Brake for stepper motors
Assembly instructions

ESB.MB57
ESB.MB60
ESB.MB86

Version 1.0.0

SOROTEC GmbH
Withig 12
77836 Rheinmünster

Tel.: +49 (0) 7227-994255-0
Fax: +49 (0) 7227-994255-9
E-Mail: sorotec@sorotec.de
Web: www.sorotec.de

Why a motor brake?

Stepper motors are widely used to drive the axes in CNC machines. In vertical axes (Z-axes), a heavy spindle motor and/or a large spindle pitch can cause the spindle to slowly descend after the machine is switched off. This unwanted and uncontrolled movement is prevented by a brake attached to the motor, which locks the axis when de-energized. Only when operating voltage is applied does the brake release the axis.

The brake installation described below requires a suitable stepper motor whose extended shaft also protrudes from the rear end for this purpose. The brake is then attached to this end and connected to the motor housing.

Note:
Have a 24 V / 1 A DC power supply ready.

There are two different versions of the brake discs. These are identified as follows:

V1*: with two mounting screws*
(for 6.35 mm axle)

V2*: with three mounting screws*
(for 8 mm axle)

Fig. 1: Motor brake with mounting hardware

Assembly

Step 1

V1. Remove the rubber caps and align the clamping screws of the brake disc with the two holes in the housing.

V2. Remove the rubber caps. For brake discs with three clamping screws, only one of them can be aligned with one of the two holes.

Fig. 2: V1 Brake disc with two clamping screws

Fig. 3: V2 Brake disc with three clamping screws

Step 2

Align the flat end of the motor shaft parallel to the edge of the motor housing (a mounted shaft coupling makes it easier to rotate the shaft). Now attach the brake to the motor and tighten it securely.

V1. Tighten the clamping screws through the bores using a suitable Allen key.

V2. First, tighten the clamping screw facing the bore. Then release the brake by applying operating voltage. Next, rotate the shaft until the other clamping screws become accessible through the bores and can also be tightened.

Fig. 4: Align clamping surface parallel to the housing edge

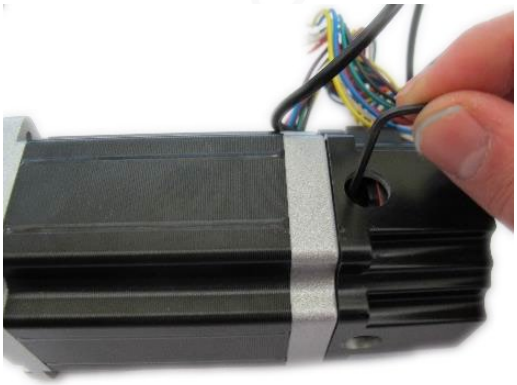

Fig. 5: Tightening the clamping screws

Step 3

Release the brake by applying operating voltage and remove it from the motor. The brake disc now remains on the motor shaft. Remove the red interleaving paper. This paper disc is intended to prevent the brake disc from sticking until the brake is used and is no longer necessary.

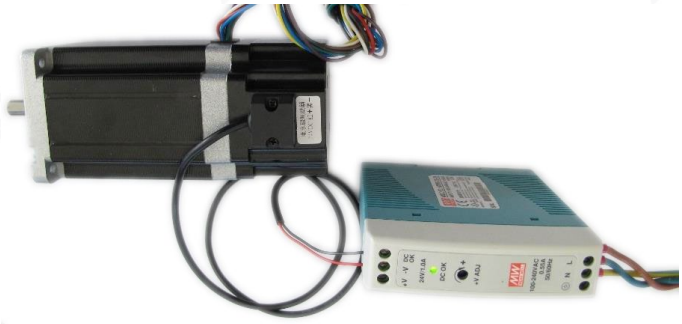

Fig. 6: Apply temporary voltage, release the brake

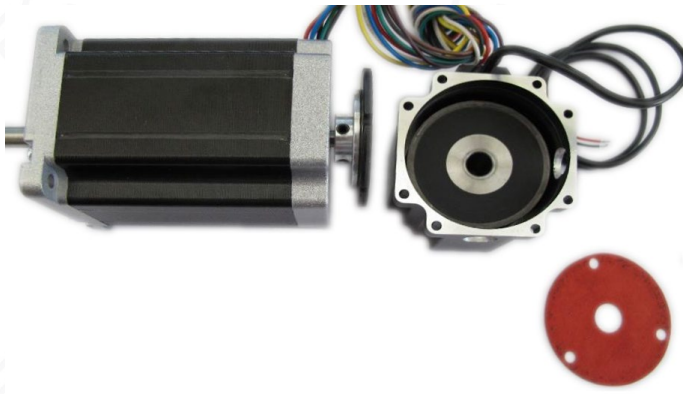

Fig. 7: Remove the brake and take off the protective paper

Step 4

Now firmly reattach the brake to the motor. First, place a spring washer on each screw, then a flat washer. Insert the screws into the right-hand hole on each side (with the threaded end exposed) and tighten them securely.

The brake assembly is now complete.

Fig. 8: Only the right-hand thread of each housing edge is free and usable for screwing.