EWELLIX
MAKERS IN MOTION

INSTALLATION INSTRUCTIONS

CASM electric cylinders and parallel adapters for brushless DC motors

1. Intended use

The adapter kit allows a parallel motor mounting of the specified brushless DC motor – linear unit combinations (↳ **chapter 2**).

2. Recommended motors

In principle, beside the recommended motors, also 3rd party motors may be fitted. It is important that torque and speed specifications of the motor do not exceed the permitted values of the linear unit. Detailed information may be found in the technical notes relating to the electrical cylinders. Ewellix recommends the following brushless DC motors (↳ **table 1**).

Table 1

CASM linear unit/ brushless DC motor combinations

Linear unit	**CASM32**			**CASM40**			**CASM63**		
Spindle	Lead screw 9×1,5	Ball screw 10×3	Ball screw 10×10	Lead screw 12,5×2.5	Ball screw 12×5	Ball screw 12,7×12,7	Lead screw 20×4	Ball screw 20×10	Ball screw 20×20
Motor	BG 45			BG 65S, BG 75			BG 75		

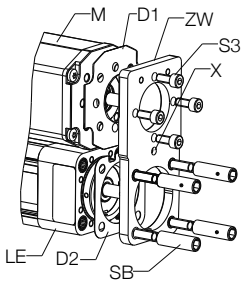
3. Screws and tightening torques M_A

Table 2

	SB (Intermediate plate)		**S1 (Cover)**		**S2 (Cover)**		**S3 (Motor)**	
	Screw	Torque M_A	Screw	Torque M_A	Screw	Torque M_A	Screw	Torque M_A
CASM-32 BG 45 (Fig.1)	M6×20	5,9 Nm ± 0,8 Nm	M6×20	4,0 Nm ± 0,5 Nm	M4×30	4,0 Nm ± 0,5 Nm	M3×8	3,0 Nm ± 0,3 Nm
CASM-40 BG 65S (Fig.1)	M6×20	5,9 Nm ± 0,8 Nm	M6×20	4,0 Nm ± 0,5 Nm	M4×35	4,0 Nm ± 0,5 Nm	M5×12	4,0 Nm ± 0,5 Nm
CASM-40 BG 75 (Fig.2)	M6×16	5,9 Nm ± 0,8 Nm	M8×50	5,9 Nm ± 0,8 Nm	M4×45	4,0 Nm ± 0,5 Nm	M5×10	3,0 Nm ± 0,3 Nm
CASM-63 BG 75 (Fig.1)	M8×24	10,1 Nm ± 0,8 Nm	M8×20	5,9 Nm ± 0,8 Nm	M4×45	4,0 Nm ± 0,5 Nm	M6×12	5,9 Nm ± 0,8 Nm

4. Intermediate plate installation

Fig. 1



Step 1

Mount the motor (**M**) on the intermediate plate (**ZW**) by inserting the square seal without cut-out (**D1**) in between and tightening it using all the Allen screws (**S3**). When assembling, note the alignment of the intermediate plate marking (↳ **fig. 1**).

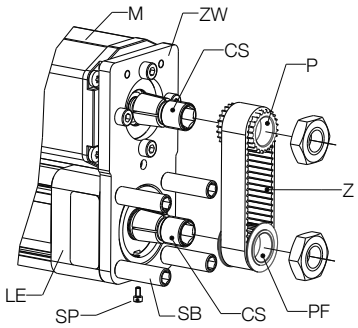
Step 2

Attach the linear unit (**LE**) to the intermediate plate (**ZW**), insert the square seal with cut-out (**D2**) and hand tighten the four screws (**SB**) (↳ **fig. 1**).

Note: Do not tighten the screws (**SB**) until **step 5 chapter 5.**

5. Timing belt installation

Fig. 3



Step 1

Push the linear unit (**LE**) as far as possible towards the motor (**M**) and tighten the screws (**SB**) by hand.

Place the two clamping sleeves (**CS**) on the shaft of the linear unit and the motor. Take the timing belt and insert the pulleys (**P/PF**).

Note: The clamping sleeves inner diameter should overlap the motor- and linear unit shaft as much as possible.

Step 2

Take the timing belt (**Z**), insert the pulleys (**P/PF**) and push the pulleys over the clamping sleeve (**CS**). The flange pulley (**PF**) must be on the side of the linear unit (**LE**). Be sure the pulley (**P**) on the motor side is aligned to the flanged pulley (**PF**). Make sure the timing belt (**Z**) runs centrally within the flanged pulley (**PF**) without touching the flanges at either side and without touching the intermediate plate (**ZW**).

Step 3

Secure the pulleys (**P/PF**) by tightening the nut (torque as per **table 3**) and countering at the same time with a hexagonal wrench.

Step 4

Place the central pretension screw (**SP**) in the side bore of the intermediate plate (**ZW**) and tighten the timing belt (**Z**) using the pretension screw (**SP**) (↳ **fig. 3**).

Note: Loosen the special screw (**SB**) if the belt cannot be tightened.

Step 5

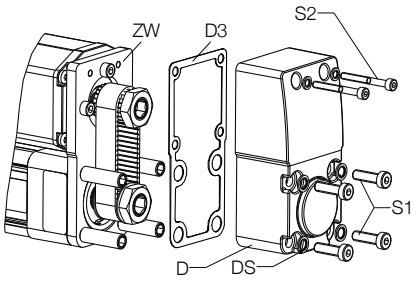
Measure the timing belt tension using a suitable frequency measurement device. Adjust the pretension screw (**SP**) until the required belt tension is reached and tighten the screws (**SB**) according to **table 1**.

Tightening the pretension screw (**SP**) increases the natural frequency of the timing belt. Excessive preloads can lead to increased wear in the bearing of the linear unit (**LE**) or motor (**M**) due to radial loading. Once the correct frequency is set, secure the special screws (**SB**) and check the timing belt frequency again.

Note: 3rd party motors installation: the given natural frequencies in **table 4** refer to the recommended brushless DC (Dunkermotoren) motors. The natural frequency limit for of a third party motor might be different from the given values in **table 4**. The frequency is usually limited by the max. admissible radial load of the motor shaft.

6. Gearbox Cover Installation

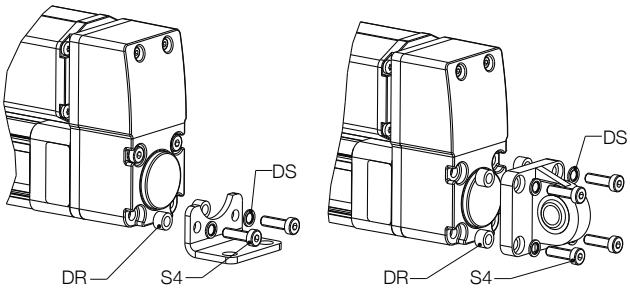
Fig. 4



Place the flat sealing (**D3**) in between the gearbox cover (**D**) and the intermediate plate (**ZW**). Push the seal washers (**DS**) over the Allen screws (**S1/S2**) and fix the gearbox cover (**fig. 4**). For screws and torques, refer to **table 2.**

6.1 Fixing accessories option

Fig. 5



Insert the sealing rings (**DR**) between gearbox cover and fixing accessories. Push the sealing washers (**DS**) over the Allen screws (**S4**) and fix he accessories by tightening the screws (torque as per **table 5**) (↳ **fig. 5**).

Table 3

Pulley fixation		
	Pulley	Torque M_A
CASM-32/ BG 45	GT3–3M–Z18	5 Nm
CASM-40/ BG 65S	GT3–3M–Z24	20 Nm
CASM-40/ BG 75 Motor	GT3–5M–Z22	40 Nm
CASM-63/ BG 75	GT3–5M–Z22	40 Nm

Table 4

	CASM-32/ BG 45	**CASM-40/ BG 65S**	**CASM-40/ BG 75 CASM-63/ BG 75**
Natural frequency	280 Hz ±8	280 Hz ±8	250 Hz ±8
Strand deflection	0,95 mm @ 1,2 N	0,95 mm @ 4,5 N	0,95 mm @ 7,5 N

Table 5

CASM-32/ BG 45		**CASM-40/ BG 65S**		**CASM-40/ BG 75**		**CASM-63/ BG 75**	
Screw	Torque M_A	Screw	Torque M_A	Screw	Torque M_A	Screw	Torque M_A
M6×30	5 Nm ± 0,5 Nm	M6×30	5 Nm ± 0,5 Nm	M8×70	5,9 Nm ± 0,8 Nm	M8×35	8 Nm ± 0,8 Nm

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