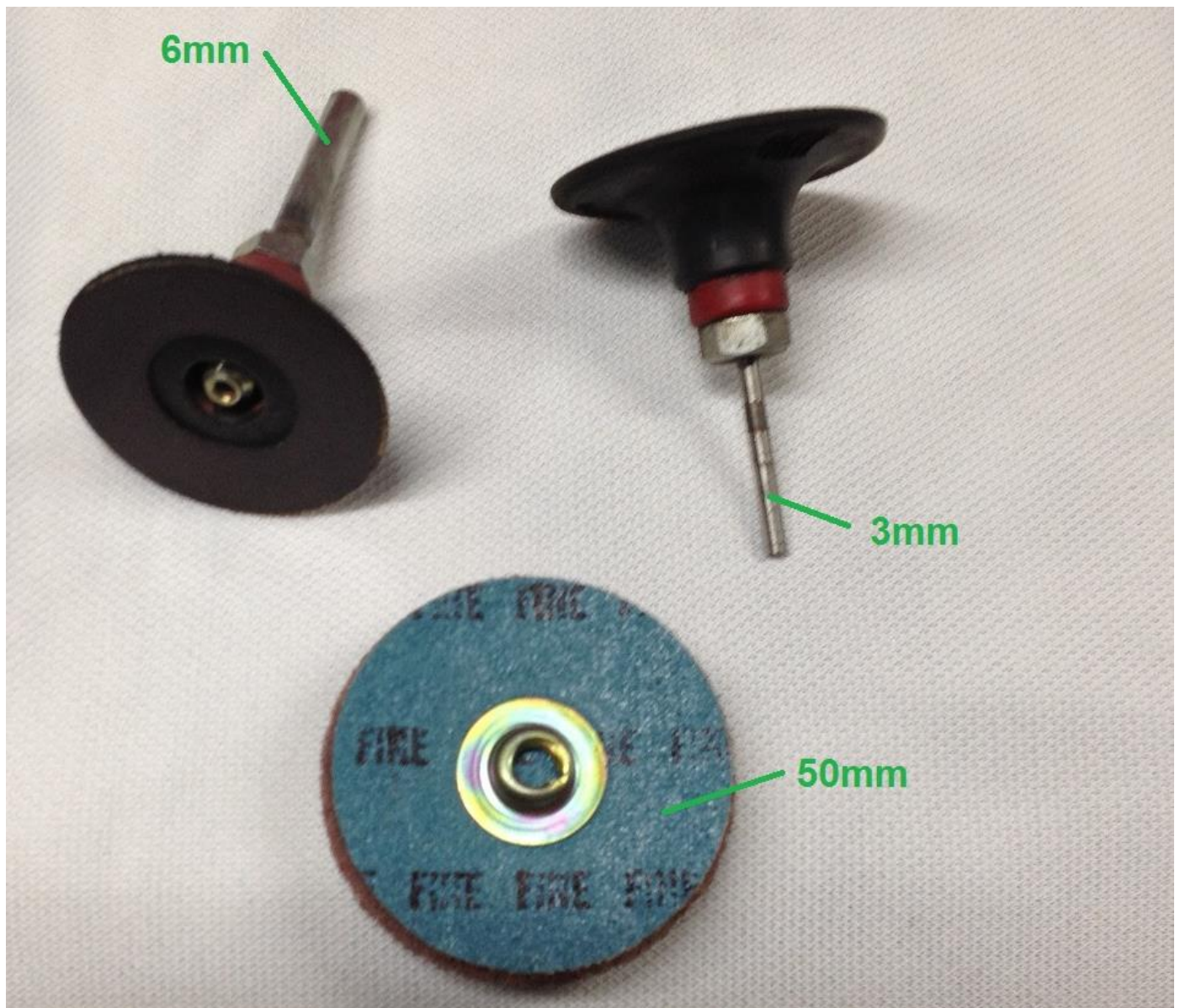




And purified (with nonwoven Ronde) smooth **runner**

ball-bearing

bearing shell



Ronde on fleece with abrasive plate (horse)

**B) components for conversion ball bearing ( Bearings, ball bearings, shims)**



Bearing shell halves







Deep groove ball bearings

[SKF 638 / 8-2Z](#) (8x16x6 mm) closed on both sides, with grease filling)

Warehouse sources Examples:

[HUG Ball bearing direct ekuellager.de dkl-ball bearing-shop ebay](#)

Shims sources Example: [Nastvogel](#) (Usually you get there, where to buy ball bearings)



Shims (8 x 14 x 0.1 ... 0.3 mm)> are used around the **runner** play set

and at the same time as a spacer for the ball bearing **inner ring**

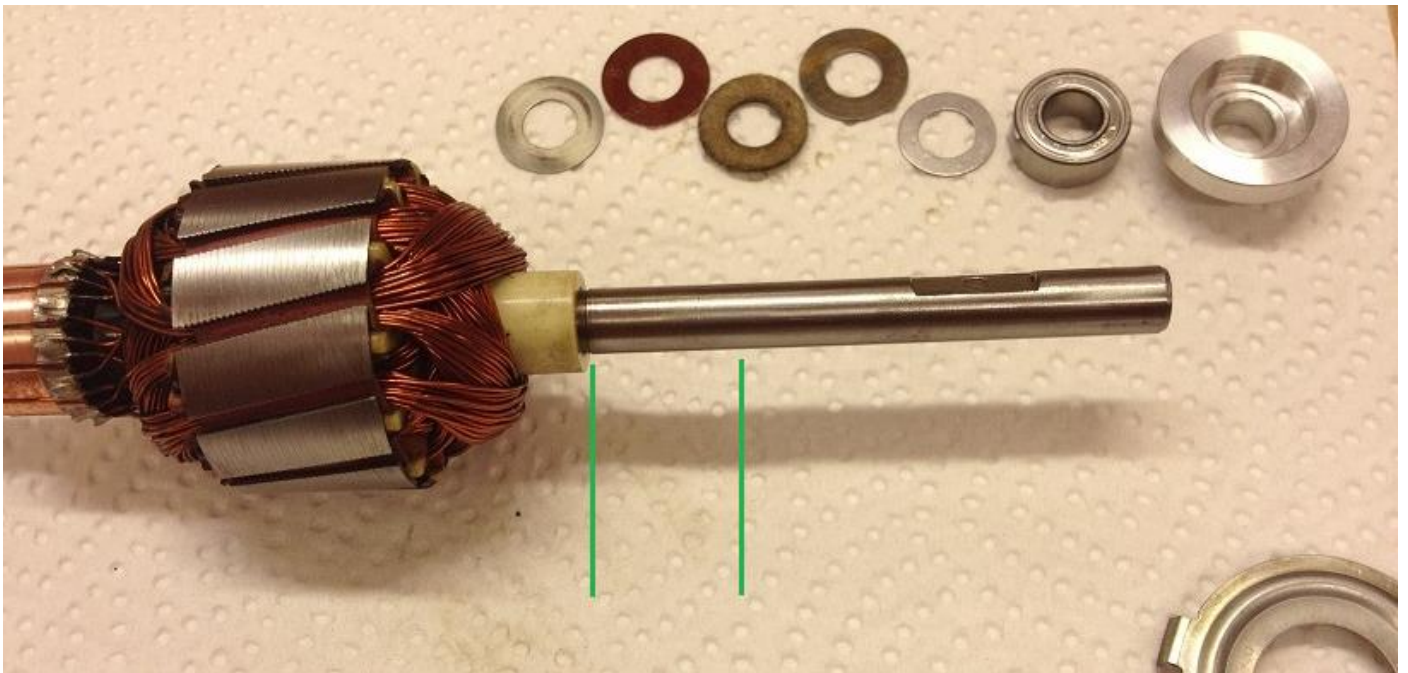




In the example here with strength 0.3 mm



### C) ball bearing assembly and assembly



In the area marked in green, the shaft is slightly thicker, which is why the ball bearings can be tightened more strictly there.

If you have the option, you can turn the shaft slightly in the area, which makes ball bearing assembly easier.

However, it is not necessary to turn it off - this way, the engine (whoever wants it) can be restored to its original condition.



In an earlier conversion, a copper ring was used instead of the shim - of course it also works.

It is crucial that after the housing has been tried on, the shaft is seated in the center again and rotates smoothly and without play.

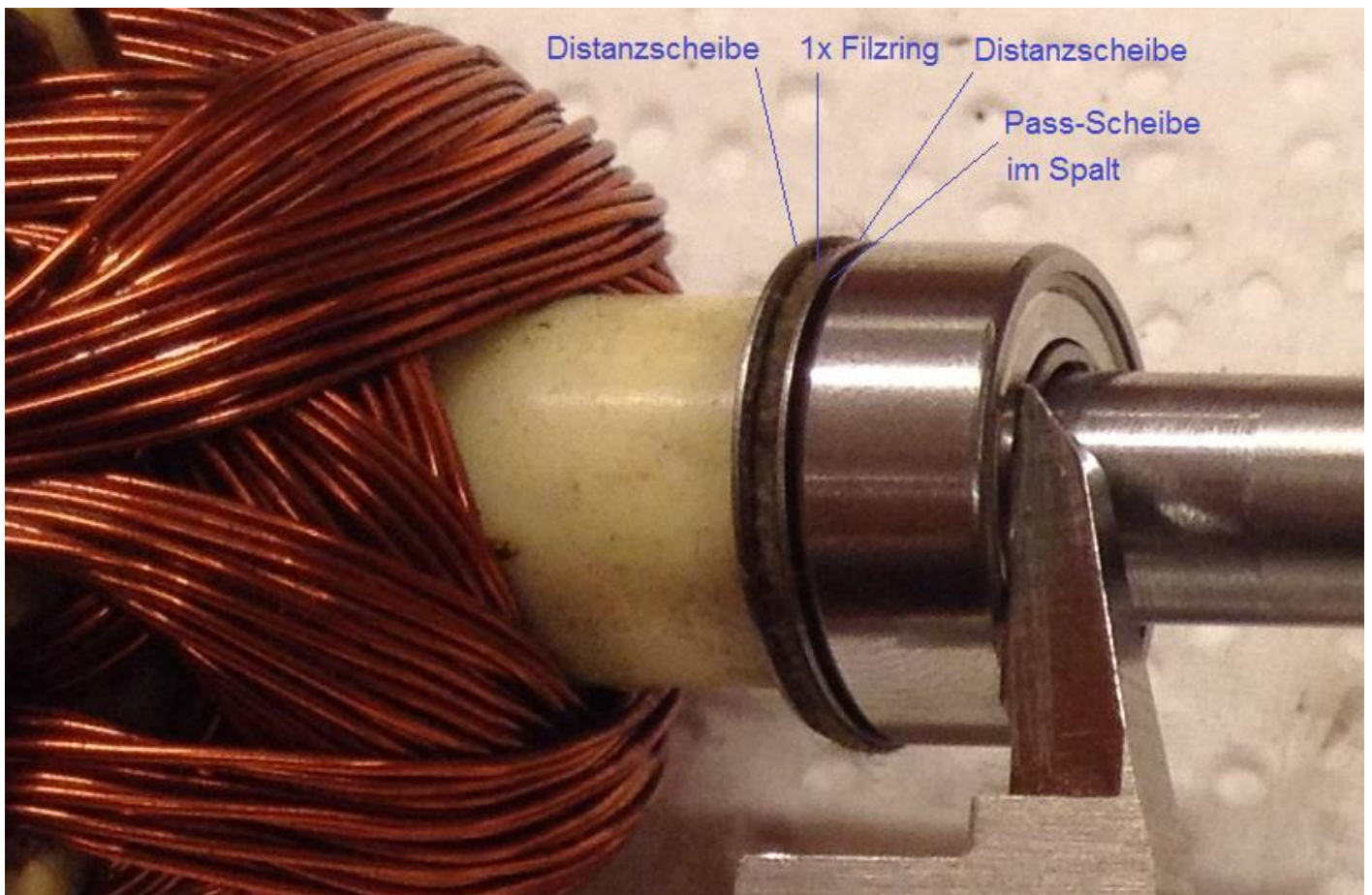




In the current renovation, I used this arrangement on the anchor side:

Spacer> 1x felt ring> Spacer> washer> ball bearing

and the ball bearing pulled up to the dimension 61.60mm. The felt ring leaves you some scope for tolerance +/- (the shim is not visible in the photo in the gap between the ball bearing and the spacer)

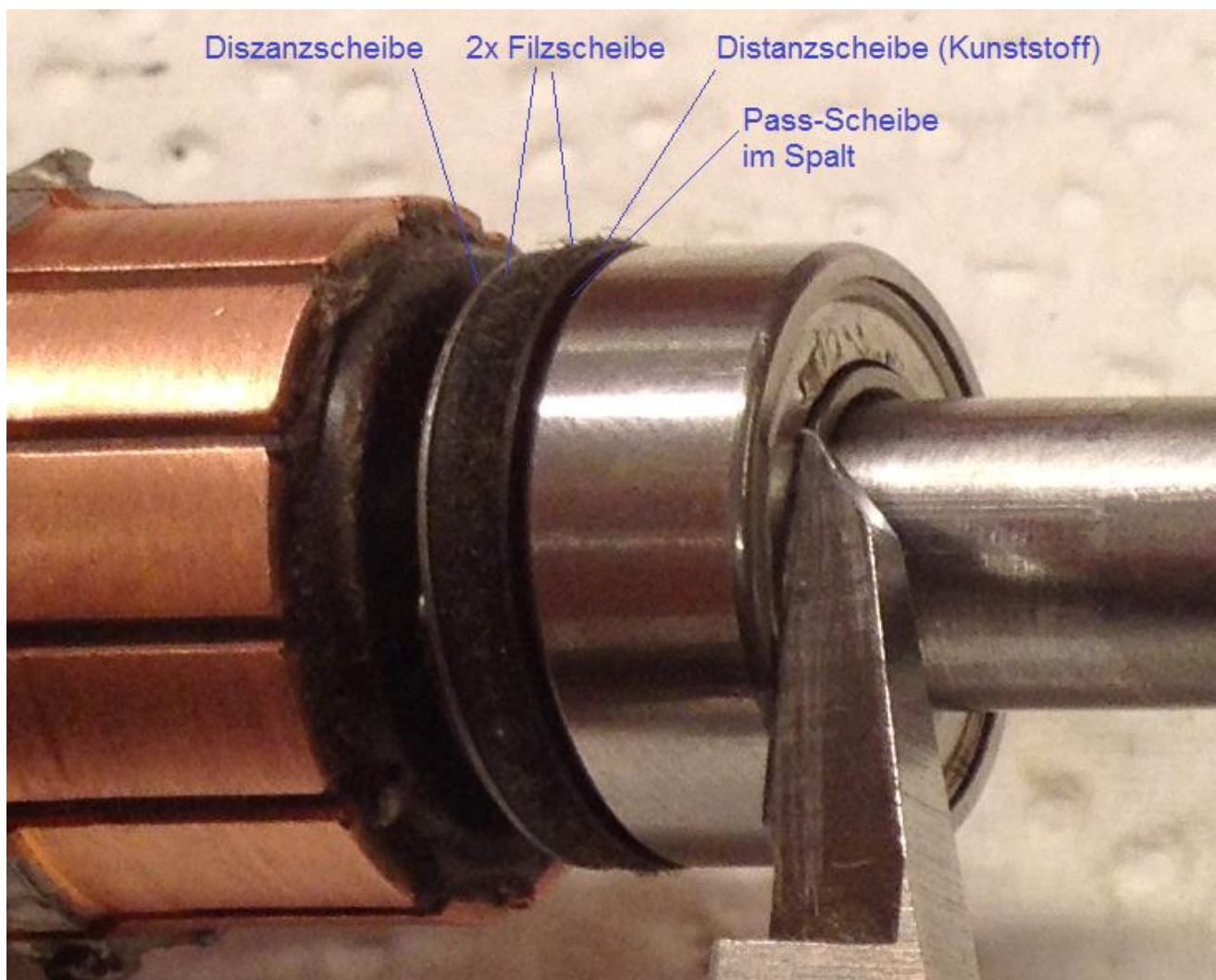






On the commutator side I used this arrangement:

Spacer > 2x felt ring > Spacer (plastic) > Shim washer > Ball bearing and the ball bearing also pulled up to the dimension 61.60mm. Again, the two felt rings give you scope for tolerance +/- (shim not visible in the gap between the ball bearing and spacer)







General view of runners with mounted ball bearings and cups

The back of the bearing shells have the inner negative shape of the motor housing halves. They center and hold themselves. The ball bearing outer ring is supported on the bearing shell.



Compare view

in the picture Left :

Motor housing half after removal

> that under the bearing cover

original sintered bearings

in the picture right :

inserted bearing shell with ball bearing seat

> here without cover



Left the original Sinterlager package

Right bearing shell with mounted original cover



ready to install fan motor - running total of quieter and with a little more speed / air flow.