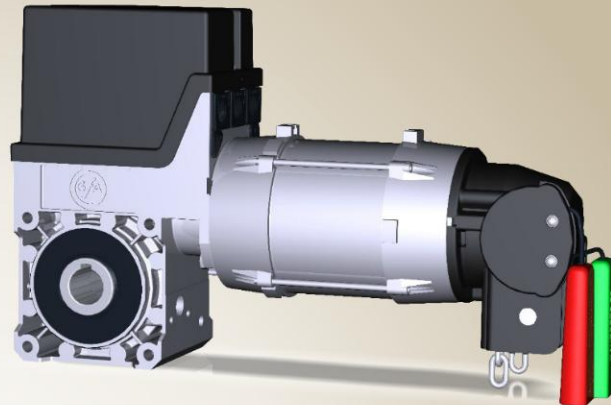


# ELEKTROMATEN® SE

## Sectional-door-drive

for counterbalanced sectional doors



**SE 5.24/SE 5.24 WS**  
**SE 9.15 – SE 14.21**  
**SE 6.65 DU**  
**SE 6.80 FI/SE 14.80 FI**

Output torque: 50 - 140 Nm  
Output speed: 10 - 65 min<sup>-1</sup>

**3.011**

**TSE 5.24 WS**

With integrated Hold to run control panel  
Output torque: 50 Nm  
Output speed: 24 rpm

**3.021**

For non-counterbalanced sectional doors,  
we refer to chapter 1: ELEKTROMATEN SI Safedrive®.

# ELEKTROMATEN® SE

## Sectional-door-drive

For driving:  
Counterbalanced sectional doors

Series KG50  
SE 5.24 / SE 5.24 WS

Series SG50/SG50E  
SE 9.15 - 14.21  
SE 6.65 DU  
SE 6.80 FI / SE 14.80 FI

ELEKTROMATEN SE are special drives for counterbalanced sectional doors. The drive unit is normally directly fitted to the door shaft. ELEKTROMATEN SE comprises of:  
Worm gear with hollow shaft, emergency manual operator, integrated limit switches and electrical motor respectively electrical motor with built-on direct inverter (SE 6.65 DU) or frequency inverter (SE 6.80 FI/SE 14.80 FI)

**Built-on direct inverter (SE 6.65 DU) or frequency inverter (SE 6.80 FI/SE 14.80 FI) to be used with control panels TS 970, TS 971 or TS 981**

- Individual adjustable output speed <sup>1</sup>
- 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 rotary switch and display

### Approvals and certificates

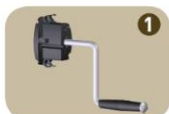
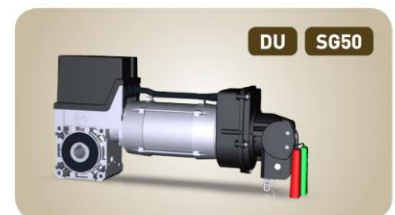
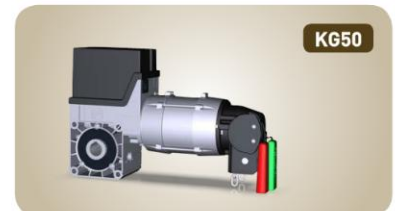
ELEKTROMATEN and FI-motors

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



### Holding torque

Examination of the static holding torque  
Test report 630900  
TÜV SÜD Industrieservice GmbH



### Emergency manual operation

- Hand crank NHK ①
- Rapid hand chain operator SK ②
- Gear release ER ③

### Limit switches

- Mechanical limit NES <sup>2</sup> ④
  - 2 operating, 2 emergency- and 2 auxiliary limit switches
- Digital limit DES ⑤
  - Absolute encoder, after a power failure, re-adjustment is not required

### Mounting

- Fitting thread 8xM8 (standard fitting)
- Torque mount
- Flange bracket

<sup>1</sup> See 2.7  
<sup>2</sup> Not for SE 6.65 DU / SE 6.80 FI / 14.80 FI

### Special versions

- Increase of movements per hour
- Higher protection class
- Other voltages and frequencies
- Explosion-proof according to ATEX (page 6.031)

### Control panels

- Simple connection to the limit switch by means of non-interchangeable plug connections allowing simple exchange with other GfA control panels
- Control voltage: 24V
- Frequency: 50 / 60 Hz
- Supply voltage: 1N~230V, 3~230V, 3N~400V, 3~400V

Details of all GfA control panels can be found in section 8.

# 1. Technical data

ELEKTROMATEN Series		SE 5.24	SE 5.24 WS	SE 9.15	SE 9.20	SE 9.24	SE 9.24 WS
		KG50	KG50	SG50 SG50E	SG50 SG50E	SG50 SG50E	SG50 SG50E
Output torque	Nm	50	50	90	90	90	90
Output speed	rpm	24	24	15	20	24	24
Hollow-shaft Ø <sup>1</sup>	mm	25,4	25,4	25,4	25,4	25,4	25,4
Holding torque M <sub>stat</sub> <sup>2</sup>	Nm	200	200	450	450	450	450
Max. door weighth	N	2500	2500	4000	4000	4000	4000
Permitted OPEN / CLOSE output speed in frequency-inverter operating mode <sup>3</sup>	rpm	42 / 30	--	26 / 26	36 / 30	42 / 30	--
Motor power	kW	0,30	0,37	0,30	0,30	0,37	0,45
Supply voltage	V	3~230 / 400V	1N~230V	3~230 / 400V	3~230 / 400V	3~230 / 400V	1N~230V
Frequency	Hz	50	50	50	50	50	50
Nominal current <sup>4</sup>	A	1,9 / 1,1	3,5	2,6 / 1,5	2,6 / 1,5	2,1 / 1,2	3,9
Max. movements per hour <sup>5</sup>		12	12	20	20	20	16
Supply side wiring / fusing (delayed action)		5x1,5 <sup>2</sup> / 10A	3x1,5 <sup>2</sup> / 10A	5x1,5 <sup>2</sup> / 10A	5x1,5 <sup>2</sup> / 10A	5x1,5 <sup>2</sup> / 10A	3x1,5 <sup>2</sup> / 10A
Limit switch range <sup>6</sup>		20	20	20	20	20	20
ELEKTROMATEN-weight	kg	15	15	15	15	15	16
Spare parts: Catalogue page		9.081	9.081	9.083 9.085 (ER)	9.084 9.086 (ER)	9.083 9.085 (ER)	9.083 9.085 (ER)
Part no. installation drawing (dxf, dwg)		50001339	50001339	50000563 50000872 (ER)	50000563 50000872 (ER)	50000563 50000872 (ER)	50000853 50001092 (ER)
Part no. ELEKTROMATEN		10003375	10003424	10003277 10003376 (ER)	10003152 10003157 (ER)	10002188 10002748 (ER)	1002237 10002763 (ER)

ELEKTROMATEN Series		SE 9.30	SE 14.15	SE 14.21	SE 6.65 DU	SE 6.80 FI	SE 14.80 FI
		SG50 SG50E	SG50 SG50E	SG50 SG50E	SG50 SG50E	SG50 SG50E	SG50 SG50E
Output torque	Nm	90	140	140	60	60	140
Output speed OPEN CLOSE to a max. heights of 2,5m CLOSE below 2,5m heights <sup>7</sup>	min <sup>-1</sup>	30	15	21	20-65 20-30 20-30	15-80 15-30 15-30	10-80 10-30 10-30
Hollow-shaft Ø <sup>1</sup>	mm	25,4	25,4 / 31,75	25,4 / 31,75	25,4 / 31,75	25,4 / 31,75	25,4 / 31,75
Holding torque M <sub>stat</sub> <sup>2</sup>	Nm	450	600	600	450	450	600
Max. door weighth	N	4000	6000	6000	3000	3000	6000
Permitted OPEN / CLOSE output speed in frequency-inverter operating mode <sup>3</sup>	min <sup>-1</sup>	52 / 30	26 / 26	36 / 30	--	--	--
Motor power	kW	0,37	0,35	0,45	0,45	0,40	0,85
Supply voltage	V	3~230 / 400V	3~230 / 400V	3~230 / 400V	3~400V	1N~230V	1N~230V
Frequency	Hz	50	50	50	50	50 / 60	50 / 60
Nominal current <sup>4</sup>	A	2,1 / 1,2	3,3 / 1,9	4,5 / 2,6	0,8	-	-
Max. movements per hour <sup>5</sup>		20	16	16	20	40	40
Supply side wiring / fusing (delayed action)		5x1,5 <sup>2</sup> / 10A	5x1,5 <sup>2</sup> / 10A	5x1,5 <sup>2</sup> / 10A	5x1,5 <sup>2</sup> / 10A	3x1,5 <sup>2</sup> / 10A	3x1,5 <sup>2</sup> / 10A
Limit switch range <sup>6</sup>		20	20 (14)	20 (14)	20 (14)	20 (14)	20 (14)
ELEKTROMATEN-weight	kg	15	17	16	16	15	24
Spare parts: Catalogue page		9.084 9.086 (ER)	9.084 9.086 (ER)	9.084 9.086 (ER)	9.084 9.086 (ER)	9.084 9.086 (ER)	9.084 9.086 (ER)
Part no. installation drawing (dxf, dwg)		50000563 50000872 (ER)	50000846 50001076 (ER)	50000846 50001076 (ER)	50001313 50001314 (ER)	50001603 50001604 (ER)	50001544 50001545 (ER)
Part no. ELEKTROMATEN		Ø25,4 10002195 Ø25,4 ER 10002738	Ø25,4 10002516 Ø25,4 ER 10003377 Ø31,75 10002621	Ø25,4 10002204 Ø25,4 ER 10002758 Ø31,75 10002206	Ø25,4 10003393 Ø25,4 ER 10003346 Ø31,75 10003378	Ø25,4 10004106 Ø25,4 ER 10004201 Ø31,75 10004200	Ø25,4 10004010 Ø25,4 ER 10004013 Ø31,75 10004011

Generally applies: Protection class IP65 (combined with WS 900: IP54), permissible temperature range +5°C to +40°C (standard ELEKTROMATEN + DU), +5°C to +40°C (ELEKTROMATEN FI with built-on frequency inverter), operating sound pressure level SPL <70 dB(A)

<sup>1</sup> Additional hollow shafts-Ø on request · <sup>2</sup> See 2.5 · <sup>3</sup> We recommend the selection of a special ELEKTROMATEN (enquire) for use with frequency inverter, OPEN drive speed at 87 Hz (not valid for SE 6.80 FI / 14.80 FI), see 2.7 and 2.8 · <sup>4</sup> The operating current in door drives can reach up to 4x the rated current for limited periods, see 2.6 and 2.7 · <sup>5</sup> See 2.2 · <sup>6</sup> Maximum revolutions of hollow shaft: limit switch range 14 turns with a Ø 31,75 mm hollow shaft · <sup>7</sup> See 2.7

## 2. Notes

### 2.1 European directive

In accordance with the product standard EN 13241-1 Doors- and EN 12453 Safety in use of power operated doors-Requirements

### 2.2 Movements per hour

Reduce weight of the door if the stated number of movements per hour is exceeded (See item - 1. Technical data) – e.g. high frequently used doors (enquire).

### 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

#### NHK hand crank / 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.

#### Gear release ER

Manual operation of ER decoupling mechanism, the door and the self-locking gear construction are disconnected during manual operation. When the decoupling mechanism the gear no longer sustains the door and a separate safety brake is required.

The counter-balancing should be inspected at least once a year.

### 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 Motor overload protection

Motor overload protection must be able to withstand 4x the nominal motor current because the starting current of the drive unit can reach these levels for short periods.

### 2.7 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.

### 2.8 Use with external frequency inverter

For external frequency inverters applies:

A higher than recommended drive speed puts extra load onto the gear. This extra load must be taken into account when sizing a drive by reducing the available output torque.

Increasing the drive speed by 10% reduces the admissible drive torque by 5%. In the case of higher drive speeds reduce the drive torque accordingly (enquire if necessary).

The admissible drive speeds may not be exceeded (See item - 1. Technical data). The operating forces must comply with EN 12453, and the corresponding EMC directives must likewise be observed.

If selecting a frequency inverter, note that the starting current of the drive unit can reach 4x the nominal motor current.

### 2.9 Cable / cable drums

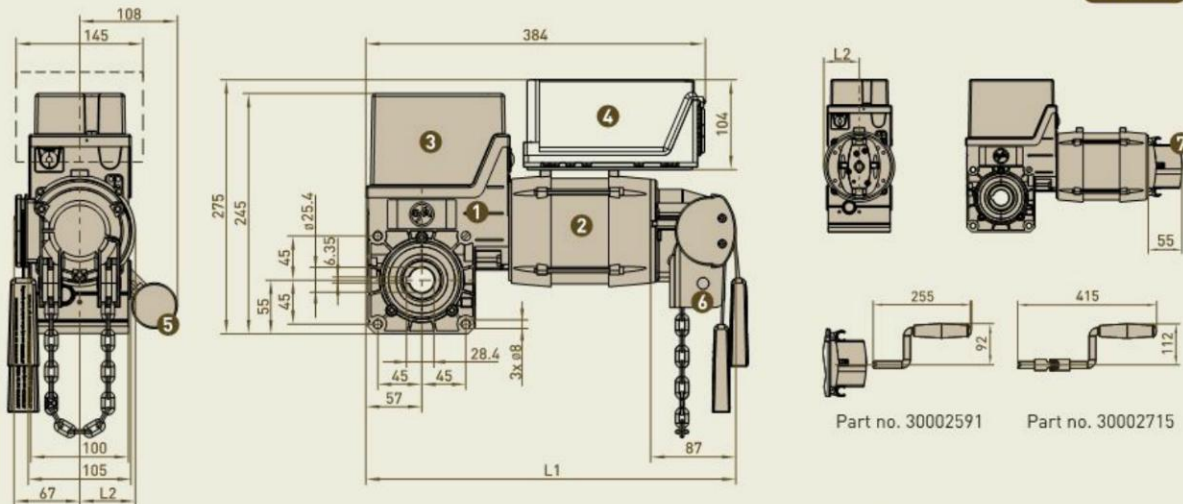
When calculating the cable size the max. permitted door weight is required a calculated ultimate stress of 6x for the cables; requirement of EN 12604.

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

#### 3.1 SE 5.24 / SE 5.24 WS

**KG50**



- 1 Worm gear
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0.7m cable
- 5 Capacitor
- 6 Emergency manual operation Rapid hand chain operator SK
- 7 Emergency manual operation Manual hand crank operation NHK

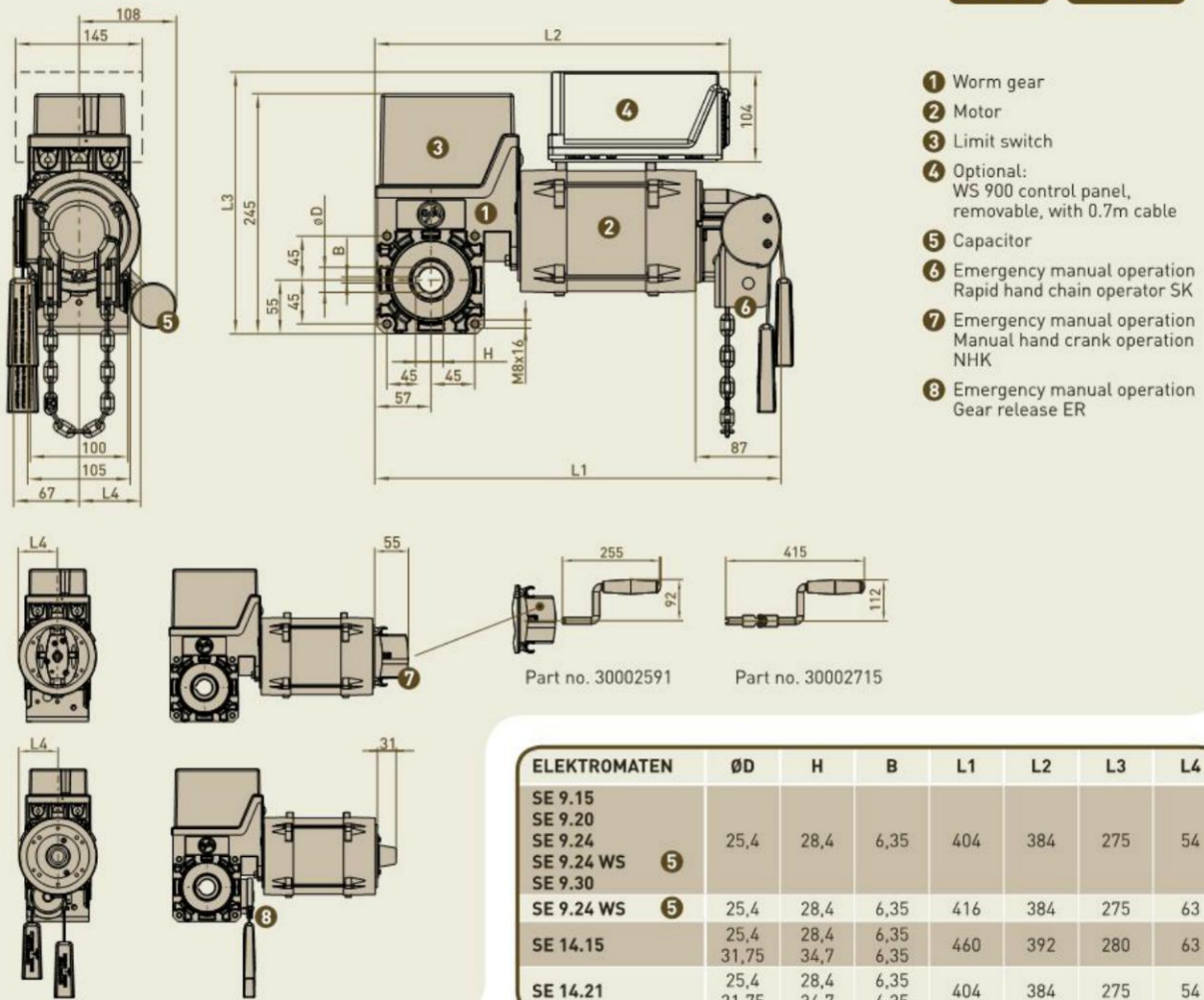
ELEKTROMATEN	L1	L2
SE 5.24	379	57
SE 5.24 WS 5	404	54

■ Permitted installation: horizontal (as shown) or vertical (motor at the bottom)

#### 3.2 SE 9.15 – SE 14.21

**SG50**

**SG50E**



- 1 Worm gear
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0.7m cable
- 5 Capacitor
- 6 Emergency manual operation Rapid hand chain operator SK
- 7 Emergency manual operation Manual hand crank operation NHK
- 8 Emergency manual operation Gear release ER

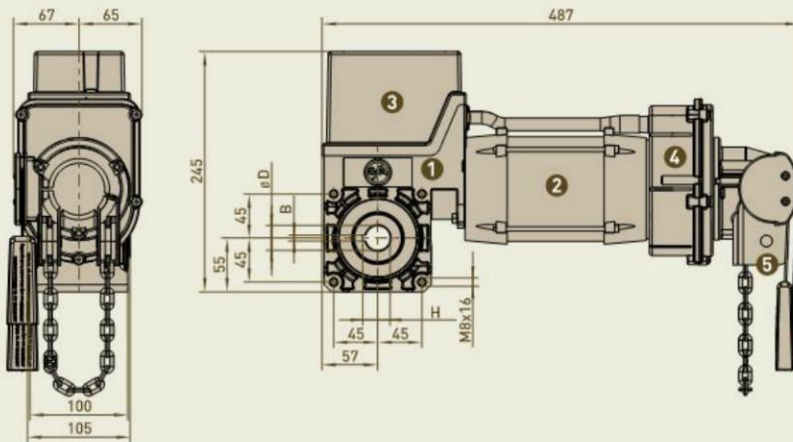
ELEKTROMATEN	ØD	H	B	L1	L2	L3	L4
SE 9.15							
SE 9.20							
SE 9.24	25,4	28,4	6,35	404	384	275	54
SE 9.24 WS 5							
SE 9.30							
SE 9.24 WS 5	25,4	28,4	6,35	416	384	275	63
SE 14.15	25,4 31,75	28,4 34,7	6,35 6,35	460	392	280	63
SE 14.21	25,4 31,75	28,4 34,7	6,35 6,35	404	384	275	54

■ Permitted installation: horizontal (as shown) or vertical (motor at the bottom)

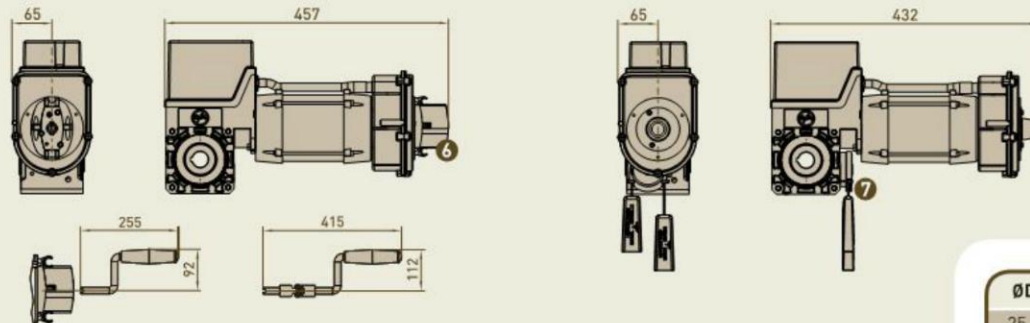
### 3.3 SE 6.65 DU

SG50

SG50E



- 1 Worm gear
- 2 Motor with built-in direct inverter
- 3 Limit switch
- 4 Direct inverter
- 5 Emergency manual operation Rapid hand chain operator SK
- 6 Emergency manual operation Manual hand crank operation NHK
- 7 Emergency manual operation Gear release ER



Part no. 30002591

Part no. 30002715

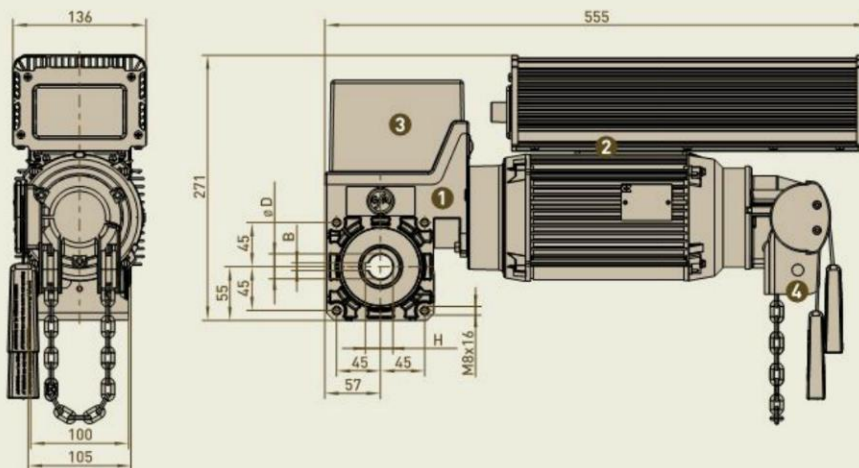
ØD	H	B
25,4	28	6,35
31,75	34,7	6,35

■ Permitted installation: horizontal (as shown) or vertical (motor at the bottom)

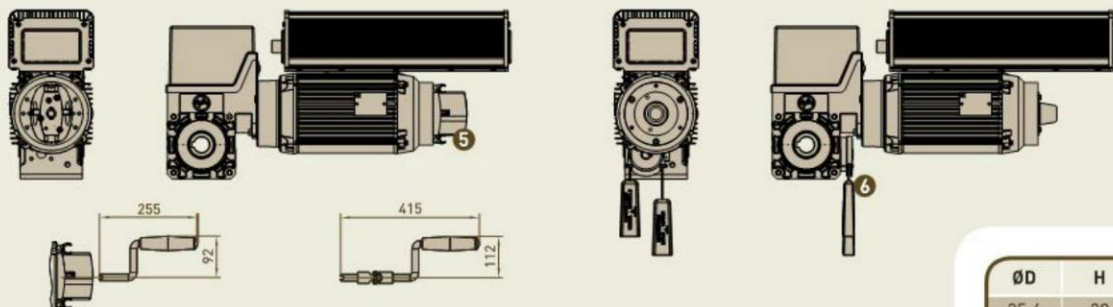
### 3.4 SE 6.80 FI / SE 14.80 FI

SG50

SG50E



- 1 Worm gear
- 2 Motor with built-on frequency inverter
- 3 Limit switch
- 4 Emergency manual operation Rapid hand chain operator SK
- 5 Emergency manual operation Manual hand crank operation NHK
- 6 Emergency manual operation Gear release ER



Part no. 30002591 (not for SE 6.80 FI)

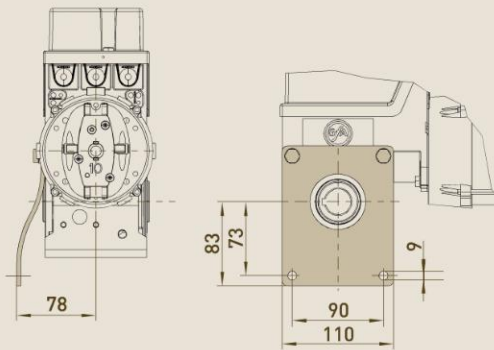
Part no. 30002715

ØD	H	B
25,4	28	6,35
31,75	34,7	6,35

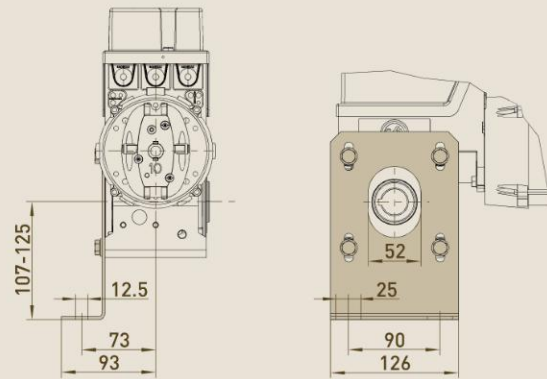
■ Permitted installation: horizontal (as shown) or vertical (motor at the bottom)

## 4. Attachments / Accessories

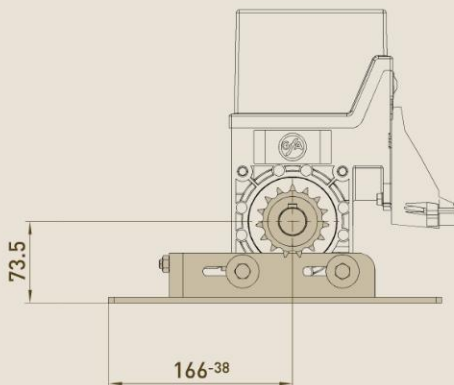
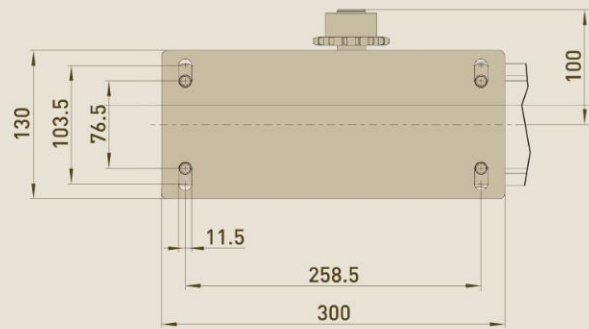
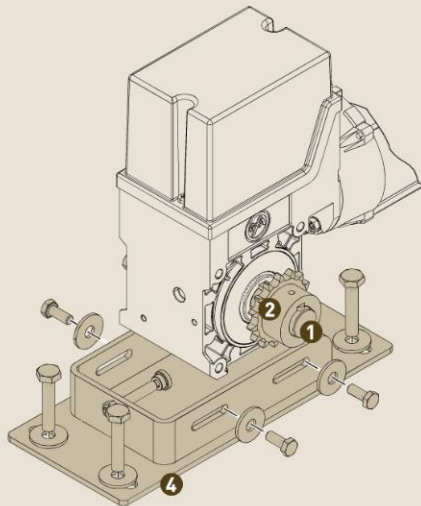
### 4.1 Torque mount Part no. 30002636



### 4.2 Flange bracket Part no. 30002685



### 4.3 Chain drive 08 B-1 (1/2" x 5/16")



Designation		Part no.	
Stub-shaft	Ø25,4	1	30002628
	Ø31,75		30002699
Sprocket	19 Teeth	2	30001086
	25 Teeth		30002243
	19 Teeth	3	30000761
			25 Teeth
Chain guard			30000982
Bracket		4	30005056
Chain	1,5m	5	40005050
	2,0m		40009223
	2,5m		40005558
Link			40000613

# ELEKTROMATEN® TSE

## Sectional-door-drive with integrated Hold to run control panel

For driving:

Counterbalanced sectional doors with mechanical end stops in the construction of the door

Series KG50  
TSE 5.24 WS

ELEKTROMATEN TSE are special drives for sectional doors with counterbalancing and with fitted mechanical end stops in the construction of the door. The drive unit is normally fitted directly to the door shaft.

ELEKTROMATEN TSE comprises of:

Worm gear with hollow shaft, emergency manual operator, integrated limit switches with Hold to run control panel and electrical motor.

### Approvals and certificates

#### ELEKTROMATEN

Type test according to:

DIN EN 12453

DIN EN 60335-1

DIN EN 60335-2-103

TÜV NORD CERT GmbH

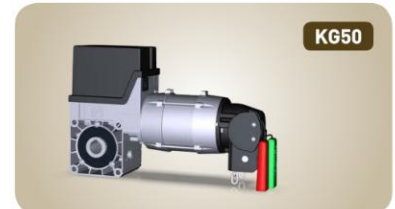


#### Holding torque

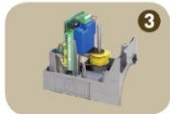
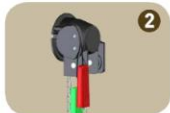
Examination of the static holding torque

Test report 778892

TÜV SÜD Industrieservice GmbH



Sectional door ELEKTROMATEN TSE with integrated Hold to run control panel T801 fulfils the basic requirements for electrically-operated sectional doors, and are thus particularly economical. Their plug-in connection technology and single-phase mains supply reduces expenses.



### Emergency manual operation

- Hand crank NHK 1
- Rapid chain operator SK 2

### Limit switches

- Mechanical limit NES 3
- 2 operating limit switches

### Mounting

- 2 Fixing screws M8x120 (standard fitting)
- Torque mount
- Flange bracket

### Control panel T801

#### Hold to run function 3

- Integrated into the limit switch of the ELEKTROMATEN
- Supply voltage: 1N~230V

#### Functions

- Selectable operating mode:
  - Hold to run CLOSE / OPEN
  - Hold to run CLOSE / self-hold OPEN

### Configuration

- Plug-in connection technology for:
  - CEE plug (230V or 400V)
  - Connection cable / push-button
  - Spiral cable (slack-rope switch or pass-door switch connection)

### Optional accessories

#### Connection kit A 4

- To be used with CEE socket on operator height, spiral cable connection lead to the ELEKTROMATEN, consisting of:
  - Push-button OPEN-STOP-CLOSE with a pre-wired:
    - CEE plug (230V or 400V) with 1m cable
    - Plug-in connection cable to lead to the ELEKTROMATEN
  - Plug-in spiral cable with terminal box for connection kit A 5

#### Connection kit B 6

- To be used with CEE socket in the ELEKTROMATEN height, with a spiral cable connection into the push-button, consisting of:
  - Push-button OPEN-STOP-CLOSE
    - With a pre-wired connection cable (7m) for a plug-in to the ELEKTROMATEN
    - Spiral cable with terminal box
  - CEE plug (230V or 400V) with 1m cable, to be plugged at the ELEKTROMATEN



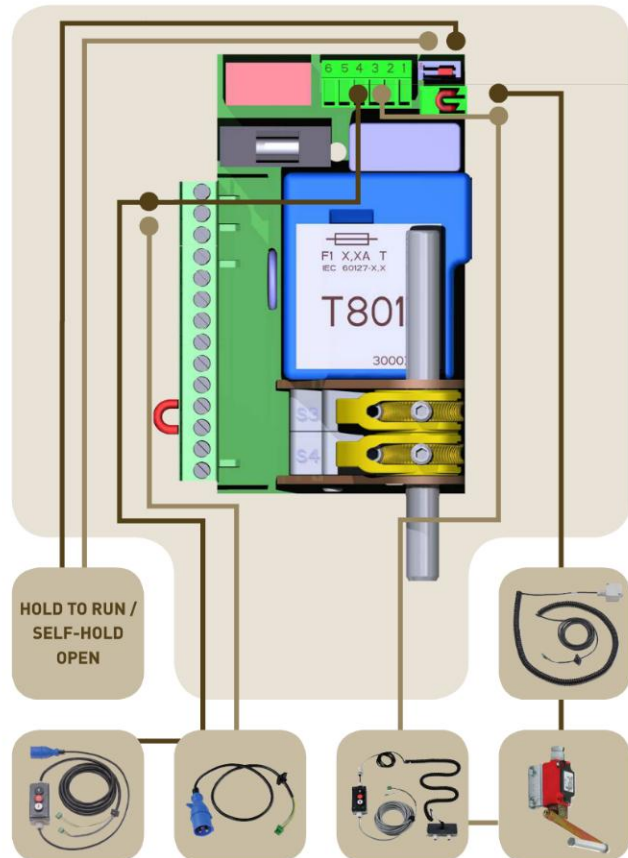
## 1. Technical data

ELEKTROMATEN		TSE 5.24 WS
Series		<b>KG50</b>
Output torque	Nm	50
Output speed	rpm	24
Hollow-shaft Ø	mm	25,4
Holding torque $M_{stat}^1$	Nm	200
Max. door weighth <sup>2</sup>	N	2500
Motor power	kW	0,37
Supply voltage	V	1N~230
Frequency	Hz	50
Nominal current <sup>3</sup>	A	3,5
Max. movements per hour <sup>2</sup>		12
Supply side wiring / fusing (delayed action)		3x1,5 <sup>2</sup> / 10A
Limit switch range <sup>4</sup>		20
ELEKTROMATEN-weight	kg	12
Spare parts: Catalogue page		9.081
Part no. installation drawing (dxf, dwg)		50001339
Part no. ELEKTROMATEN		10003805

Generally applies: Protection class IP65, permissible temperature range -5°C to 40°C, operating sound pressure level SPL <70 dB(A)

<sup>1</sup> See 2.5 (Page 3.013) · <sup>2</sup> See 2.2 (Page 3.013) · <sup>3</sup> The operating current in door drives can reach up to 4x the rated current for limited periods, see 2.6 (Page 3.013) · <sup>4</sup> Maximum revolutions of hollow shaft

## 2. How to connect T801

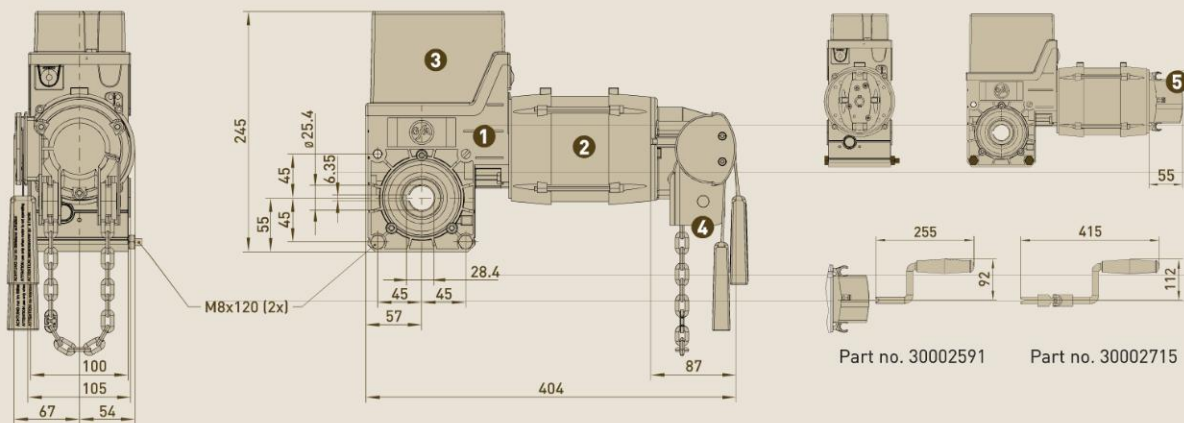


- Connection kit A CEE-plug on the ground height, spiral cable to lead to the ELEKTROMATEN
- Connection kit B CEE-plug to be used at ELEKTROMATEN height spiral cable connection into the push-button

## 3. Dimensions

TSE 5.24 WS

**KG50**



- 1 Worm gear    2 Motor    3 Limit switch with intergated Hold to run control panel T801    4 Emergency manual operation Rapid hand chain operator SK    5 Emergency manual operation Manual hand crank operation NHK

- Permitted installation: horizontal (as shown) or vertical (motor at the bottom)

## 4. Attachments / Accessories

See 3.016