

ELEKTROMATEN® SE

Sectional-door-drive

For driving:
Counterbalanced sectional doors

Series SG40
SE 8.60 FI

ELEKTROMATEN SE are special drives for counterbalanced sectional doors. The drive unit is normally directly fitted to the door shaft. The SG40 series features an extremely compact one-box design (gearbox and motor in one housing). The weight of the drives is less than 10 kilograms. ELEKTROMATEN SE comprises of:
Worm gear with hollow shaft, emergency manual operator, integrated limit switch and electrical motor respectively electrical motor with built-on frequency inverter.



Built-on frequency inverter

to be used with door controls TS 970, TS 971 or TS 981

- Individual adjustable output speed ¹⁾
- The speed appears directly into the display – extra work to evaluate frequency and speed is not required
- Soft start and soft stop
- Automatic optimising of acceleration and deceleration speed
- Adjustable distance for acceleration and deceleration speed
- Individual adjustment and programming of all functions from the ground by a selector switch with digital display

Approvals and certificates

ELEKTROMATEN

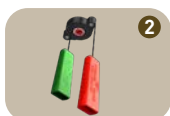
Type test according to:
DIN EN 12453
DIN EN 60335-1
DIN EN 60335-2-103
TÜV NORD CERT GmbH



1

Emergency manual operation

- Rapid hand chain operator SK with mounted shifter cable with standard **1**
- 2**



2

Limit switches

Digital limit DES 5

- Absolute encoder, after a power failure, re-adjustment is not required **3**



3

Mounting

- Fitting threads 4xM8
- Two different torque brackets available **4**



4



5

Door controls

- Single-plug connection system (XES) for fast commissioning without wiring effort **5** on the drive side
- Control voltage: 24 V
- Frequency: 50 Hz / 60 Hz
- Mains supply: 1N~230 V, 3~230 V ²⁾, 3N~400 V

Details of all GfA door controls can be found in Section 8.

¹⁾ See 2.7
²⁾ Use additional adapter part no. 30005855

1. Technical data

ELEKTROMATEN		SE 8.60 FI	
Series		SG40	
Output torque	Nm	80	
Output speed	rpm	12-60 12-30 12-24	
		OPEN CLOSE > 2,5 m CLOSE ≤ 2,5 m ¹⁾	
Output shaft / hollow shaft (Ø)	mm	25,4	
Max. holding torque ²⁾	Nm	390	
Max. door weight	N	3200	
Motor power	kW	0,5	
Supply voltage	V	1N-230	
Operating frequency	Hz	50 / 60	
Operating current	A	2,1	
Max. cycles per hour ³⁾		19 (18,0)	
Limit switch range ⁴⁾		14	
Weight	kg	10	
Spare parts: Catalogue page		—	
Part no. installation drawing (dxf, dwg)		50002000	
Part no. ELEKTROMATEN		10004398	

Generally applies: Degree of protection IP65, permissible temperature range +5 °C...+40 °C (+60 °C), operating sound pressure level SPL <70 dB(A)

1) See 2.7 · 2) See 2.5 · 3) One cycle consists of a complete opening and closing movement of the door. The value according to EN 60335-2-103 is given in brackets. If the limit switch range is not fully used, the number of possible cycles can be increased in relation to the reduced number of revolutions of the output shaft, see also 2.2 · 4) Maximum revolutions of hollow shaft

2. Notes

2.1 European directive

In accordance with the product standard EN 13241 Doors- and EN 12453 Safety in use of power operated doors-Requirements.

2.2 Cycles per hour

The specified cycles per hour (see technical data) apply to even distribution and the limit switch range first mentioned. When using the temperature range +40 °C to +60 °C, the specified value must be halved. For other limit switch ranges, the values must be converted accordingly.

2.3 Gear self-braking / Brake

Drives without an electric brake have a self-sustaining worm gear and stop automatically.

On drives with an electric brake, stopping is achieved by the external brake. Brake inspection must always be carried out by qualified service engineers.

2.4 Manual operation / Counterbalancing

SK rapid hand chain

Manual operation with NHK/SK operator, the door and self-locking gear construction remain inter-connected. There is no danger of a door crashing down, e.g. if a spring breaks.

2.5 Holding torque

Counterbalanced door leaves are prevented from falling down if the drive is capable of holding the weight of the leaf when the spring breaks. The holding capability is the admissible load bearing of the gear construction which can occur when the spring breaks.

Static stability M_{stat} is calculated as follows:

$M_{stat} [N] = \text{door weight} [N] \times \text{radius of the cable drum} [m]$

The greatest winding diameter should be taken into account in the case of conical cable drums are in use.

Since it is possible for two counterbalancing springs to fail simultaneously, the German technical committee, Structural equipment (FABE) recommends that the drive be dimensioned such that it can support.

- 100% of the door weight with 1 or 2 counterbalancing springs
- 66% of the door weight with 3 counterbalancing springs
- 50% of the door weight with 4 counterbalancing springs

2.6 Output speed

The maximum admissible speed is dependent on the door construction and type of the door. All materials must be designed to be used for doors with higher speeds.

The admissible closing speed shall be adjusted so that the operating forces must comply with EN 12453.

2.7 Cable / cable drums

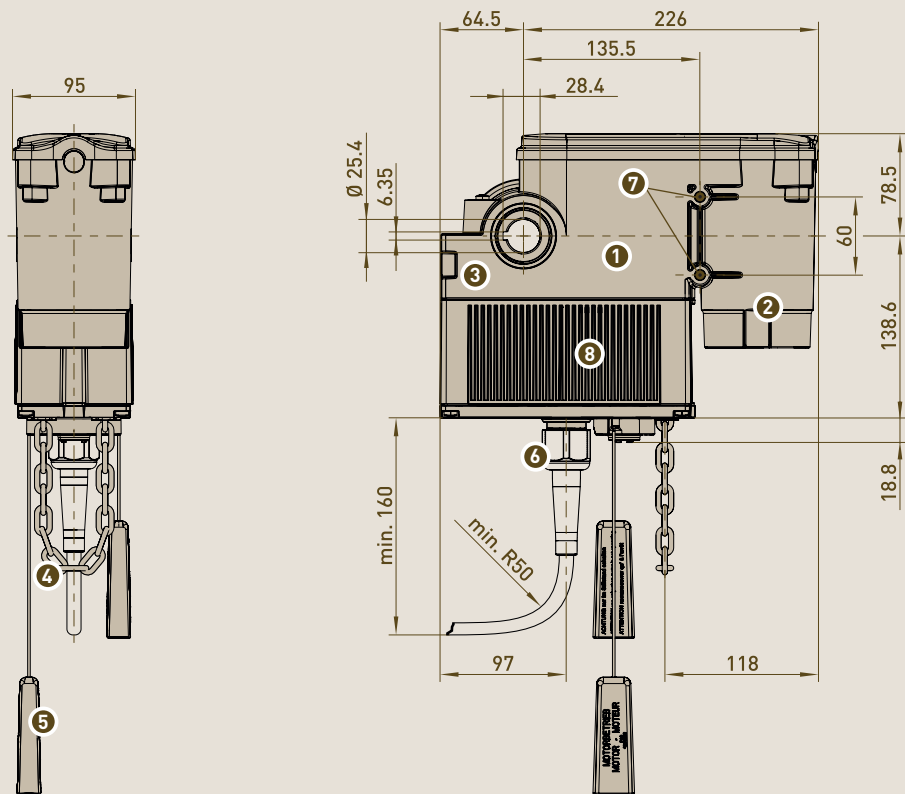
When calculating the cable size the max. permitted door weight is required a calculated ultimate stress of 6x for the cables; requirement of EN 12604.

Cable drum selection – ensure that two turns of the cable remain on the drum at all times. The diameter of the cable drum must be at least 20x the diameter of the cable.

3. Dimensions

SE 8.60 FI

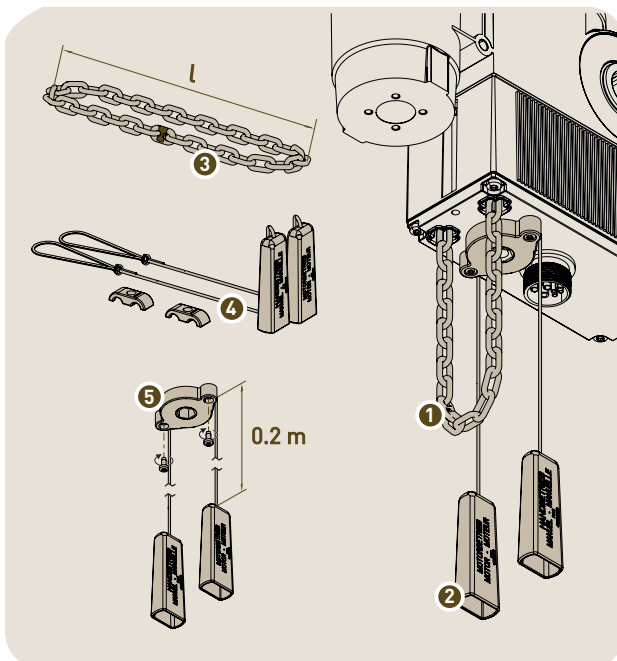
SG40



- 1 Worm gear
- 2 Motor
- 3 Integrated limit switch
- 4 Emergency manual operation Rapid hand chain operator SK (4 m long circulating chain)
- 5 Shifter cable for changing over to emergency mode
- 6 Single-plug connection system (XES)
- 7 Mounting points
- 8 Integrated frequency inverter

■ Permitted installation: Horizontal (as shown)

4. Emergency manual operation



■ Read note in 2.4

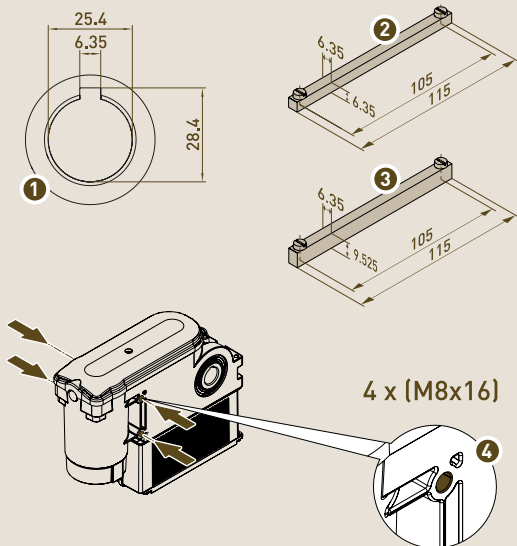
As standard, the drive units have a "rapid hand chain operator SK" with a 4 m long circulating chain (1). Activation takes place using a 0.2 m long shifter cable (2). The following options are possible:

- Extension of the emergency hand chain (3)
- Extension of the shifter cable (4)

Designation		Part. no.
Emergency hand chain set, 2 m	3	30004555.00002
Emergency hand chain set, 4 m	3	30004555.00004
Emergency hand chain set, 6 m	3	30004555.00006
Emergency hand chain set, 8 m	3	30004555.00008
Emergency hand chain set, 10 m	3	30004555.00010
Shifter cable extension 2 x 4 m	4	30003965
Shifter cable extension 2 x 7 m	4	30004789
Shifter cable extension 2 x 10 m	4	30004242
Shifter cable as a spare part	5	30005741.00020



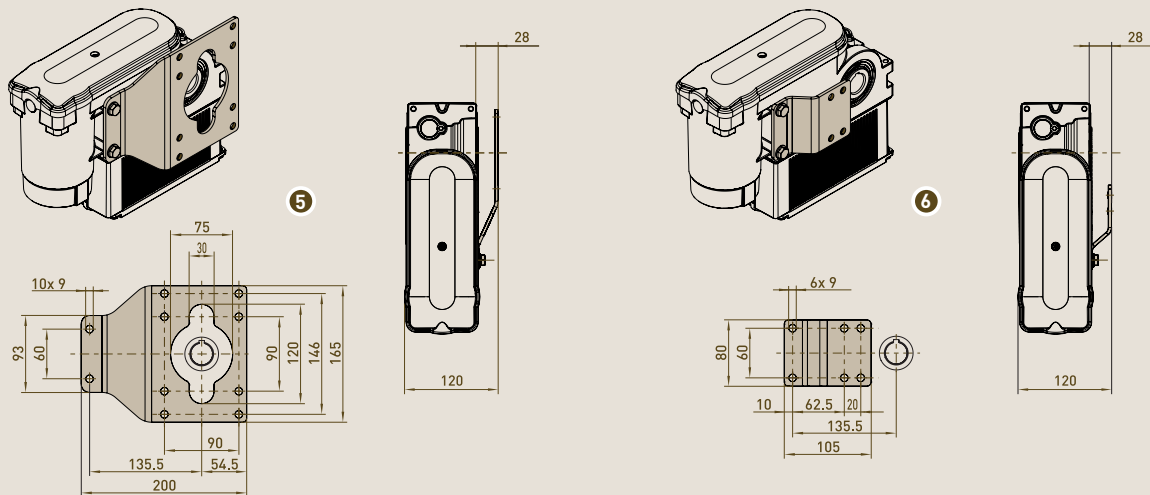
5. Attachments / Accessories



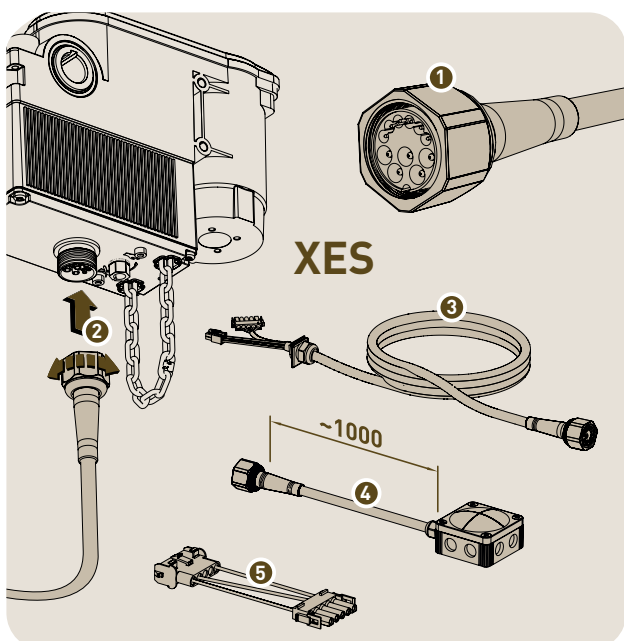
The drive unit has a 25.4 mm hollow shaft (1). The positive-locking connection to the door shaft can be done via two separately available feather key versions (2+3).

Four M8 threaded holes (4) are available on the housing for mounting the drive unit. Two varying torque brackets (5+6) can be used for adaptation to the door design.

Designation		Part no.
Key 6.35 x 6.35 x 115	2	30005835
Key 6.35 x 9.525 x 115	3	30005836
Torque bracket SG40 Type A	5	30005807
Torque bracket SG40 Type B	6	30005808



6. Connection cables and electrical accessories



Advantages of the single-plug connection system (XES):

- Only a single plug on the drive unit side (1)
- Plug-and-Play installation with no disassembly (2)
- Various lengths available (3)
- Possibility of adaptation to DES connection cables (4)

Designation		Part no.
XES connection cable; 3,0 m	3	20003673.00300
XES connection cable; 5,0 m	3	20003673.00500
XES connection cable; 7,0 m	3	20003673.00700
XES connection cable; 9,0 m	3	20003673.00900
XES connection cable; 11,0 m	3	20003673.01100
XES connection cable; 13,0 m	3	20003673.01300
XES connection cable; 15,0 m	3	20003673.01500
XES connection cable; 25,0 m	3	20003673.02500
XES connection cable; 35,0 m	3	20003673.03500
Connection set XES	4	30006029
Adapter for single phase FI drives for 3x230 V power grids	5	30005855

■ Details of all GfA door controls and further electrical accessories can be found in Section 8