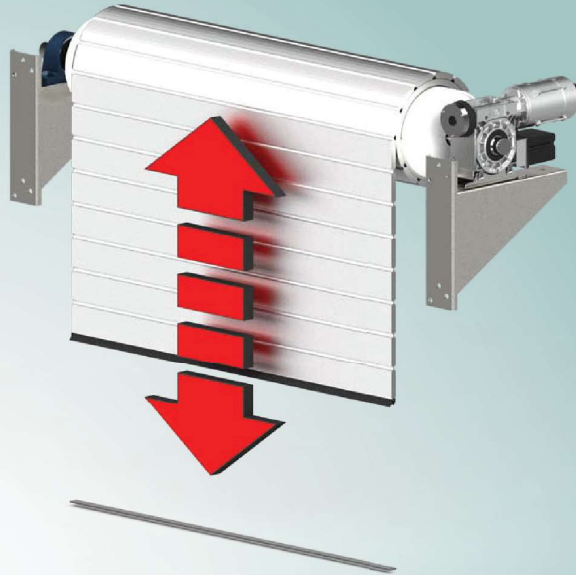


ELEKTROMATEN® SI

Safedrive®

With integrated safety brake
for doors which require an anti-fallback device



SI 8.20 – SI 14.20

Output torque: 80 – 140 Nm
Output speed: 15 – 20 rpm

1.011

SIK 17.10 – SIK 25.10

Output torque: 170 – 250 Nm
Output speed: 10 rpm

1.031

SI 10.15 – SI 180.6

Output torque: 100 – 1800 Nm
Output speed: 6 – 15 rpm

1.051

SI 17.24 – SI 100.24

Output torque: 170 – 1000 Nm
Output speed: 24 – 90 rpm

1.071

SI 360.9 – SI 500.5 GH

Output torque: 3600 – 5000 Nm
Output speed: 5 – 9 rpm

1.081

SI63 3,5.350 FI – SI 180.12 FI

Output torque: 35 – 1800 Nm
Output speed: 5 – 350 rpm

1.101

SI 500.10 FI

Output torque: 5000 Nm
Output speed: 6 – 10 rpm

1.121

ELEKTROMATEN® SI

Safedrive®

For driving:

Non-balanced sectional doors, roller shutters and rolling grilles which require an anti-fallback device

Series SG50F

SI 8.20

SI 14.15

SI 14.20

“Safedrive®” ELEKTROMATEN SI are special drives for industrial doors which require an anti-fallback device. The patented safety brake is built into the gear. The drive unit is fitted directly to the door shaft. Safedrive® ELEKTROMATEN comprises of:
Worm gear with safety brake and hollow shaft, emergency manual operator, integrated limit switches and electrical motor.



Patented built-in safety brake

- Safety against failure of worm or wheel
- Independent of speed / direction
- Maintenance free, self-monitoring
- Excellent damping characteristics in operation

Approvals and certificates

ELEKTROMATEN

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



Built-in safety brake

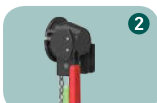
Certificate of conformity according to:
DIN EN 12604 / 12605
ift Rosenheim GmbH



1

Emergency manual operation

- Hand crank NHK 1
- Rapid hand chain operator SK (SI 8.20) 2
- Hand chain operator KNH (SI 14.15/14.20) 3



2

Limit switches

Mechanical limit NES 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



3



4

Mounting

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



5

Special versions

- Increase of movements per hour
- Higher protection class
- Other voltages and frequencies
- Explosion-proof according to ATEX (page 6.011)

Door controls

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

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

1. Technical data

| ELEKTROMATEN Series | | SI 8.20 SG50F | SI 14.15 SG50F | SI 14.20 SG50F |
|--|-----|--|--|--|
| Output torque | Nm | 80 | 140 | 140 |
| Output speed | rpm | 20 | 15 | 20 |
| Output shaft / hollow shaft (Ø) | mm | 25 / 25,4 / 30 | 25 / 25,4 / 30 | 25 / 25,4 / 30 |
| Locking torque ¹ | Nm | 310 | 310 | 310 |
| Safety brake (approval number) | | 14-003612-PR01 | 14-003612-PR01 | 14-003612-PR01 |
| Max. holding torque ² | Nm | 80 | 140 | 140 |
| Max. output speed OPEN / CLOSE for frequency inverter operation ³ | rpm | 35 / 20 | 26 / 20 | 35 / 20 |
| Motor power | kW | 0,30 | 0,35 | 0,45 |
| Supply voltage | V | 3~230 / 400 | 3~230 / 400 | 3~230 / 400 |
| Operating frequency | Hz | 50 | 50 | 50 |
| Operating current ⁴ | A | 2,6 / 1,5 | 3,3 / 1,9 | 3,4 / 2,0 |
| Max. movements per hour ^{5/6} | | 20 | 20 | 20 |
| Limit switch range ⁷ | | 20 [14] | 20 [14] | 20 [14] |
| Max. hand force NHK / SK and / or KNH ⁸ | N | 72 / 191 | 127 / 102 | 127 / 102 |
| Weight | kg | 12 | 17 | 14 |
| Spare parts: Catalogue page | | 9.051 | 9.051 | 9.051 |
| Part no. installation drawing (dxf, dwg) | | 50001216 | 50000674 | 50000674 |
| Part no. ELEKTROMATEN | | 10003369 (Ø25,0) 10003252 (Ø25,4) 10003370 (Ø30,0) | 10002375 (Ø25,0) 10002451 (Ø25,4) 10002464 (Ø30,0) | 10002226 (Ø25,0) 10002227 (Ø25,4) 10002461 (Ø30,0) |

Generally applies: Degree of protection IP65 (combined with WS 900-IP54), permissible temperature range -10°C...+40°C (+60°C), operating sound pressure level SPL <70 dB(A)
¹ See 3.5 · ² Maximum torque that may act on the output shaft of the drive unit when the door is stationary · ³ We recommend the selection of GfA ELEKTROMATEN-FI for use with frequency inverter, OPEN drive speed at 87 Hz, see 3.7 · ⁴ The operating current in door drives can reach up to 4x the rated current for limited periods, see 3.6 and 3.7 · ⁵ When using a temperature range of +40°C...+60°C use half of maximum movements per hour, see also 3.2 · ⁶ The specified value must be halved when considering cycles per hour according to EN 60335-2-103 · ⁷ Maximum revolutions of hollow shaft: limit switch range 14 turns with a Ø 30mm hollow shaft · ⁸ See 3.4

2. Selection chart

| 2.1 Roller shutters Tube EN 10220 [mm] | SI 8.20 | | SI 14.15 | | SI 14.20 | |
|---|---------|-----------------------|----------|-----------------------|----------|-----------------------|
| | F [N] | v _s [cm/s] | F [N] | v _s [cm/s] | F [N] | v _s [cm/s] |
| 101,6 x 3,6 | 1053 | 12,7 | 1842 | 9,6 | 1842 | 12,7 |
| 108,0 x 3,6 | 1000 | 13,4 | 1750 | 10,1 | 1750 | 13,4 |
| 133,0 x 4,0 | 837 | 16,0 | 1464 | 12,0 | 1464 | 16,0 |
| 159,0 x 4,5 | 715 | 18,7 | 1251 | 14,1 | 1251 | 18,7 |

- F = Lift [N]
- Includes 20% friction for single-wall profiles (profile thickness 20 mm)
- v_s = Initial speed [cm/s]
- Read note in 3.2

| 2.2 Sectional doors Cable drum [mm] | SI 8.20 | | SI 14.15 | | SI 14.20 | |
|--|---------|----------|----------|----------|----------|----------|
| | F [N] | v [cm/s] | F [N] | v [cm/s] | F [N] | v [cm/s] |
| Ø 160 | 900 | 16,8 | 1575 | 12,6 | 1575 | 16,8 |
| Ø 200 | 720 | 20,9 | 1260 | 15,7 | 1260 | 20,9 |

- F = Lift [N]
- Includes 10% friction
- Suitable cable drums are available as accessories in Chapter 9
- v = Door speed [cm/s]
- Read notes in 3.2 and 3.8

3. Notes

3.1 European directive

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

3.2 Selection chart / Movements per hour

The specified movements per hour (see Technical data) apply to an even distribution and the limit switch range first mentioned and must not be exceeded. For other limit switch ranges or heavily used doors, the drag forces must be reduced (enquire).

The selection chart includes 20% friction for roller shutters with single-wall profiles (profile thickness 20mm) and 10% friction for sectional doors.

Reduce the weight by a further 20% for vertical lifted doors and insulated shutters with double walled, thick and/or deep sections. Do not calculate using the tube diameter. The highest torque will occur normally after 1-2 turns of the barrel from close.

3.3 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.

3.4 Manual operation

In accordance with EN 12453 and 12604 hand force up to 390 N is permissible. For large, heavy doors, manual operation is only used for closing the door. In the case of drive units with an electric brake; emergency manual operation is carried out against the closed brake (Read note in 3.3).

3.5 Locking torque / Holding torque

The permissible loads on walls, fastenings, mountings and transmission elements must not be exceeded, even for maximum holding torques or locking torques.

3.6 Motor overload protection

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

3.7 Use with external frequency inverter

We recommend ELEKTROMATEN FI with an integrated frequency inverter (on request).

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 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 operating motor current.

3.8 Cable / Cable drums

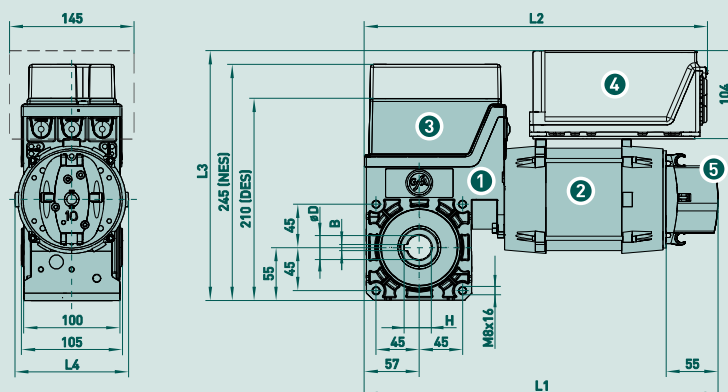
When calculating the cable size the max. permitted door weight is required with a safety of 6x for the cables; requirement of EN 12604.

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.

4. Dimensions

SI 8,20 – SI 14,20

SG50F



- 1 Worm gear with safety brake
- 2 Motor
- 3 Limit switch

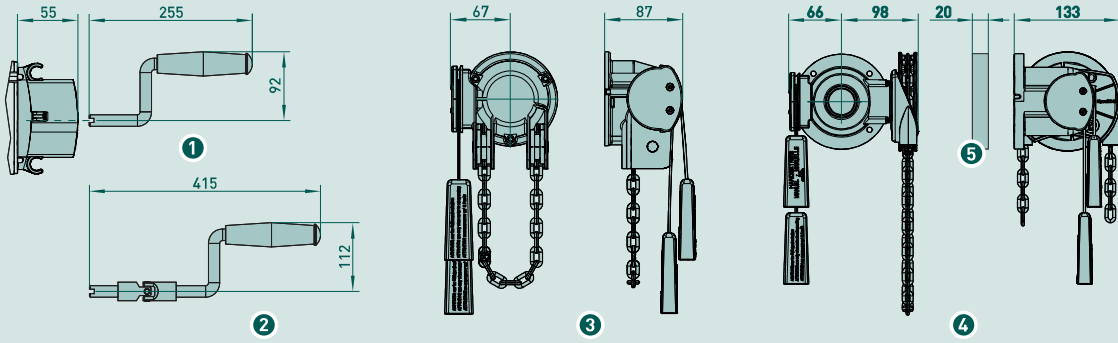
- 4 Optional: WS 900 control panel, removable, with 0,8m cable
- 5 Hand crank NHK

| ØD | H | B |
|------|------|------|
| 25 | 28,3 | 8 |
| 25,4 | 28,4 | 6,35 |
| 30 | 33,3 | 8 |

| ELEKTROMATEN | L1 | L2 | L3 | L4 |
|--------------|-----|-----|-----|-----|
| SI 8,20 | 371 | 385 | 275 | 108 |
| SI 14,15 | 430 | 392 | 280 | 126 |
| SI 14,20 | 375 | 392 | 280 | 126 |

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

5. Emergency manual operation • for horizontal or vertical installation



- 1 Manual hand crank operation NHK (Standard) Part no. 30002591
- 2 Manual hand crank operation with knuckle joint NHKK Part no. 30002715
- 3 Rapid hand chain operator SK (SI 8.20)
- 4 Hand chain operator KNH (SI 14.15/SI 14.20)
- 5 Flange in-use with: SI 14.15

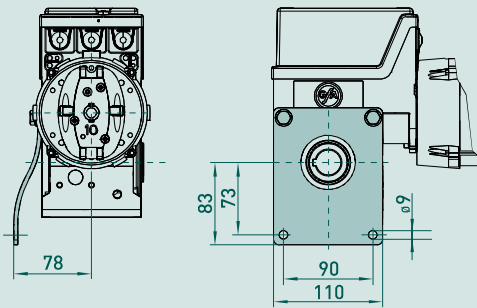
■ Manual forces, see item 1 of technical data

■ Read note in 3.4

6. Attachments / Accessories

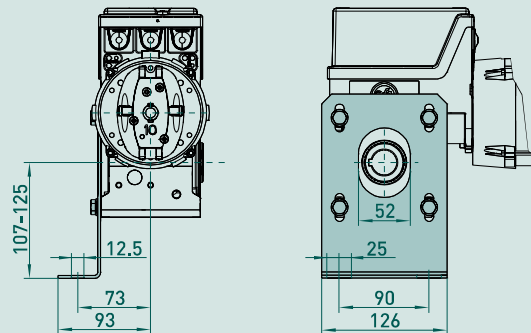
6.1 Torque bracket

Part no. 30002636



6.2 Flange bracket H 107-125

Part no. 30002685



■ All brackets can be mounted vertically or horizontally

ELEKTROMATEN® SIK

Safedrive® Compact

For driving: Roller shutters and rolling grilles which require an anti-fallback device, suitable for installation in tight spaces

Series SG63F-SIK
SIK 17.10
SIK 17.10 WS
SIK 25.10
SIK 25.10 WS

“Safedrive® Compact” ELEKTROMATEN SIK are special drives for industrial doors which require an anti-fallback device. The patented safety brake is built into the gear. The drive unit is fitted directly to the door shaft. Safedrive® ELEKTROMATEN SIK comprises of: Worm gear with safety brake and hollow shaft, emergency manual operator, integrated limit switches and electrical motor. The centrally-aligned hollow shaft of the ELEKTROMATEN SIK makes it suitable particularly for installation in tight spaces.



SG63F-SIK

Patented built-in safety brake

- Safety against failure of worm or wheel
- Independent of speed / direction
- Maintenance free, self-monitoring
- Excellent damping characteristics in operation
- Compact dimensions

Approvals and certificates

ELEKTROMATEN

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



Built-in safety brake

Certificate of conformity according to:
DIN EN 12604 / 12605
ift Rosenheim GmbH



1

Emergency manual operation

- Hand crank NHK
- Rapid hand chain operator SK

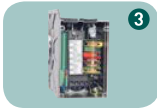


2

Limit switches

Mechanical limit NES

- 2 operating, 2 emergency- and 2 auxiliary limit switches



3

Digital limit DES

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



4

Mounting

- Floating foot (standard fitting)
- Torque bracket
- Moving-torque bracket

Door controls

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

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

1. Technical data

| ELEKTROMATEN Series | | SIK 17.10 SG63F-SIK | SIK 17.10 WS SG63F-SIK | SIK 25.10 SG63F-SIK | SIK 25.10 WS SG63F-SIK |
|---|-----|------------------------|---------------------------|------------------------|---------------------------|
| Output torque | Nm | 170 | 170 | 250 | 250 |
| Output speed | rpm | 10 | 10 | 10 | 10 |
| Output shaft / hollow shaft (Ø) | mm | 30 | 30 | 30 | 30 |
| Locking torque ¹ | Nm | 420 | 420 | 510 | 510 |
| Safety brake (approval number) | | 14-003612-PR02 | 14-003612-PR02 | 14-003612-PR02 | 14-003612-PR02 |
| Max. holding torque ² | Nm | 150 | 170 | 250 | 250 |
| Max. output speed OPEN / CLOSE for frequency inverter operation ³ | rpm | 18 / 10 | -- | 18 / 10 | -- |
| Motor power | kW | 0,30 | 0,40 | 0,40 | 0,40 |
| Supply voltage | V | 3~230 / 400 | 1N~230 | 3~230 / 400 | 1N~230 |
| Operating frequency | Hz | 50 | 50 | 50 | 50 |
| Operating current ⁴ | A | 2,6 / 1,5 | 4,5 | 2,6 / 1,5 | 4,5 |
| Max. movements per hour ^{5/6} | | 20 | 12 | 20 | 8 |
| Limit switch range ⁷ | | 20 | 20 | 20 | 20 |
| Max. hand force NHK / SK ⁸ | N | 51 / 134 | 75 / 198 | 75 / 198 | 75 / 198 |
| Weight | kg | 16 | 18 | 16 | 18 |
| Spare parts: Catalogue page | | 9.053 | 9.053 | 9.053 | 9.053 |
| Part no. installation drawing (dxf, dwg) | | 50000589 | 50000589 | 50000589 | 50000589 |
| Part no. ELEKTROMATEN | | 10003998 | 10004146 | 10003999 | 10004000 |

Generally applies: Degree of protection IP54, permissible temperature range -10°C...+40°C (+60°C), operating sound pressure level SPL <70 dB(A)

¹ See 3.5 · ² Maximum torque that may act on the output shaft of the drive unit when the door is stationary · ³ We recommend the selection of a special ELEKTROMATEN (enquire) for use with frequency inverter, OPEN drive speed at 87 Hz, see 3.7 · ⁴ The max. current in door drives can reach up to 4x the rated operating current for limited periods, see 3.6 and 3.7 · ⁵ When using a temperature range of +40°C...+60°C use half of maximum movements per hour, see also 3.2 · ⁶ The specified value must be halved when considering cycles per hour according to EN 60335-2-103 · ⁷ Maximum revolutions of hollow shaft · ⁸ See 3.4

2. Selection chart

| Roller shutters Tube EN 10220 [mm] | SIK 17.10 / SIK 17.10 WS | | SIK 25.10 WS / SIK 25.10 WS | |
|---------------------------------------|--------------------------|-----------------------|-----------------------------|-----------------------|
| | F [N] | v _i [cm/s] | F [N] | v _i [cm/s] |
| 101,6 x 3,6 | 2237 | 6,4 | 3289 | 6,4 |
| 108,0 x 3,6 | 2125 | 6,7 | 3125 | 6,7 |
| 133,0 x 4,0 | 1778 | 8,0 | 2614 | 8,0 |
| 159,0 x 4,5 | 1520 | 9,3 | 2235 | 9,4 |
| 177,8 x 5,0 | 1375 | 10,4 | 2022 | 10,4 |
| 193,7 x 5,4 | -- | -- | 1872 | 11,2 |

■ F = Lift [N]

■ v_i = Initial speed [cm/s]

■ Includes 20% friction for single-wall profiles (profile thickness 20mm)

■ Read note in 3.2

3. Notes

3.1 European directive

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

3.2 Selection chart / Movements per hour

The specified movements per hour (see Technical data) apply to an even distribution and the limit switch range first mentioned and must not be exceeded. For other limit switch ranges or heavily used doors, the drag forces must be reduced (enquire).

The selection chart includes 20% friction for roller shutters with single-wall profiles (profile thickness 20mm) and 10% friction for sectional doors.

Reduce the weight by a further 20% for vertical lifted doors and insulated shutters with double walled, thick and/or deep sections. Do not calculate using the tube diameter. The highest torque will occur normally after 1-2 turns of the barrel from close.

3.3 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.

3.4 Manual operation

In accordance with EN 12453 and 12604 hand force up to 390 N is permissible. For large, heavy doors, manual operation is only used for closing the door. In the case of drive units with an electric brake; emergency manual operation is carried out against the closed brake (Read note in 3.3).

3.5 Locking torque / Holding torque

The permissible loads on walls, fastenings, mountings and transmission elements must not be exceeded, even for maximum holding torques or locking torques.

3.6 Motor overload protection

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

3.7 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).

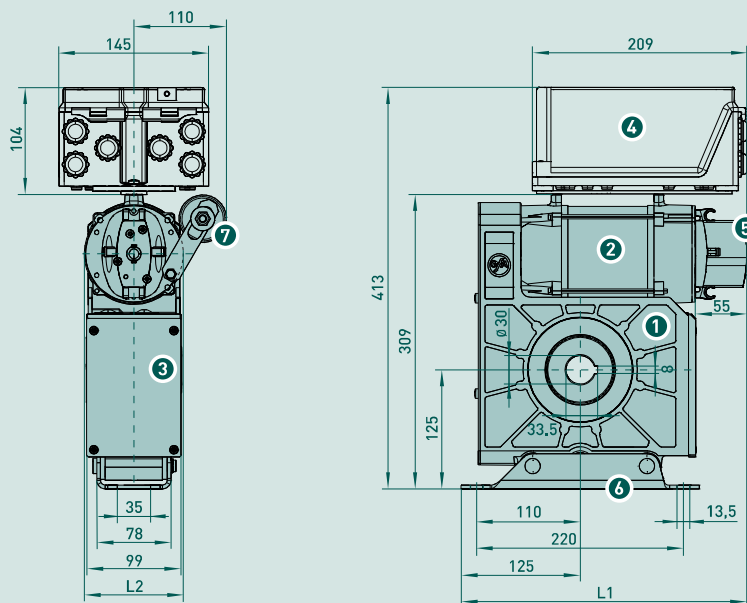
The admissible drive speeds may not be exceeded (see Technical data). The operating forces must comply with EN 12453, and the corresponding EMC directives must likewise be observed.

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

4. Dimensions

SIK 17.10 – SIK 25.10 WS

SG63F-SIK

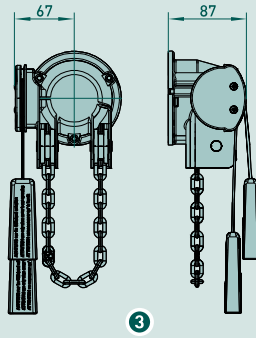
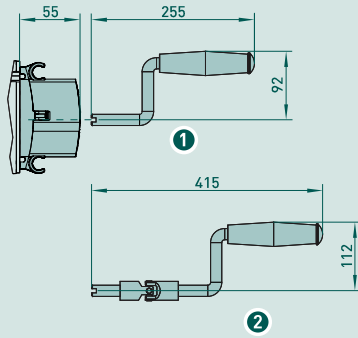


- 1 Worm gear with safety brake
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0,8m cable
- 5 Emergency manual operation NHK
- 6 Floating foot
- 7 Capacitor (SIK 17.10 WS / 25.10 WS)

| ELEKTROMATEN | L1 | L2 |
|--------------|-----|-----|
| SIK 17.10 | 301 | 104 |
| SIK 17.10 WS | 311 | 113 |
| SIK 25.10 | 301 | 104 |
| SIK 25.10 WS | 311 | 113 |

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

5. Emergency manual operation • for horizontal or vertical installation



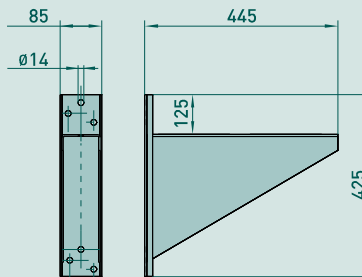
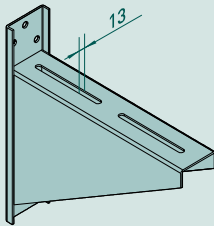
- 1 Manual hand crank operation NHK (Standard) Part no. 30002591
- 2 Manual hand crank operation with knuckle joint NHKK Part no. 30002715
- 3 Rapid hand chain operator SK

■ Manual forces, see item 1 of technical data

■ Read note in 3.4

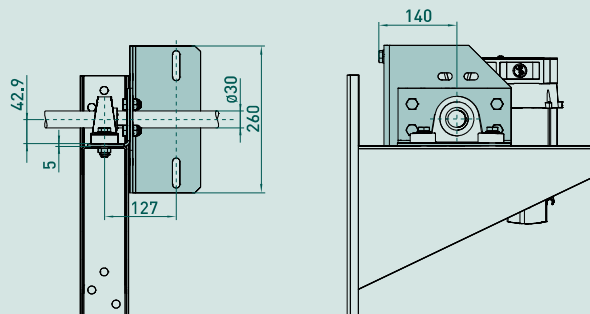
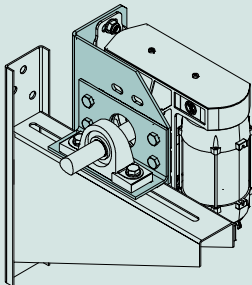
6. Attachments / Accessories

6.1 Bracket Part no. 40006488



■ Max. load 5 kN

6.2 Torque bracket Part no. 30002930

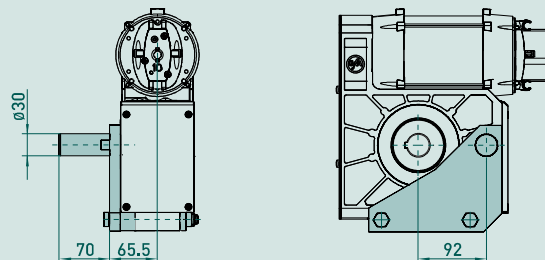
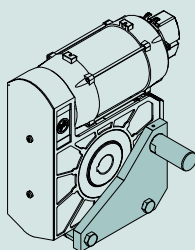


■ Right- or left-hand use

■ ELEKTROMATEN vertical (as shown) or horizontal

■ For mounting with floating foot additional requirements:
Bracket 6.1 and bearing

6.3 Moving-torque bracket Part no. 20002773.00005



■ Right- or left-hand use

■ ELEKTROMATEN horizontal only

ELEKTROMATEN® SI

Safedrive®

For driving:
Roller shutters and rolling grilles
which require an anti-fallback device

Series SG63F
SI 10.15 - SI 25.15

Series SG85F
SI 25.10 - SI 65.15

Series SG115F
SI 75.10 - SI 180.6

“Safedrive®” ELEKTROMATEN SI are special drives for industrial doors which require an anti-fallback device. The patented safety brake is built into the gear. The drive unit is fitted directly to the door shaft. Safedrive® ELEKTROMATEN comprises of:
Worm gear with safety brake and hollow shaft, emergency manual operator, integrated limit switches and electrical motor.

Patented built-in safety brake

- Safety against failure of worm or wheel
- Independent of speed / direction
- Maintenance free, self-monitoring
- Excellent damping characteristics in operation

Approvals and certificates

ELEKTROMATEN

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

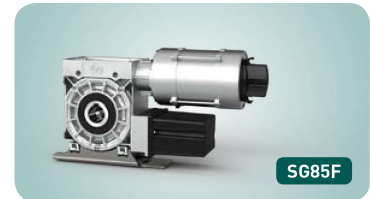


Built-in safety brake

Certificate of conformity according to:
DIN EN 12604 / 12605
ift Rosenheim GmbH



SG63F



SG85F



SG115F



1



2



3



4

Emergency manual operation

- Hand crank NHK
- Hand chain operator KNH

1

2

Limit switches

Mechanical limit NES

- 2 operating, 2 emergency- and 2 auxiliary limit switches

3

Digital limit DES

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

4

Mounting

- Floating foot (standard fitting)
- Torque bracket
- Moving-torque bracket

Special versions

- Increase of movements per hour
- Higher protection class
- Other voltages and frequencies
- Explosion-proof according to ATEX (page 6.011)
- ELEKTROMATEN SI with built-on frequency inverter (page 1.101)

Door controls

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

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

1. Technical data

| ELEKTROMATEN | | SI 10,15 | SI 17,15 | SI 25,15 | SI 25,10 | SI 25,15WS | SI 40,10 | SI 40,15 | SI 45,7WS |
|--|-----|-----------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|-----------------|-----------------|-----------------|
| Series | | SG63F | SG63F | SG63F ¹ | SG85F | SG85F | SG85F | SG85F | SG85F |
| Output torque | Nm | 100 | 170 | 250 | 250 | 250 | 400 | 400 | 450 |
| Output speed | rpm | 15 | 15 | 15 | 10 | 15 | 10 | 15 | 7 |
| Output shaft / hollow shaft (Ø) | mm | 30 | 30 / 40 | 30 / 40 | 30 / 40 | 30 / 40 | 40 | 40 | 40 |
| Locking torque ² | Nm | 420 | 420 | 510 | 635 | 635 | 760 | 760 | 1100 |
| Safety brake (approval number) | | 14-003612-PR02 | 14-003612-PR02 | 14-003612-PR02 | 14-003612-PR03 | 14-003612-PR03 | 14-003612-PR03 | 14-003612-PR03 | 14-003612-PR03 |
| Max. holding torque ³ | Nm | 170 | 170 | 250 | 250 | 250 | 400 | 400 | 450 |
| Max. output speed OPEN / CLOSE for frequency inverter operation ⁴ | rpm | 26 / 15 | 26 / 15 | 26 / 15 | 18 / 15 | -- | 18 / 15 | 26 / 15 | -- |
| Motor power | kW | 0,30 | 0,40 | 0,55 | 0,55 | 0,75 | 0,75 | 0,85 | 0,75 |
| Supply voltage | V | 3-230 / 400 | 3-230 / 400 | 3-230 / 400 | 3-230 / 400 | 1N-230 | 3-230 / 400 | 3-230 / 400 | 1N-230 |
| Operating frequency | Hz | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Operating current ⁵ | A | 2,6 / 1,5 | 3,7 / 2,2 | 4,0 / 2,3 | 3,1 / 1,8 | 8,0 | 5,1 / 3,0 | 4,4 / 2,6 | 8,0 |
| Max. movements per hour ^{6/7} | | 20 | 20 | 20 | 20 | 14 | 16 | 16 | 8 |
| Limit switch range ⁸ | | 20 | 20 (40) | 20 (40) | 20 (60, 110) | 20 (60, 110) | 20 (60, 110) | 20 (60, 110) | 20 (60, 110) |
| Max. hand force NHK / SK and / or KNH ⁹ | N | 65 / 172 | 80 / 89 | 118 / 132 | 85 / 95 | 85 / 95 | 136 / 151 | 136 / 151 | 78 / 87 |
| Weight | kg | 15 | 16 | 19 | 24 | 27 | 26 | 23 | 33 |
| Spare parts: Catalogue page | | 9.054 | 9.054 | 9.054 | 9.055 | 9.055 | 9.055 | 9.055 | 9.055 |
| Part no. installation drawing (dxf, dwg) | | 50001039 | 50001039 | 50001713 | 50000580 | 50000751 | 50000580 | 50000580 | 50001571 |
| Part no. ELEKTROMATEN | | Ø30 10003490 | Ø30 10003055 Ø40 10003830 | Ø30 10003166 Ø40 10003950 | Ø30 10002363 Ø40 10004532 | Ø30 10002514 Ø40 10002559 | Ø40 10002367 | Ø40 10002368 | Ø40 10003600 |

| ELEKTROMATEN | | SI 55,10 | SI 55,15 | SI 65,10 | SI 65,15 | SI 75,10 | SI 75,15 | SI 100,10 | SI 140,7 | SI 180,6 |
|--|-----|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Series | | SG85F | SG85F | SG85F | SG85F | SG115F | SG115F | SG115F | SG115F | SG115F |
| Output torque | Nm | 550 | 550 | 650 | 650 | 750 | 750 | 1000 | 1400 | 1800 |
| Output speed | rpm | 10 | 15 | 10 | 15 | 10 | 15 | 10 | 7 | 6 |
| Output shaft / hollow shaft (Ø) | mm | 40 | 40 | 40 | 40 | 55 | 55 | 55 | 55 | 60 |
| Locking torque ² | Nm | 1100 | 1100 | 1100 | 1100 | 2800 | 2800 | 2800 | 2800 | 3125 |
| Safety brake (approval number) | | 14-003612-PR03 | 14-003612-PR03 | 14-003612-PR03 | 14-003612-PR03 | 14-003305-PR01 | 14-003305-PR01 | 14-003305-PR01 | 14-003305-PR01 | 14-003305-PR01 |
| Max. holding torque ³ | Nm | 550 | 550 | 650 | 650 | 750 | 750 | 1000 | 1400 | 1800 |
| Max. output speed OPEN / CLOSE for frequency inverter operation ⁴ | rpm | 18 / 18 | 26 / 26 | 15 / 15 | 15 / 15 | 18 / 18 | 26 / 26 | 18 / 18 | 12 / 12 | 10 / 10 |
| Motor power | kW | 0,75 | 1,10 | 0,75 | 1,10 | 1,10 | 1,10 | 1,30 | 1,10 | 1,30 |
| Supply voltage | V | 3-230 / 400 | 3-230 / 400 | 3-230 / 400 | 3-230 / 400 | 3-230 / 400 | 3-230 / 400 | 3-230 / 400 | 3-230 / 400 | 3-230 / 400 |
| Operating frequency | Hz | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Operating current ⁵ | A | 7,2 / 4,2 | 7,2 / 4,2 | 7,2 / 4,2 | 7,2 / 4,2 | 7,0 / 4,1 | 8,1 / 4,7 | 11,2 / 6,5 | 7,0 / 4,1 | 11,2 / 6,5 |
| Max. movements per hour ^{6/7} | | 16 | 16 | 10 | 12 | 14 | 14 | 12 | 10 | 4 |
| Limit switch range ⁸ | | 20 (60, 110) | 20 (60, 110) | 20 (60) | 20 (60) | 20 (60, 110) | 20 (60, 110) | 20 (60, 110) | 20 (30) | 20 (30) |
| Max. hand force NHK / SK and / or KNH ⁹ | N | 320 / 158 | 320 / 158 | 233 / 188 | 233 / 188 | 290 / 234 | 290 / 234 | 349 / 282 | 263 / 212 | 348 / 281 |
| Weight | kg | 30 | 30 | 33 | 33 | 44 | 42 | 46 | 51 | 54 |
| Spare parts: Catalogue page | | 9.055 | 9.055 | 9.055 | 9.055 | 9.056 | 9.056 | 9.056 | 9.056 | 9.056 |
| Part no. installation drawing (dxf, dwg) | | 50000734 | 50000734 | 50000734 | 50000734 | 50000794 | 50000794 | 50000794 | 50000795 | 50001524 |
| Part no. ELEKTROMATEN | | 10002479 | 10002480 | 10005061 | 10005062 | 10002402 | 10002535 | 10002536 | 10002537 | 10003765 |

Generally applies: Degree of protection IP65 (combined with WS 900-IP54), permissible temperature range -10°C...+40°C (+60°C), operating sound pressure level SPL <70 dB(A)
¹ Customised designs of the SI 25.15 (e.g. for other voltages) are realised, in part, with the SG85F gearbox series (please contact us, in case of queries) - ² See 3.5 - ³ Maximum torque that may act on the output shaft of the drive unit when the door is stationary - ⁴ We recommend the selection of a special GFA ELEKTROMATEN-FI for use with frequency inverter, OPEN drive speed at 87 Hz, see 3.7 - ⁵ The max. current in door drives can reach up to 4x the rated operating current for limited periods, see 3.6 and 3.7 - ⁶ When using a temperature range of +40°C...+60°C use half of maximum movements per hour, see also 3.2 - ⁷ The specified value must be halved when considering cycles per hour according to EN 60335-2-103 - ⁸ Maximum revolutions of hollow shaft - ⁹ See 3.4

2. Selection chart

| Roller shutters Tube EN 10220 [mm] | SI 10.15 | | SI 17.15 | | SI 163 25.15 | | SI 25.10 | | SI 25.15 WS | | SI 40.10 | | SI 40.15 | | SI 45.7 WS | |
|---------------------------------------|----------|-----------------------|----------|-----------------------|--------------|-----------------------|----------|-----------------------|-------------|-----------------------|----------|-----------------------|----------|-----------------------|------------|-----------------------|
| | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] |
| 101,6 x 3,6 | 1316 | 9,6 | 2237 | 9,6 | 3289 | 9,6 | 3289 | 6,4 | 3289 | 9,6 | -- | -- | -- | -- | -- | -- |
| 108,0 x 3,6 | 1250 | 10,1 | 2125 | 10,1 | 3125 | 10,1 | 3125 | 6,7 | 3125 | 10,1 | 5000 | 6,7 | 5000 | 10,1 | 5625 | 4,7 |
| 133,0 x 4,0 | 1046 | 12,0 | 1778 | 12,0 | 2614 | 12,0 | 2614 | 8,0 | 2614 | 12,0 | 4183 | 8,0 | 4183 | 12,0 | 4706 | 5,6 |
| 159,0 x 4,5 | 894 | 14,1 | 1520 | 14,1 | 2235 | 14,1 | 2235 | 9,4 | 2235 | 14,1 | 3575 | 9,4 | 3575 | 14,1 | 4022 | 6,6 |
| 177,8 x 5,0 | -- | -- | 1375 | 15,5 | 2022 | 15,5 | 2022 | 10,4 | 2022 | 15,5 | 3236 | 10,4 | 3236 | 15,5 | 3640 | 7,2 |
| 193,7 x 5,4 | -- | -- | -- | -- | 1872 | 16,8 | 1872 | 11,2 | 1872 | 16,8 | 2995 | 11,2 | 2995 | 16,8 | 3336 | 7,8 |
| 219,1 x 5,9 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2677 | 12,5 | 2677 | 18,8 | 3011 | 8,8 |

| Roller shutters Tube EN 10220 [mm] | SI 55.10 | | SI 55.15 | | SI 65.10 | | SI 65.15 | | SI 75.10 | | SI 75.15 | | SI 100.10 | | SI 140.7 | | SI 180.6 | |
|---------------------------------------|----------|-----------------------|----------|-----------------------|----------|-----------------------|----------|-----------------------|----------|-----------------------|----------|-----------------------|-----------|-----------------------|----------|-----------------------|----------|-----------------------|
| | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] | F [N] | v _g [cm/s] |
| 159,0 x 4,5 | 4916 | 9,4 | 4916 | 14,1 | 5810 | 14,1 | 5810 | 14,1 | 6704 | 9,4 | 6704 | 14,1 | -- | -- | -- | -- | -- | -- |
| 177,8 x 5,0 | 4449 | 10,4 | 4449 | 15,5 | 5258 | 15,5 | 5258 | 15,5 | 6067 | 10,4 | 6067 | 15,5 | 8089 | 10,4 | 11325 | 7,2 | -- | -- |
| 193,7 x 5,4 | 4118 | 11,2 | 4118 | 16,8 | 4867 | 16,8 | 4867 | 16,8 | 5615 | 11,2 | 5615 | 16,8 | 7487 | 11,2 | 10482 | 7,8 | 13477 | 6,7 |
| 219,1 x 5,9 | 3680 | 12,5 | 3680 | 18,8 | 4350 | 18,8 | 4350 | 18,8 | 5019 | 12,5 | 5019 | 18,8 | 6692 | 12,5 | 9368 | 8,8 | 12045 | 7,5 |
| 244,5 x 6,3 | 3327 | 13,8 | 3327 | 20,8 | 3932 | 20,8 | 3932 | 20,8 | 4537 | 13,8 | 4537 | 20,8 | 6049 | 13,8 | 8469 | 9,7 | 10888 | 8,3 |
| 273,0 x 6,3 | -- | -- | -- | -- | 3549 | 23,0 | 3549 | 23,0 | 4096 | 15,3 | 4096 | 23,0 | 5461 | 15,3 | 7645 | 10,7 | 9829 | 9,2 |
| 298,5 x 7,1 | -- | -- | -- | -- | -- | -- | -- | -- | 3768 | 16,7 | 3768 | 25,0 | 5024 | 16,7 | 7033 | 11,7 | 9042 | 10,0 |
| 323,9 x 7,1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 4653 | 18,0 | 6514 | 12,6 | 8375 | 10,8 |

■ F = Lift [N]

■ v_g = Initial speed [cm/s]

■ Includes 20% friction for single-wall profiles (profile thickness 20mm)

■ Read note in 3.2

3. Notes

3.1 European directive

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

3.2 Selection chart / Movements per hour

The specified movements per hour (see Technical data) apply to an even distribution and the limit switch range first mentioned and must not be exceeded. For other limit switch ranges or heavily used doors, the drag forces must be reduced (enquire).

The selection chart includes 20% friction for roller shutters with single-wall profiles (profile thickness 20mm) and 10% friction for sectional doors.

Reduce the weight by a further 20% for vertical lifted doors and insulated shutters with double walled, thick and/or deep sections. Do not calculate using the tube diameter. The highest torque will occur normally after 1-2 turns of the barrel from close.

3.3 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.

3.4 Manual operation

In accordance with EN 12453 and 12604 hand force up to 390 N is permissible. For large, heavy doors, manual operation is only used for closing the door. In the case of drive units with an electric brake; emergency manual operation is carried out against the closed brake (Read note in 3.3).

3.5 Locking torque / Holding torque

The permissible loads on walls, fastenings, mountings and transmission elements must not be exceeded, even for maximum holding torques or locking torques.

3.6 Motor overload protection

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

3.7 Use with external frequency inverter

We recommend ELEKTROMATEN FI with an integrated frequency inverter (page 1.101).

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).

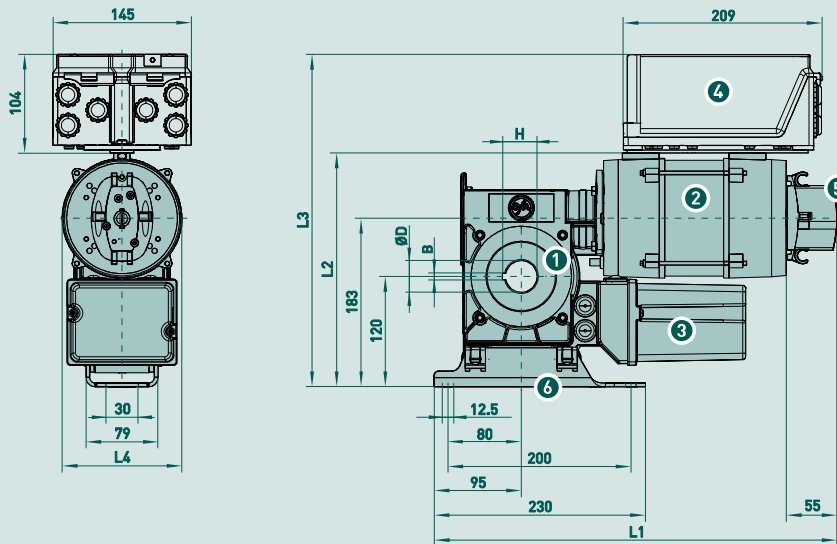
The admissible drive speeds may not be exceeded (see Technical data). The operating forces must comply with EN 12453, and the corresponding EMC directives must likewise be observed.

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

4. Dimensions

4.1 SI 10.15 – SI63 25.15

SG63F



| Ø D | H | B |
|-----|------|----|
| 30 | 33,3 | 8 |
| 40 | 43,3 | 12 |

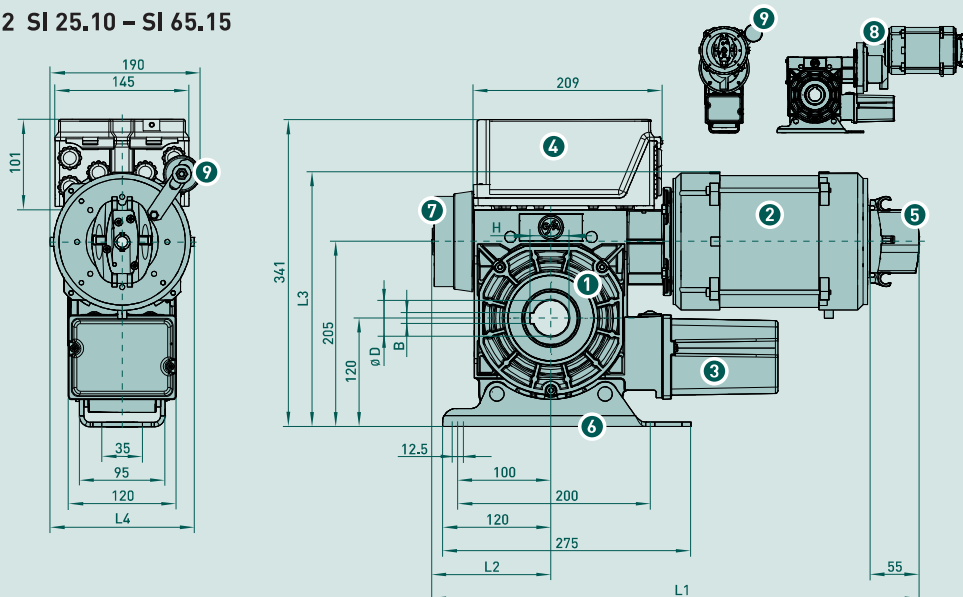
- 1 Worm gear with safety brake
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0,8m cable
- 5 Hand crank NHK
- 6 Floating foot

| ELEKTROMATEN | L1 | L2 | L3 | L4 |
|--------------|-----|-----|-----|-----|
| SI 10.15 | 422 | 246 | 348 | 105 |
| SI 17.15 | 432 | 244 | 348 | 105 |
| SI63 25.15 | 445 | 254 | 358 | 131 |

- Permitted installation: Horizontal (as shown) or vertical (motor at the bottom)
- Customised designs of the SI 25.15 are realised, in part, with the SG85F gearbox series (see 4.2, please contact us, in case of queries)

4.2 SI 25.10 – SI 65.15

SG85F



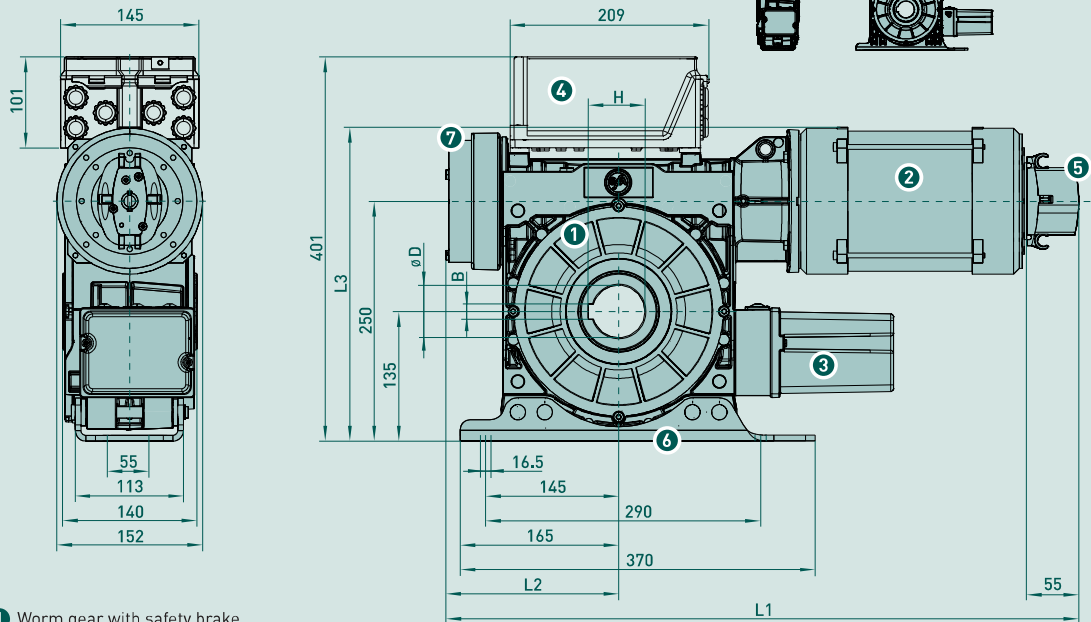
- 1 Worm gear with safety brake
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0,8m cable
- 5 Hand crank NHK
- 6 Floating foot
- 7 Brake
- 8 Intermediate gear
- 9 Capacitor

| ELEKTROMATEN | ØD | H | B | L1 | L2 | L3 | L4 |
|----------------|----|------|----|-----|-----|-----|-----|
| SI 25.10 | 30 | 33,3 | 8 | 497 | 120 | 271 | 130 |
| SI 25.15 WS 9 | 30 | 33,3 | 8 | 524 | 120 | 281 | 152 |
| SI 40.10 | 40 | 43,3 | 12 | 520 | 120 | 271 | 130 |
| SI 40.15 | 40 | 43,3 | 12 | 487 | 120 | 271 | 130 |
| SI 45.7 WS 8 9 | 40 | 43,3 | 12 | 625 | 120 | 337 | 152 |
| SI 55.10 7 | 40 | 43,3 | 12 | 535 | 131 | 281 | 152 |
| SI 55.15 7 | 40 | 43,3 | 12 | 535 | 131 | 281 | 152 |
| SI 65.10 7 | 40 | 43,3 | 12 | 535 | 131 | 281 | 152 |
| SI 65.15 7 | 40 | 43,3 | 12 | 535 | 131 | 281 | 152 |

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

4.3 SI 75.10 – SI 180.6

SG115F

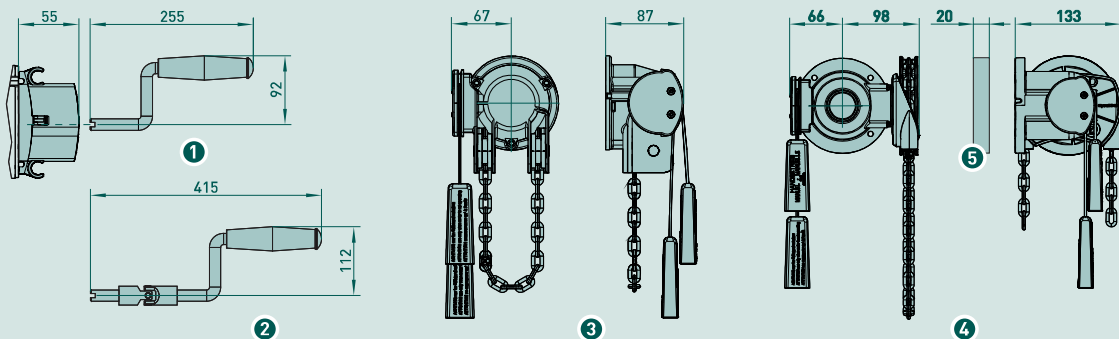


- 1 Worm gear with safety brake
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0,8m cable
- 5 Hand crank NHK
- 6 Floating foot
- 7 Brake
- 8 Intermediate gear
- 9 2nd brake

| ELEKTROMATEN | ØD | H | B | L1 | L2 | L3 |
|--------------|----|------|----|-----|-----|-----|
| SI 75.10 | 55 | 59,3 | 16 | 659 | 179 | 326 |
| SI 75.15 | 55 | 59,3 | 16 | 659 | 179 | 326 |
| SI 100.10 | 55 | 59,3 | 16 | 669 | 179 | 326 |
| SI 140.7 | 55 | 59,3 | 16 | 744 | 181 | 382 |
| SI 180.6 | 60 | 64,4 | 18 | 798 | 180 | 382 |

■ Permitted installation: Horizontal (as shown), vertical (motor at the bottom) only with torque bracket (page 1.056 Section 6.3)

5. Emergency manual operation • for horizontal or vertical installation



- 1 Manual hand crank operation NHK (Standard)
- 2 Manual hand crank operation with knuckle joint NHKK
- 3 Rapid hand chain operator SK (SI 10.15)
- 4 Hand chain operator KNH (from SI 17.15)
- 5 Flange in-use with: SI 180.6

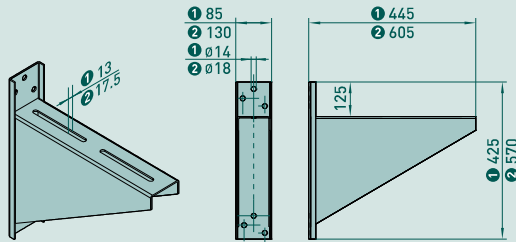
| For Series | Part.-no. | L | H |
|-----------------------------|-----------|-----|-----|
| 1 SG63F (only for SI 10.15) | 30002591 | 255 | 91 |
| 1 SG63F / SG85F | 30002749 | 235 | 122 |
| 1 SG115F | 30003112 | 265 | 192 |
| 2 SG63F (only for SI 10.15) | 30002715 | 415 | 111 |
| 2 SG63F / SG85F | 30002750 | 425 | 152 |

■ Manual forces, see item 1 of technical data

■ Read note in 3.4

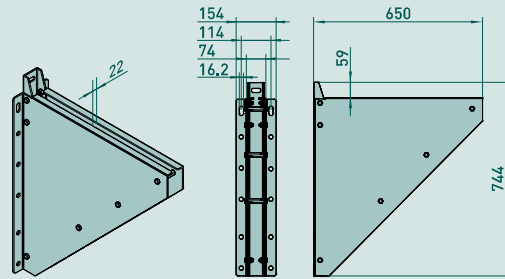
6. Attachments / Accessories

6.1 Bracket



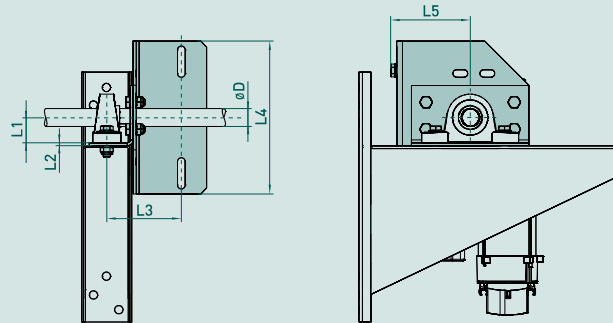
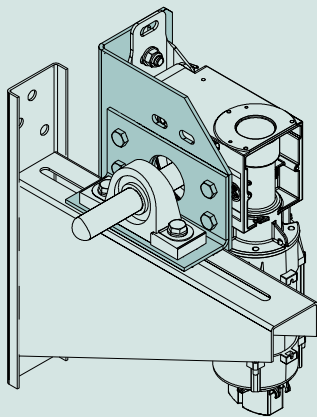
| Series | Part no. | Max. load |
|-----------------------|----------|-----------|
| SG63F / SG85F ① | 40006488 | 5 kN |
| SG115F (≤ SI 140.7) ② | 40012396 | 12 kN |

6.2 Bracket (SI 180.6)



| Series | Part no. | Max. load |
|-------------------|----------|-----------|
| SG115F (SI 180.6) | 40016189 | 29 kN |

6.3 Torque bracket

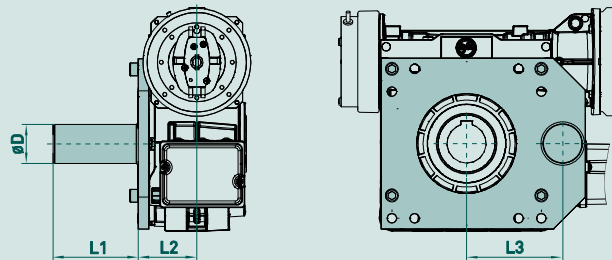
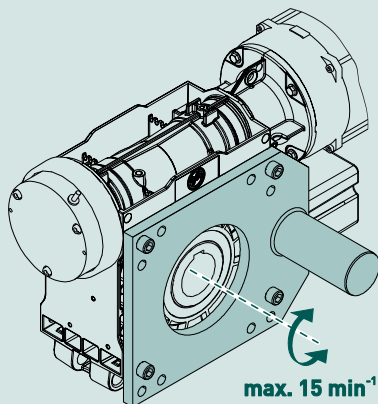


| Series | Ø D | Part no. | L1 | L2 | L3 | L4 | L5 |
|---------------|-----|----------|------|----|-----|-----|-----|
| SG63F / SG85F | 30 | 30002930 | 42,9 | 5 | 127 | 260 | 135 |
| SG85F | 40 | 30002930 | 49,2 | 5 | 127 | 260 | 135 |
| SG115F | 55 | 30003162 | 63,5 | 6 | 174 | 350 | 148 |
| SG115F | 60 | 30003162 | 69,8 | 6 | 174 | 350 | 148 |

- Right- or left-hand use
- ELEKTROMATEN vertical (as shown) or horizontal

- For mounting with floating foot additional requirements:
Bracket 6.1 or 6.2 and bearing

6.4 Moving-torque bracket



| Series | Ø D | Part no. | L1 | L2 | L3 |
|---------------------|-----|----------------|-----|------|-----|
| SG63F ¹ | 30 | 20002641,00004 | 70 | 72,5 | 95 |
| SG85F | 30 | 20002494,00024 | 80 | 70 | 105 |
| SG85F | 40 | 20002494,00025 | 80 | 70 | 105 |
| SG115F ² | 55 | 20002495,00004 | 120 | 83 | 135 |

- Right- or left-hand use
- ELEKTROMATEN horizontal (as shown) or vertikal

- 1 Special version of ELEKTROMATEN with side thread is required
- 2 No use with SI 180.6

ELEKTROMATEN® SI

Rapid Safedrive®

For driving: High-speed sectional doors
and high-speed rolling doors
which require an anti-fallback device

Series SG63F

SI 17.24

Series SG85F

SI 25.24 - SI 40.24

SI 10.70 - SI 28.46

Series SG115F

SI 60.24 - SI 100.24

"Rapid Safedrive® FI" ELEKTROMATEN SI are special drives for industrial doors which require an anti-fallback device. The patented safety brake is built into the gear. The drive unit is fitted directly to the door shaft. Safedrive® ELEKTROMATEN comprises of:
Worm gear with safety brake and hollow shaft, emergency manual operator, integrated limit switches and electrical motor.

Patented built-in safety brake

- Safety against failure of worm or wheel
- Independent of speed / direction
- Maintenance free, self-monitoring
- Excellent damping characteristics in operation

Approvals and certificates

ELEKTROMATEN

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



Built-in safety brake

Certificate of conformity according to:
DIN EN 12604 / 12605
ift Rosenheim GmbH



SG63F



SG85F



SG115F



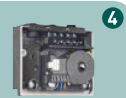
1



2



3



4

Emergency manual operation

- Hand crank NHK
- Hand chain operator KNH

1

2

Limit switches

Mechanical limit NES

- 2 operating, 2 emergency- and 2 auxiliary limit switches

3

Digital limit DES

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

4

Mounting

- Floating foot (standard fitting)
- Torque bracket

Special versions

- Increase of movements per hour
- Higher protection class
- Other voltages and frequencies
- Explosion-proof according to ATEX (page 6.011)
- ELEKTROMATEN SI with built-on frequency inverter (page 1.101)

Door controls

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

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

1. Technical data

1.1 "Rapid Safedrive®" Output speed up to 35 rpm

| ELEKTROMATEN Series | | SI 17.24 SG63F | SI 25.24 SG85F | SI 25.35 SG85F | SI 35.30 SG85F |
|--|-----|---|-------------------------------------|-------------------------------------|-------------------|
| Output torque | Nm | 170 | 250 | 250 | 350 |
| Output speed | rpm | 24 | 24 | 35 | 30 |
| Output shaft / hollow shaft (Ø) | mm | 25 / 25,4 / 30 / 31,75 / 40 | 30 / 31,75 | 30 / 31,75 | 40 |
| Locking torque ¹ | Nm | 420 | 635 | 635 | 760 |
| Safety brake (approval number) | | 14-003612-PR02 | 14-003612-PR03 | 14-003612-PR03 | 14-003612-PR03 |
| Max. holding torque ² | Nm | 170 | 250 | 250 | 350 |
| Max. output speed OPEN / CLOSE for frequency inverter operation ³ | rpm | 42 / 24 | 42 / 30 | 60 / 35 | 52 / 52 |
| Motor power | kW | 0,40 | 0,85 | 0,85 | 1,10 |
| Supply voltage | V | 3~230 / 400 | 3~230 / 400 | 3~230 / 400 | 3~230 / 400 |
| Operating frequency | Hz | 50 | 50 | 50 | 50 |
| Operating current ⁴ | A | 3,3 / 1,9 | 4,4 / 2,6 | 4,4 / 2,6 | 5,2 / 3,0 |
| Max. movements per hour ^{5/6} | | 20 | 30 | 30 | 30 |
| Limit switch range ⁷ | | 20 | 20 (60, 110) | 20 (60, 110) | 20 (60, 110) |
| Max. hand force NHK / KNH ⁸ | N | 99 / 110 | 190 / 94 | 208 / 103 | 248 / 122 |
| Weight | kg | 17 | 25 | 25 | 26 |
| Spare parts: Catalogue page | | 9,054 | 9,055 | 9,055 | 9,055 |
| Part no. installation drawing (dxf, dwg) | | 50001079 | 50000733 | 50000733 | 50000733 |
| Part no. ELEKTROMATEN | | 10003445 (Ø25) 10003145 (Ø25,4) 10003056 (Ø30) 10003057 (Ø31,75) 10003982 (Ø40) | 10002564 (Ø30) 10002678 (Ø31,75) | 10002565 (Ø30) 10002679 (Ø31,75) | 10002566 |

| ELEKTROMATEN Series | | SI 40.24 SG85F | SI 60.24 SG115F | SI 75.24 SG115F | SI 100.24 SG115F |
|--|-----|-------------------|--------------------|--------------------|---------------------|
| Output torque | Nm | 400 | 600 | 750 | 1000 |
| Output speed | rpm | 24 | 24 | 24 | 24 |
| Output shaft / hollow shaft (Ø) | mm | 40 | 55 | 55 | 55 |
| Locking torque ¹ | Nm | 760 | 2800 | 2800 | 2800 |
| Safety brake (approval number) | | 14-003612-PR03 | 14-003305-PR01 | 14-003305-PR01 | 14-003305-PR01 |
| Max. holding torque ² | Nm | 400 | 600 | 750 | 1000 |
| Max. output speed OPEN / CLOSE for frequency inverter operation ³ | rpm | 42 / 30 | 42 / 42 | 42 / 42 | 34 / 24 |
| Motor power | kW | 1,10 | 1,50 | 2,00 | 3,00 |
| Supply voltage | V | 3~230 / 400 | 3~230 / 400 | 3~230 / 400 | 3~230 / 400 |
| Operating frequency | Hz | 50 | 50 | 50 | 50 |
| Operating current ⁴ | A | 5,2 / 3,0 | 6,7 / 3,9 | 8,1 / 4,7 | 11,9 / 6,9 |
| Max. movements per hour ^{5/6} | | 30 | 30 | 30 | 20 |
| Limit switch range ⁷ | | 20 (60, 110) | 20 (60, 110) | 20 (60, 110) | 20 (60, 110) |
| Max. hand force NHK / KNH ⁸ | N | 255 / 126 | 193 / 156 | 290 / 234 | 206 / 166 |
| Weight | kg | 26 | 38 | 45 | 53 |
| Spare parts: Catalogue page | | 9,055 | 9,056 | 9,056 | 9,056 |
| Part no. installation drawing (dxf, dwg) | | 50000733 | 50000830 | 50000794 | 50000795 |
| Part no. ELEKTROMATEN | | 10002567 | 10002623 | 10002624 | 10003286 |

Generally applies: Degree of protection IP54, permissible temperature range -10°C...+40°C (+60°C), operating sound pressure level SPL <70 dB(A)

¹ See 3.5 - ² Maximum torque that may act on the output shaft of the drive unit when the door is stationary - ³ We recommend the selection of a special GfA ELEKTROMATEN-FI for use with frequency inverter, OPEN drive speed at 87 Hz, see 3.7 - ⁴ The max. current in door drives can reach up to 4x the rated operating current for limited periods, see 3.6 and 3.7 - ⁵ When using a temperature range of +40°C...+60°C use half of maximum movements per hour, see also 3.2 - ⁶ The specified value must be halved when considering cycles per hour according to EN 60335-2-103 - ⁷ Maximum revolutions of hollow shaft - ⁸ See 3.4

1.2 "Rapid Safedrive®" Output speed from 46 rpm

| ELEKTROMATEN Series | | SI 10.70 SG85F | SI 13.70 SG85F | SI 20.90 SG85F | SI 25.60 SG85F | SI 28.46 SG85F |
|--|-----|----------------------------------|----------------------------------|----------------------------------|-------------------|-------------------|
| Output torque | Nm | 100 | 130 | 200 | 250 | 280 |
| Output speed | rpm | 70 | 70 | 90 | 60 | 46 |
| Output shaft / hollow shaft (Ø) | mm | 30 / 40 | 30 / 40 | 30 / 40 | 40 | 40 |
| Locking torque ¹ | Nm | 480 | 480 | 635 | 990 | 990 |
| Safety brake (approval number) | | 14-003612-PR03 | 14-003612-PR03 | 14-003612-PR03 | 14-003612-PR03 | 14-003612-PR03 |
| Max. holding torque ² | Nm | 160 | 250 | 250 | 250 | 300 |
| Max. output speed OPEN / CLOSE for frequency inverter operation ³ | rpm | 122 / 90 | 122 / 90 | 156 / 90 | 104 / 90 | 80 / 80 |
| Motor power | kW | 0,40 | 1,30 | 1,80 | 1,80 | 1,10 |
| Supply voltage | V | 3~230 / 400 | 3~230 / 400 | 3~230 / 400 | 3~230 / 400 | 3~230 / 400 |
| Operating frequency | Hz | 50 | 50 | 50 | 50 | 50 |
| Operating current ⁴ | A | 3,1 / 1,8 | 5,0 / 2,9 | 6,4 / 3,8 | 6,4 / 3,8 | 5,2 / 3,0 |
| Max. movements per hour ^{5/6} | | 60 | 45 | 45 | 45 | 45 |
| Limit switch range ⁴ | | 10 (20) | 10 (20) | 10 (20) | 10 (20) | 10 (20) |
| Max. hand force NHK / KNH ⁷ | N | 158 / 175 | 147 / 73 | 203 / 100 | 200 / 99 | 215 / 125 |
| Weight | kg | 25 | 28 | 29 | 29 | 26 |
| Spare parts: Catalogue page | | 9.055 | 9.055 | 9.055 | 9.055 | 9.055 |
| Part no. installation drawing (dxf, dwg) | | 50000847 | 50000847 | 50000847 | 50000847 | 50000847 |
| Part no. ELEKTROMATEN | | 10002692 (Ø30) 10002693 (Ø40) | 10002670 (Ø30) 10002694 (Ø40) | 10002698 (Ø30) 10002699 (Ø40) | 10002657 | 10002665 |

Generally applies: Degree of protection IP54, permissible temperature range -10°C...+40°C (+60°C), operating sound pressure level SPL <70 dB(A)

¹ See 3.5 · ² Maximum torque that may act on the output shaft of the drive unit when the door is stationary · ³ We recommend the selection of a special GfA ELEKTROMATEN-FI for use with frequency inverter, OPEN drive speed at 87 Hz, see 3.7 · ⁴ The max. current in door drives can reach up to 4x the rated operating current for limited periods, see 3.6 and 3.7 · ⁵ When using a temperature range of +40°C...+60°C use half of maximum movements per hour, see also 3.2 · ⁶ The specified value must be halved when considering cycles per hour according to EN 60335-2-103 · ⁷ Maximum revolutions of hollow shaft · ⁸ See 3.4

2. Selection chart

| 2.1 Roller shutters Tube EN 10220 [mm] | SI 17.24 | | SI 20.90 | | SI 25.24 | | SI 25.35 | | SI 25.60 | | SI 28.46 | |
|---|----------|-----------------------|----------|-----------------------|----------|-----------------------|----------|-----------------------|----------|-----------------------|----------|-----------------------|
| | F [N] | v _a [cm/s] | F [N] | v _a [cm/s] | F [N] | v _a [cm/s] | F [N] | v _a [cm/s] | F [N] | v _a [cm/s] | F [N] | v _a [cm/s] |
| 101,6 x 3,6 | 2237 | 15,3 | 2632 | 57,3 | 3289 | 9,6 | 3289 | 22,3 | 3289 | 38,2 | 3684 | 29,3 |
| 108,0 x 3,6 | 2125 | 16,1 | 2500 | 60,3 | 3125 | 10,1 | 3125 | 23,5 | 3125 | 40,2 | 3500 | 30,8 |
| 133,0 x 4,0 | 1778 | 19,2 | 2092 | 72,1 | 2614 | 12,0 | 2614 | 28,0 | 2614 | 48,1 | 2928 | 36,9 |
| 159,0 x 4,5 | 1520 | 22,5 | 1788 | 84,4 | 2235 | 14,1 | 2235 | 32,8 | 2235 | 56,2 | 2503 | 43,1 |
| 177,8 x 5,0 | 1375 | 24,9 | 1618 | 93,2 | 2022 | 15,5 | 2022 | 36,2 | 2022 | 62,1 | 2265 | 47,6 |
| 193,7 x 5,4 | -- | -- | -- | -- | 1872 | 16,8 | 1872 | 39,2 | 1872 | 67,1 | 2096 | 51,5 |

| 2.1 Roller shutters Tube EN 10220 [mm] | SI 35.30 | | SI 40.24 | | SI 60.24 | | SI 75.24 | | SI 100.24 | |
|---|----------|-----------------------|----------|-----------------------|----------|-----------------------|----------|-----------------------|-----------|-----------------------|
| | F [N] | v _a [cm/s] | F [N] | v _a [cm/s] | F [N] | v _a [cm/s] | F [N] | v _a [cm/s] | F [N] | v _a [cm/s] |
| 108,0 x 3,6 | 4375 | 20,1 | 5000 | 16,1 | -- | -- | -- | -- | -- | -- |
| 133,0 x 4,0 | 3660 | 24,0 | 4183 | 19,2 | -- | -- | -- | -- | -- | -- |
| 159,0 x 4,5 | 3128 | 28,1 | 3575 | 22,5 | 5363 | 22,5 | 6704 | 22,5 | -- | -- |
| 177,8 x 5,0 | 2831 | 31,1 | 3236 | 24,9 | 4853 | 24,9 | 6067 | 24,9 | 8089 | 24,9 |
| 193,7 x 5,4 | 2620 | 33,6 | 2995 | 26,9 | 4492 | 26,9 | 5615 | 26,9 | 7487 | 26,9 |
| 219,1 x 5,9 | -- | -- | 2677 | 30,0 | 4015 | 30,0 | 5019 | 30,0 | 6692 | 30,0 |
| 244,5 x 6,3 | -- | -- | -- | -- | 3629 | 33,2 | 4537 | 33,2 | 6049 | 33,2 |
| 273,0 x 6,3 | -- | -- | -- | -- | 3276 | 36,8 | 4096 | 36,8 | 5461 | 36,8 |
| 298,5 x 7,1 | -- | -- | -- | -- | -- | -- | 3768 | 40,0 | 5024 | 40,0 |
| 323,9 x 7,1 | -- | -- | -- | -- | -- | -- | -- | -- | 4653 | 43,2 |

■ F = Lift [N]

■ v_a = Initial speed [cm/s]

■ Includes 20% friction for single-wall profiles (profile thickness 20mm)

■ Read note in 3.2



| 2.2 Sectional doors Cable drum [mm] | SI 17.24 | | SI 20.90 | | SI 25.24 | | SI 25.35 | | SI 25.60 | | SI 28.46 | |
|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | F [N] | v [cm/s] | F [N] | v [cm/s] | F [N] | v [cm/s] | F [N] | v [cm/s] | F [N] | v [cm/s] | F [N] | v [cm/s] |
| Ø 160 | 1913 | 20,1 | 2250 | 75,4 | 2813 | 20,1 | 2813 | 29,3 | 2813 | 29,3 | 3150 | 38,5 |
| Ø 200 | 1530 | 25,1 | 1800 | 25,1 | 2250 | 25,1 | 2250 | 36,7 | 2250 | 36,7 | 2520 | 48,2 |

| 2.2 Sectional doors Cable drum [mm] | SI 35.30 | | SI 40.24 | | SI 60.24 | | SI 75.24 | | SI 100.24 | |
|--|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|
| | F [N] | v [cm/s] | F [N] | v [cm/s] | F [N] | v [cm/s] | F [N] | v [cm/s] | F [N] | v [cm/s] |
| Ø 160 | 3938 | 25,1 | 4500 | 20,1 | -- | -- | -- | -- | -- | -- |
| Ø 200 | 3150 | 31,4 | 3600 | 25,1 | 5400 | 25,1 | 6750 | 25,1 | 9000 | 25,1 |

■ F = Lift [N]

■ v = Door speed [cm/s]

■ Includes 10% friction

■ Read notes in 3.2 and 3.8

■ Suitable cable drums are available as accessories in Chapter 9

3. Notes

3.1 European directive

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

3.2 Selection chart / Movements per hour

The specified movements per hour (see Technical data) apply to an even distribution and the limit switch range first mentioned and must not be exceeded. For other limit switch ranges or heavily used doors, the drag forces must be reduced (enquire).

The selection chart includes 20% friction for roller shutters with single-wall profiles (profile thickness 20mm) and 10% friction for sectional doors.

Reduce the weight by a further 20% for vertical lifted doors and insulated shutters with double walled, thick and/or deep sections. Do not calculate using the tube diameter. The highest torque will occur normally after 1-2 turns of the barrel from close.

3.3 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.

3.4 Manual operation

In accordance with EN 12453 and 12604 hand force up to 390 N is permissible. For large, heavy doors, manual operation is only used for closing the door. In the case of drive units with an electric brake; emergency manual operation is carried out against the closed brake (Read note in 3.3).

3.5 Locking torque / Holding torque

The permissible loads on walls, fastenings, mountings and transmission elements must not be exceeded, even for maximum holding torques or locking torques.

3.6 Motor overload protection

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

3.7 Use with external frequency inverter

We recommend ELEKTROMATEN FI with an integrated frequency inverter (page 1.101).

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 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 operating motor current.

3.8 Cable / Cable drums

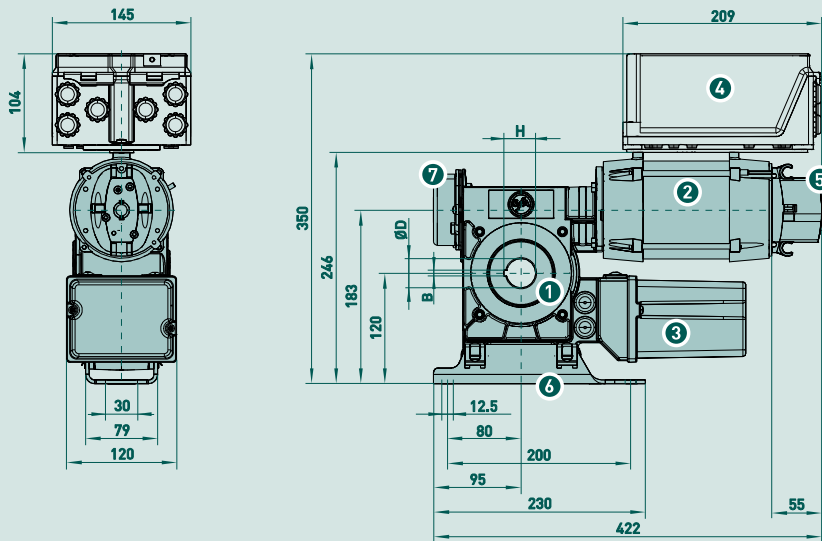
When calculating the cable size the max. permitted door weight is required with a safety of 6x for the cables requirement of EN 12604.

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.

4. Dimensions

4.1 SI 17.24

SG63F



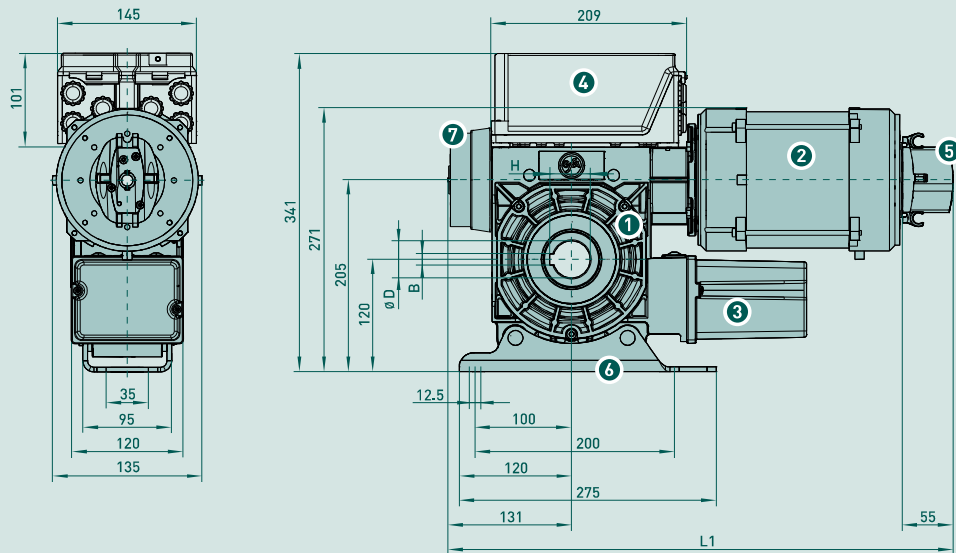
- 1 Worm gear with safety brake
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0,8m cable
- 5 Hand crank NHK
- 6 Floating foot
- 7 Brake

| Ø D | H | B |
|-------|------|------|
| 25 | 28,3 | 8 |
| 25,4 | 28,4 | 6,35 |
| 30 | 33,3 | 8 |
| 31,75 | 34,7 | 6,35 |
| 40 | 43,3 | 12 |

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

4.2 SI 25.24 – SI 40.24 / SI 10.70 – SI 28.46

SG85F



- 1 Worm gear with safety brake
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0,8m cable
- 5 Hand crank NHK
- 6 Floating foot
- 7 Brake

| Ø D | H | B |
|-------|------|------|
| 30 | 33,3 | 8 |
| 31,75 | 34,7 | 6,35 |
| 40 | 43,3 | 12 |

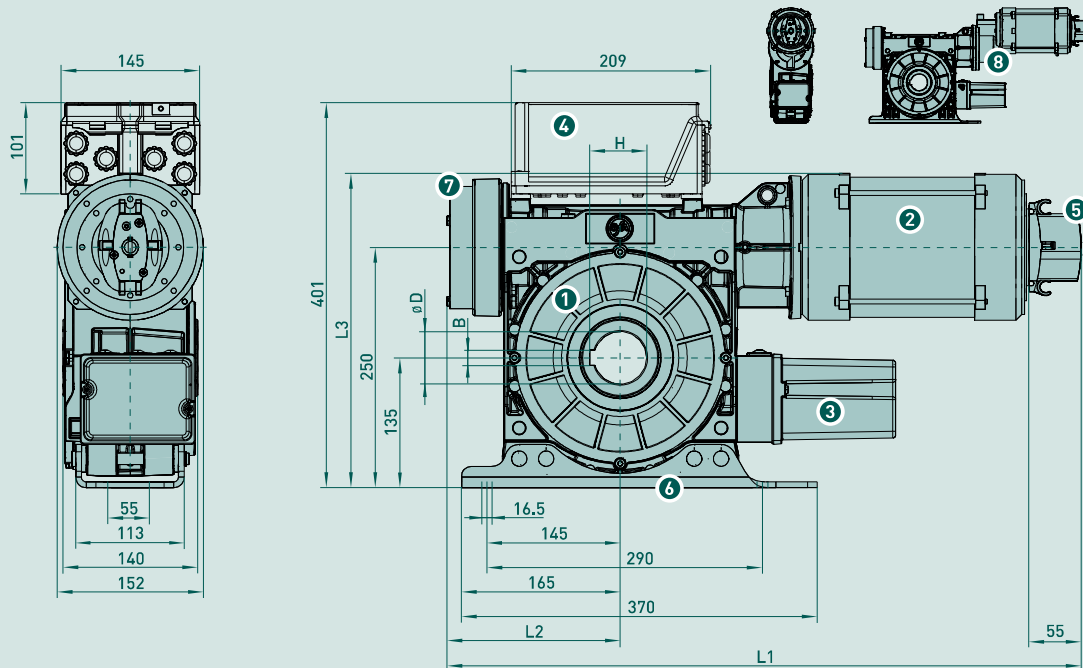
| ELEKTROMATEN | L1 |
|--------------|-----|
| SI 25.24 | 497 |
| SI 25.35 | 497 |
| SI 35.30 | 518 |
| SI 40.24 | 518 |
| SI 10.70 | 482 |
| SI 13.70 | 574 |
| SI 20.90 | 594 |
| SI 25.60 | 594 |
| SI 28.46 | 572 |

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



4.3 SI 60.24 – SI 100.24

SG115F

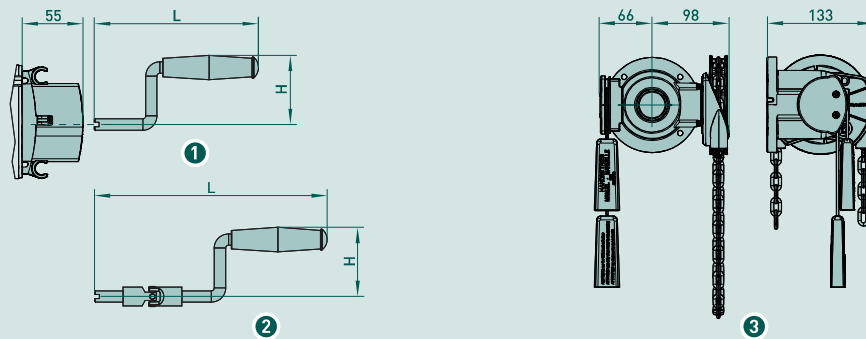


- 1 Worm gear with safety brake
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0,8m cable
- 5 Hand crank NHK
- 6 Floating foot
- 7 Brake
- 8 Intermediate gear

| ELEKTROMATEN | L1 | L2 | L3 |
|--------------|-----|-----|-----|
| SI 60.24 | 608 | 169 | 326 |
| SI 75.24 | 639 | 179 | 326 |
| SI 100.24 8 | 744 | 179 | 382 |

■ Permitted installation: Horizontal (as shown), vertical (motor at the bottom) only with torque bracket (page 1.077 item 6.2)

5. Emergency manual operation • for horizontal or vertical installation



- 1 Manual hand crank operation NHK (Standard)
- 2 Manual hand crank operation with knuckle joint NHKK
- 3 Hand chain operator KNH

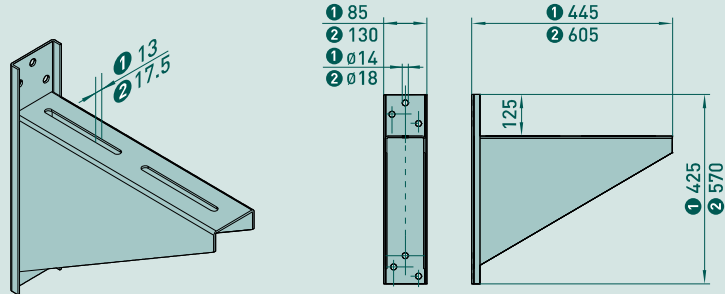
| | For series | Part no. | L | H |
|---|---------------|----------|-----|-----|
| 1 | SG63F / SG85F | 30002749 | 235 | 122 |
| 1 | SG115F | 30003112 | 265 | 192 |
| 2 | SG63F / SG85F | 30002750 | 425 | 152 |

■ Manual forces, see item 1 of technical data

■ Read note in 3.4

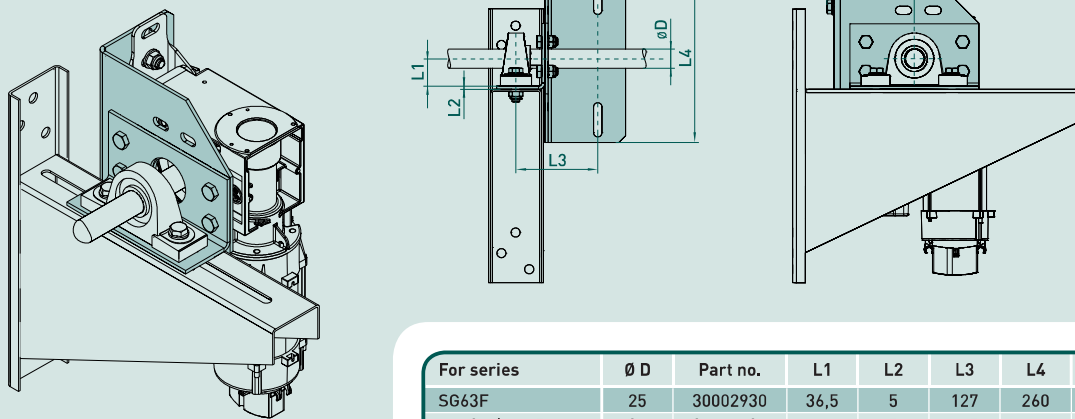
6. Attachments / Accessories

6.1 Bracket



| | | |
|------------|-----------------|----------|
| For series | SG63F / SG85F ① | SG115F ② |
| Part no. | 40006488 | 40012396 |
| Max. load | 5 kN | 12 kN |

6.2 Torque bracket



| For series | Ø D | Part no. | L1 | L2 | L3 | L4 | L5 |
|---------------|-----|----------|------|----|-----|-----|-----|
| SG63F | 25 | 30002930 | 36,5 | 5 | 127 | 260 | 135 |
| SG63F / SG85F | 30 | 30002930 | 42,9 | 5 | 127 | 260 | 135 |
| SG85F | 40 | 30002930 | 49,2 | 5 | 127 | 260 | 135 |
| SG115F | 55 | 30003162 | 63,5 | 6 | 174 | 350 | 148 |

- Right- or left-hand use
- ELEKTROMATEN vertical (as shown) or horizontal

- For mounting with floating foot (additional requirements: bracket 6.1 and bearing)

ELEKTROMATEN® SI

Safedrive®

For driving:
Roller shutters and rolling grilles
which require an anti-fallback device

Series SG186F
SI 360.9 - SI 500.5 GH

“Safedrive® FI” ELEKTROMATEN SI are special drives for industrial doors which require an anti-fallback device. The patented safety brake is built into the gear. The drive unit is fitted directly to the door shaft. Safedrive® ELEKTROMATEN comprises of:
Worm gear with safety brake and hollow shaft, emergency manual operator, integrated limit switches and electrical motor.

Patented built-in safety brake

- Safety against failure of worm or wheel
- Independent of speed / direction
- Maintenance free, self-monitoring
- Excellent damping characteristics in operation

Approvals and certificates

ELEKTROMATEN

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



Built-in safety brake

Certificate of conformity according to:
DIN EN 12604 / 12605
ift Rosenheim GmbH



1

Emergency manual operation

- Hand chain operator KNH

1



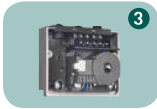
2

Limit switches

Mechanical limit NES

- 2 operating, 2 emergency- and 2 auxiliary limit switches

2



3

Digital limit DES

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

3

Mounting

- Floating foot (standard fitting)

Special versions

- Increase of movements per hour
- Higher protection class
- Other voltages and frequencies
- ELEKTROMATEN SI with built-on frequency inverter (page 1.121)

Door controls

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

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

1. Technical data

| ELEKTROMATEN Series | | SI 360,9 SG186F | SI 480,9 SG186F | SI 500,5 GH SG186F |
|--|-----|--------------------|--------------------|-----------------------|
| Output torque | Nm | 3600 | 4800 | 5000 |
| Output speed | rpm | 9 | 9 | 5 |
| Output shaft / hollow shaft (∅) | mm | 100 | 100 | 100 |
| Locking torque ¹ | Nm | 8255 | 8255 | 8255 |
| Safety brake (approval number) | | 11-003301-PR | 11-003301-PR | 11-003301-PR |
| Max. holding torque ² | Nm | 3600 | 4800 | 5000 |
| Max. output speed OPEN / CLOSE for frequency inverter operation ³ | rpm | 9 / 9 | 9 / 9 | 5 / 5 |
| Motor power | kW | 3,00 | 3,00 | 2,5 |
| Supply voltage | V | 3-230 / 400 | 3-230 / 400 | 3-230 / 400 |
| Operating frequency | Hz | 50 | 50 | 50 |
| Operating current ⁴ | A | 11,9 / 6,9 | 11,4 / 6,6 | 10,0 / 5,8 |
| Max. movements per hour ^{5/6} | | 6 | 6 | 8 |
| Limit switch range ⁷ | | 10 (30) | 10 (30) | 10 (30) |
| Max. hand force KNH ⁸ | N | 215 | 255 | 261 |
| Weight | kg | 127 | 130 | 129 |
| Part no. installation drawing (dxf, dwg) | | 50001996 | 50001996 | 50001997 |
| Part no. ELEKTROMATEN | | 10004323 | 10004324 | 10004344 |

Generally applies: Degree of protection IP65, permissible temperature range -10°C...+40°C (+60°C), operating sound pressure level SPL <70 dB(A)

¹ See 3.5 · ² Maximum torque that may act on the output shaft of the drive unit when the door is stationary · ³ We recommend the selection of a special GfA ELEKTROMATEN-FI for use with frequency inverter, OPEN drive speed at 87 Hz, see 3.7 · ⁴ The max. current in door drives can reach up to 4x the rated operating current for limited periods, see 3.6 and 3.7 · ⁵ When using a temperature range of +40°C...+60°C use half of maximum movements per hour, see also 3.2 · ⁶ The specified value must be halved when considering cycles per hour according to EN 60335-2-103 · ⁷ Maximum revolutions of hollow shaft · ⁸ See 3.4

2. Selection chart

| Roller shutters Tube EN 10220 [mm] | SI 360,9 F [N] v ₀ [cm/s] | | SI 480,9 F [N] v ₀ [cm/s] | | SI 500,5 GH F [N] v ₀ [cm/s] | |
|---------------------------------------|---|-------|---|------|--|------|
| | 298,5 x 7,1 | 15824 | 15,0 | -- | -- | -- |
| 323,9 x 7,1 | 14655 | 16,2 | 19541 | 16,2 | 20355 | 9,0 |
| 368,0 x 8,0 | 12990 | 18,3 | 17320 | 18,3 | 18041 | 10,2 |
| 406,4 x 8,8 | 11820 | 20,1 | 15760 | 20,1 | 16417 | 11,2 |
| 419,0 x 10,0 | 11481 | 20,7 | 15308 | 20,7 | 15945 | 11,5 |
| 457,2 x 10,0 | -- | -- | 14082 | 22,5 | 14669 | 12,5 |
| 508,0 x 11,0 | -- | -- | 12727 | 24,9 | 13258 | 13,8 |

■ F = Lift [N]

■ v₀ = Initial speed [cm/s]

■ Includes 30% friction for single-wall profiles (profile thickness 20mm)

■ Read note in 3.2

3. Notes

3.1 European directive

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

3.2 Selection chart / Movements per hour

The specified movements per hour (see Technical data) apply to an even distribution and the limit switch range first mentioned and must not be exceeded. For other limit switch ranges or heavily used doors, the drag forces must be reduced (enquire).

The selection chart includes 30% friction for roller shutters with single-wall profiles (profile thickness 20mm) and 10% friction for sectional doors.

Reduce the weight by a further 20% for vertical lifted doors and insulated shutters with double walled, thick and/or deep sections. Do not calculate using the tube diameter. The highest torque will occur normally after 1-2 turns of the barrel from close.

3.3 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.

3.4 Manual operation

In accordance with EN 12453 and 12604 hand force up to 390 N is permissible. For large, heavy doors, manual operation is only used for closing the door. In the case of drive units with an electric brake; emergency manual operation is carried out against the closed brake (Read note in 3.3).

3.5 Locking torque / Holding torque

The permissible loads on walls, fastenings, mountings and transmission elements must not be exceeded, even for maximum holding torques or locking torques.

3.6 Motor overload protection

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

3.7 Use with external frequency inverter

We recommend ELEKTROMATEN FI with an integrated frequency inverter (page 1.121).

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 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 operating motor current.

3.8 Cable / Cable drums

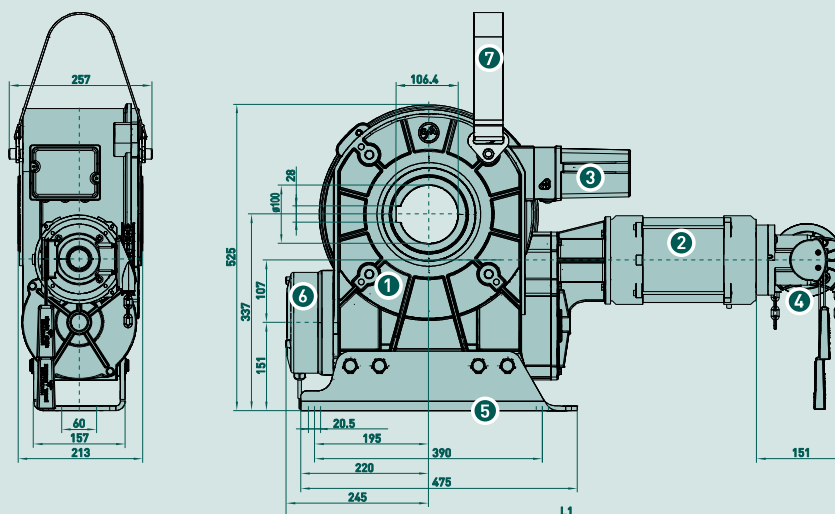
When calculating the cable size the max. permitted door weight is required with a safety of 6x for the cables requirement of EN 12604.

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.

4. Dimensions

4.1 SI 360.9 / SI 480.9

SG186F



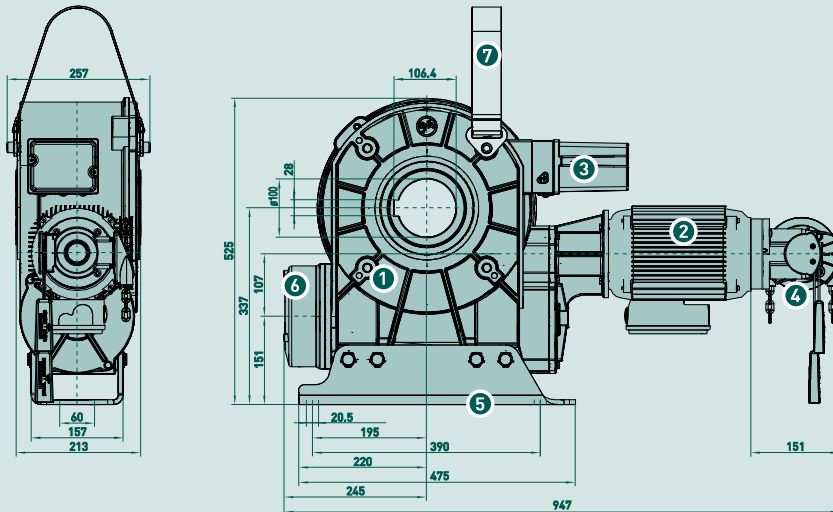
- 1 Worm gear with safety brake
- 2 Motor
- 3 Limit switch
- 4 Emergency manual operation KNH
- 5 Floating foot
- 6 Brake
- 7 Assembling aid

| ELEKTROMATEN | L1 |
|--------------|-----|
| SI 360.9 | 941 |
| SI 480.9 | 968 |

■ Permitted installation: Horizontal with an additional torque mount system, see 6

4.2 SI 500.5 GH

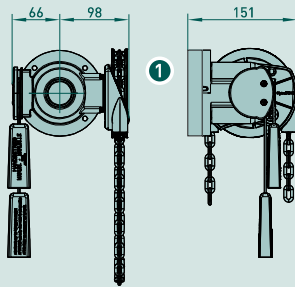
SG186F



- 1 Worm gear with safety brake
- 2 Motor
- 3 Limit switch
- 4 Emergency manual operation KNH
- 5 Floating foot
- 6 Brake
- 7 Assembling aid

■ Permitted installation: Horizontal with an additional torque mount system, see 6

5. Emergency manual operation • for horizontal installation



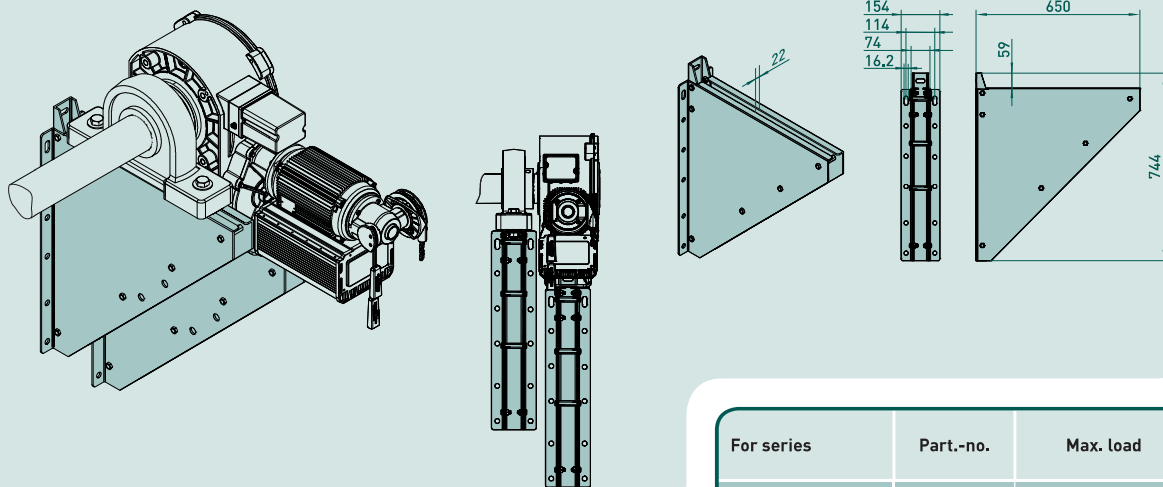
- 1 Hand chain operator KNH

■ Manual forces, see item 1 of technical data

■ Read note in 3.4

6. Attachments / Accessories

Bracket



| For series | Part.-no. | Max. load |
|------------|-----------|-----------|
| SG186F | 40016189 | 29 kN |

- Mounting of the door shaft via separate bearing
- 2nd bracket as a torque mount is required

■ Permitted installation: Horizontal

ELEKTROMATEN® SI FI

"Safedrive®" with built-on frequency inverter

For driving:

High-speed sectional doors and high-speed rolling doors which require an anti-fallback device

Series SG63F
SI63 3,5.350 FI - SI 17.60 FI

Series SG85F
SI 10.200 FI - SI 55.40 FI

Series SG115F
SI 50.80 FI - SI 180.12 FI

"Safedrive FI®" ELEKTROMATEN SI are special drives for industrial doors which require an anti-fallback device. The patented safety brake is built into the gear. The drive unit is fitted directly to the door shaft. Safedrive ELEKTROMATEN SI FI comprises of: Worm gear with safety brake and hollow shaft, emergency manual operator, integrated limit switches and electrical motor with built-on frequency inverter.

Patented built-in safety brake

- Safety against failure of worm or wheel
- Independent of speed / direction
- Maintenance free, self-monitoring
- Excellent damping characteristics in operation

Built-on frequency inverter to be used with door controls TS 970, TS 971 or TS 981

- Individual adjustable output speed¹
- 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 and FI-motors

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



Built-in safety brake

Certificate of conformity according to:
DIN EN 12604 / 12605
ift Rosenheim GmbH



SG63F



SG85F



SG115F



1

Emergency manual operation

- Hand crank NHK
- Hand chain operator KNH



2

Limit switches

Digital limit DES

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

3



3

Mounting

- Floating foot (standard fitting)
- Torque bracket

Special versions

- Other drive speeds and other drive torques on request

Door controls

- Simple connection to the limit switch by means of non-interchangeable plug connections allowing simple exchange with other GfA door controls
- Control voltage: 24V DC
- Frequency: 50 / 60 Hz
- Mains supply at motors with 0,85/1,5kW: 1N~230V, 3N~400V
- Mains supply at motors with 4,5kW: 3N~400V, 3~400V

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

¹ See 3.6

1. Technical data

1.1 SG63F Output torque 35Nm - 170Nm / 0,85kW

| ELEKTROMATEN Series | | SI63 3,5.350 FI SG63F | SI63 5.250 FI SG63F | SI63 8.180 FI SG63F | SI 13.100 FI SG63F | SI 17.60 FI SG63F |
|---|-----|---|---|---|---|---|
| Output torque | Nm | 35 | 50 | 80 | 130 | 170 |
| Output speed | rpm | 30-350 | 30-250 | 30-180 | 18-100 | 8-60 |
| OPEN | | 30-150 | 30-150 | 30-90 | 18-80 | 8-35 |
| CLOSE > 2,5m CLOSE ≤ 2,5m ¹ | | 30-100 | 30-100 | 30-90 | 18-60 | 8-35 |
| Output shaft / hollow shaft (Ø) | mm | 25/25,4/30/31,75/40 | 25/25,4/30/31,75/40 | 25/25,4/30/31,75/40 | 25/25,4/30/31,75/40 | 25/25,4/30/31,75/40 |
| Locking torque ² | Nm | 510 | 510 | 510 | 510 | 420 |
| Safety brake (approval number) | | 14-003612- PR02 | 14-003612- PR02 | 14-003612- PR02 | 14-003612- PR02 | 14-003612- PR02 |
| Max. holding torque ³ | Nm | 90 | 90 | 140 | 150 | 170 |
| Motor power | kW | 0,85 | 0,85 | 0,85 | 0,85 | 0,85 |
| Supply voltage | V | 1N-230 | 1N-230 | 1N-230 | 1N-230 | 1N-230 |
| Operating frequency | Hz | 50 / 60 | 50 / 60 | 50 / 60 | 50 / 60 | 50 / 60 |
| Operating current | A | 6,6 | 6,6 | 6,6 | 6,6 | 6,6 |
| Max. movements per hour ^{4/5} | | 66 | 66 | 59 | 48 | 30 |
| Limit switch range ⁶ | | 20 | 20 | 20 | 20 | 20 |
| Max. hand force NHK / KNH ⁷ | N | 173 / 140 | 199 / 161 | 217 / 175 | 225 / 182 | 157 / 127 |
| Weight | kg | 28 | 28 | 28 | 29 | 28 |
| Spare parts: Catalogue page | | 9.053 | 9.053 | 9.053 | 9.053 | 9.053 |
| Part no. installation drawing [dxf, dwg] | | 50001458 | 50001458 | 50001458 | 50001601 | 50001458 |
| Part no. ELEKTROMATEN | | 10003987 (Ø25) 10004778 (Ø25,4) 10003928 (Ø30) 1000xxxx (Ø31,75) 10004037 (Ø40) | 10003888 (Ø25) 10003889 (Ø25,4) 10003745 (Ø30) 1000xxxx (Ø31,75) 10003881 (Ø40) | 10003896 (Ø25) 10003897 (Ø25,4) 10003843 (Ø30) 10004505 (Ø31,75) 10003898 (Ø40) | 10004184 (Ø25) 10004283 (Ø25,4) 10004116 (Ø30) 10004268 (Ø31,75) 10004185 (Ø40) | 10004186 (Ø25) 10003900 (Ø25,4) 10003844 (Ø30) 10003901 (Ø31,75) 10003902 (Ø40) |

1.2 SG85F Output torque 100Nm - 200Nm / 1,5kW

| ELEKTROMATEN Series | | SI 10.200 FI SG85F | SI 15.140 FI SG85F | SI 20.100 FI SG85F |
|---|-----|----------------------------------|----------------------------------|----------------------------------|
| Output torque | Nm | 100 | 150 | 200 |
| Output speed | rpm | 25-200 | 19-140 | 18-100 |
| OPEN | | 25-110 | 19-80 | 18-55 |
| CLOSE > 2,5m CLOSE ≤ 2,5m ¹ | | 25-90 | 19-75 | 18-55 |
| Output shaft / hollow shaft (Ø) | mm | 30 / 40 | 30 / 40 | 30 / 40 |
| Locking torque ² | Nm | 635 | 480 | 635 |
| Safety brake (approval number) | | 14-003612- PR03 | 14-003612- PR03 | 14-003612- PR03 |
| Max. holding torque ³ | Nm | 140 | 160 | 200 |
| Motor power | kW | 1,50 | 1,50 | 1,50 |
| Supply voltage | V | 1N-230 | 1N-230 | 1N-230 |
| Operating frequency | Hz | 50 / 60 | 50 / 60 | 50 / 60 |
| Operating current | A | 7,3 | 7,3 | 7,3 |
| Max. movements per hour ^{4/5} | | 68 | 58 | 52 |
| Limit switch range ⁶ | | 20 | 20 | 20 |
| Max. hand force NHK / KNH ⁷ | N | 175 / 195 | 195 / 217 | 203 / 226 |
| Weight | kg | 38 | 39 | 39 |
| Spare parts: Catalogue page | | 9.055 | 9.055 | 9.055 |
| Part no. installation drawing [dxf, dwg] | | 50001422 | 50001422 | 50001422 |
| Part no. ELEKTROMATEN | | 10004460 (Ø30) 10004462 (Ø40) | 10004456 (Ø30) 10004459 (Ø40) | 10004224 (Ø30) 10004227 (Ø40) |

Footnotes under 1.5

1.3 SG85F Output torque 250Nm - 450Nm / 1,5kW

| ELEKTROMATEN Series | | | SI 25,60 FI SG85F | SI 25,80 FI SG85F | SI 40,40 FI SG85F | SI 45,15 FI SG85F |
|--|---|-----|---|---|----------------------|----------------------|
| Output torque | | Nm | 250 | 250 | 400 | 450 |
| Output speed | OPEN CLOSE > 2,5m CLOSE ≤ 2,5m ¹ | rpm | 10-60 10-35 10-35 | 18-80 18-50 18-50 | 9-40 9-35 9-24 | 7-15 7-15 7-15 |
| Output shaft / hollow shaft (Ø) | | mm | 30 / 31,75 / 40 | 30 / 31,75 / 40 | 40 | 40 |
| Locking torque ² | | Nm | 990 | 990 | 760 | 1100 |
| Safety brake (approval number) | | | 14-003612- PR03 | 14-003612- PR03 | 14-003612- PR03 | 14-003612- PR03 |
| Max. holding torque ³ | | Nm | 250 | 250 | 400 | 450 |
| Motor power | | kW | 1,50 | 1,50 | 1,50 | 1,50 |
| Supply voltage | | V | 1N-230 | 1N-230 | 1N-230 | 1N-230 |
| Operating frequency | | Hz | 50 / 60 | 50 / 60 | 50 / 60 | 50 / 60 |
| Operating current | | A | 7,3 | 7,3 | 7,3 | 7,3 |
| Max. movements per hour ^{4/5} | | | 40 | 52 | 30 | 15 |
| Limit switch range ⁶ | | | 20 | 20 | 20 | 20 |
| Max. hand force NHK / KNH ⁷ | | N | 200 / 99 | 233 / 115 | 255 / 126 | 153 / 170 |
| Weight | | kg | 39 | 38 | 39 | 37 |
| Spare parts: Catalogue page | | | 9.055 | 9.055 | 9.055 | 9.055 |
| Part no. installation drawing (dxf, dwg) | | | 50001422 | 50001422 | 50001422 | 50001554 |
| Part no. ELEKTROMATEN | | | 10003845 (Ø30) 10004054 (Ø31,75) 10003871 (Ø40) | 10003827 (Ø30) 10003828 (Ø31,75) 10003826 (Ø40) | 10003672 | 10004022 |

1.4 SG85F Output torque 250Nm - 550Nm / 4,5kW

| ELEKTROMATEN Series | | | SI 25,150 FI SG85F | SI 35,100 FI SG85F | SI 45,60 FI SG85F | SI 55,40 FI SG85F |
|--|---|-----|--------------------------|--------------------------|----------------------|----------------------|
| Output torque | | Nm | 250 | 350 | 450 | 550 |
| Output speed | OPEN CLOSE > 2,5m CLOSE ≤ 2,5m ¹ | rpm | 17-150 17-70 17-70 | 15-100 15-55 15-55 | 7-60 7-35 7-35 | 8-40 8-30 8-30 |
| Output shaft / hollow shaft (Ø) | | mm | 40 | 40 | 40 | 40 |
| Locking torque ² | | Nm | 990 | 990 | 1100 | 1100 |
| Safety brake (approval number) | | | 14-003612- PR03 | 14-003612- PR03 | 14-003612- PR03 | 14-003612- PR03 |
| Max. holding torque ³ | | Nm | 300 | 350 | 450 | 550 |
| Motor power | | kW | 4,50 | 4,50 | 4,50 | 4,50 |
| Supply voltage | | V | 3-400 | 3-400 | 3-400 | 3-400 |
| Operating frequency | | Hz | 50 / 60 | 50 / 60 | 50 / 60 | 50 / 60 |
| Operating current | | A | 12,4 | 12,4 | 12,4 | 12,4 |
| Max. movements per hour ^{4/5} | | | 53 | 40 | 26 | 20 |
| Limit switch range ⁶ | | | 20 | 20 | 20 | 20 |
| Max. hand force NHK / KNH ⁷ | | N | 353 / 174 | 376 / 186 | 252 / 125 | 320 / 158 |
| Weight | | kg | 48 | 48 | 46 | 46 |
| Spare parts: Catalogue page | | | 9.055 | 9.055 | 9.055 | 9.055 |
| Part no. installation drawing (dxf, dwg) | | | 50001456 | 50001456 | 50001435 | 50001435 |
| Part no. ELEKTROMATEN | | | 10003834 | 10003833 | 10003903 | 10003738 |

Footnotes under 1.5

1.5 SG115F Output torque 500Nm - 1800Nm / 4,5kW

| ELEKTROMATEN Series | | SI 50,80 FI SG115F | SI 75,45 FI SG115F | SI 100,30 FI SG115F | SI 140,20 FI SG115F | SI 180,12 FI SG115F |
|--|-----|-----------------------|-----------------------|------------------------|------------------------|------------------------|
| Output torque | Nm | 500 | 750 | 1000 | 1400 | 1800 |
| Output speed | rpm | 22-80 | 8-45 | 5-30 | 5-20 | 5-12 |
| OPEN | | 22-45 | 8-28 | 5-18 | 5-14 | 5-12 |
| CLOSE > 2,5m | | 22-30 | 8-28 | 5-18 | 5-14 | 5-12 |
| CLOSE ≤ 2,5m ¹ | | | | | | |
| Output shaft / hollow shaft (Ø) | mm | 55 | 55 | 55 | 55 | 60 |
| Locking torque ² | Nm | 2800 | 2800 | 2800 | 2800 | 3125 |
| Safety brake (approval number) | | 14-003305- PR01 | 14-003305- PR01 | 14-003305- PR01 | 14-003305- PR01 | 14-003305- PR01 |
| Max. holding torque ³ | Nm | 500 | 750 | 1000 | 1400 | 1800 |
| Motor power | kW | 4,50 | 4,50 | 4,50 | 4,50 | 4,50 |
| Supply voltage | V | 3-400 | 3-400 | 3-400 | 3-400 | 3-400 |
| Operating frequency | Hz | 50 / 60 | 50 / 60 | 50 / 60 | 50 / 60 | 50 / 60 |
| Operating current | A | 12,4 | 12,4 | 12,4 | 12,4 | 12,4 |
| Max. movements per hour ^{4/5} | | 26 | 20 | 13 | 10 | 8 |
| Limit switch range ⁶ | | 20 | 20 | 20 | 20 | 20 |
| Max. hand force NHK / KNH ⁷ | N | 287 / 232 | 290 / 234 | 206 / 166 | 263 / 212 | 348 / 281 |
| Weight | kg | 59 | 58 | 64 | 64 | 66 |
| Spare parts: Catalogue page | | 9,056 | 9,056 | 9,056 | 9,056 | 9,056 |
| Part no. installation drawing (dxf, dwg) | | 50001439 | 50001439 | 50001424 | 50001424 | 50001591 |
| Part no. ELEKTROMATEN | | 10003743 | 10003831 | 10003917 | 10003697 | 10004055 |

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 3.6 · 2 See 3.5 · 3 Maximum torque that may act on the output shaft of the drive unit when the door is stationary · 4 When using a temperature range of +40°C...+60°C use half of maximum movements per hour, see also 3.2 · 5 The specified value must be halved when considering cycles per hour according to EN 60335-2-103 · 6 Maximum revolutions of hollow shaft, E20 standard with DES · 7 See 3.4

2. Selection chart

| 2.1 Roller shutters Tube EN 10220 [mm] | SI 25.60 FI | SI 40.40 FI | SI 45.15 FI | SI 55.40 FI | SI 50.80 FI | SI 75.45 FI | SI 100.30 FI | SI 140.20 FI | SI 180.12 FI |
|---|----------------------|-------------|----------------------|-------------|-------------|-------------|--------------|--------------|--------------|
| | SI 25.80 FI F [N] | F [N] | SI 45.60 FI F [N] | F [N] | F [N] | F [N] | F [N] | F [N] | F [N] |
| 101,6 x 3,6 | 3289 | -- | -- | -- | -- | -- | -- | -- | -- |
| 108,0 x 3,6 | 3125 | 5050 | 5625 | -- | -- | -- | -- | -- | -- |
| 133,0 x 4,0 | 2614 | 4183 | 4706 | -- | -- | -- | -- | -- | -- |
| 159,0 x 4,5 | 2235 | 3575 | 4022 | 4915 | 4469 | 6704 | -- | -- | -- |
| 177,8 x 5,0 | 2022 | 3236 | 3640 | 4449 | 4044 | 6067 | 8089 | 11325 | -- |
| 193,7 x 5,4 | 1872 | 2995 | 3369 | 4118 | 3744 | 5615 | 7487 | 10482 | 13477 |
| 219,1 x 5,9 | -- | 2677 | 3011 | 3680 | 3346 | 5019 | 6692 | 9368 | 12045 |
| 244,5 x 6,3 | -- | -- | -- | 3327 | 3025 | 4537 | 6049 | 8469 | 10888 |
| 273,0 x 6,3 | -- | -- | -- | -- | -- | 4096 | 5461 | 7645 | 9829 |
| 298,5 x 7,1 | -- | -- | -- | -- | -- | 3768 | 5024 | 7033 | 9042 |
| 323,9 x 7,1 | -- | -- | -- | -- | -- | -- | 4653 | 6514 | 8375 |

■ F = Lift [N]

■ Read note in 3.2

■ Includes 20% friction for single-wall profiles (profile thickness 20mm)

■ Select not mentioned drives as required by the door construction

| 2.2 Sectional doors Cable drum [mm] | SI 17.60 FI | SI 25.60 FI | SI 40.40 FI | SI 45.15 FI | SI 55.40 FI | SI 50.80 FI | SI 75.45 FI | SI 100.30 FI | SI 140.20 FI |
|--|-------------|----------------------|-------------|----------------------|-------------|-------------|-------------|--------------|--------------|
| | F [N] | SI 25.80 FI F [N] | F [N] | SI 45.60 FI F [N] | F [N] | F [N] | F [N] | F [N] | F [N] |
| Ø 160 | 1913 | 2813 | 4500 | 5063 | 6188 | 5625 | -- | -- | -- |
| Ø 200 | 1530 | 2250 | 3600 | 4050 | 4950 | 4500 | 6750 | 9000 | 12600 |

■ F = Lift [N]

■ Read notes in 3.2 and 3.7

■ Includes 10% friction

■ Select not mentioned drives as required by the door construction

■ Suitable cable drums are available as accessories in Chapter 9

3. Notes

3.1 European directive

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

3.2 Selection chart / Movements per hour

The specified movements per hour (see Technical data) apply to an even distribution and the limit switch range first mentioned and must not be exceeded. For other limit switch ranges or heavily used doors, the drag forces must be reduced (enquire).

The selection chart includes 20% friction for roller shutters with single-wall profiles (profile thickness 20mm) and 10% friction for sectional doors.

Reduce the weight by a further 20% for vertical lifted doors and insulated shutters with double walled, thick and/or deep sections. Do not calculate using the tube diameter. The highest torque will occur normally after 1-2 turns of the barrel from close.

3.3 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.

3.4 Manual operation

In accordance with EN 12453 and 12604 hand force up to 390 N is permissible. For large, heavy doors, manual operation is only used for closing the door. In the case of drive units with an electric brake; emergency manual operation is carried out against the closed brake (Read note in 3.3).

3.5 Locking torque / Holding torque

The permissible loads on walls, fastenings, mountings and transmission elements must not be exceeded, even for maximum holding torques or locking torques.

3.6 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

3.7 Cable / Cable drums

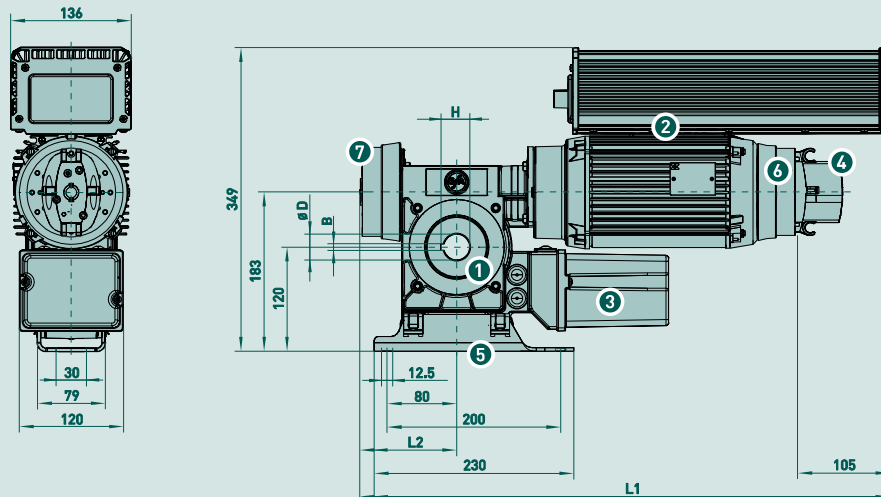
When calculating the cable size the max. permitted door weight is required with a safety of 6x for the cables requirement of EN 12604.

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.

4. Dimensions

4.1 SI63 3,5,350 FI – SI 17,60 FI

SG63F



- | | |
|--|------------------|
| 1 Worm gear with safety brake | 4 Hand crank NHK |
| 2 Motor with built-on frequency inverter | 5 Floating foot |
| 3 Limit switch | 6 Brake on motor |
| | 7 Brake on gear |

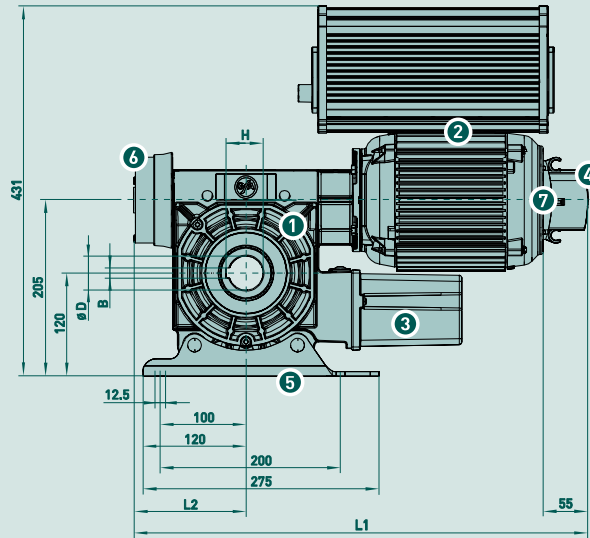
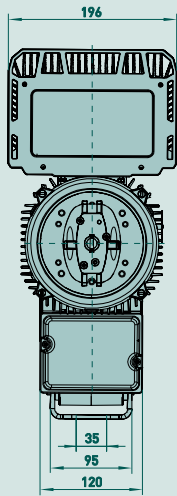
| Ø D | H | B |
|-------|------|------|
| 25 | 28,3 | 8 |
| 25,4 | 28,4 | 6,35 |
| 30 | 33,3 | 8 |
| 31,75 | 34,7 | 6,35 |
| 40 | 43,3 | 12 |

| ELEKTROMATEN | L1 | L2 |
|-----------------|-------|-----|
| SI 13.100 FI | 7 609 | 111 |
| SI63 3,5-350 FI | 6 593 | 95 |
| SI63 5,250 FI | | |
| SI63 8,180 FI | | |
| SI 17,60 FI | | |

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

4.2 SI 10.200 FI – SI 55.40 FI

SG85F



| ELEKTROMATEN | L1 | L2 | |
|--------------|-----|-----|-----|
| SI 10.200 FI | 6 | 531 | 131 |
| SI 15.140 FI | 6 | 531 | 131 |
| SI 20.100 FI | 6 | 531 | 131 |
| SI 25.60 FI | 6 | 531 | 131 |
| SI 25.80 FI | 6 | 531 | 131 |
| SI 40.40 FI | 6 | 531 | 131 |
| SI 45.15 FI | | 519 | 120 |
| SI 25.150 FI | 6 7 | 637 | 131 |
| SI 35.100 FI | 6 7 | 637 | 131 |
| SI 45.60 FI | 6 | 594 | 131 |
| SI 55.40 FI | 6 | 594 | 131 |

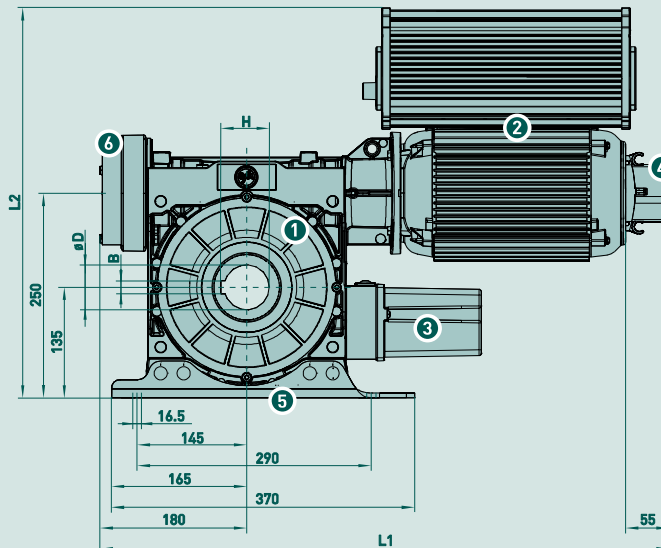
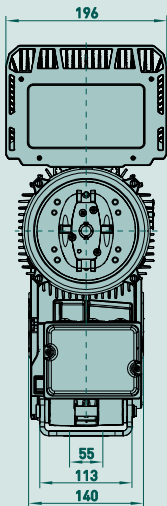
| Ø D | H | B |
|-------|------|------|
| 30 | 33,3 | 8 |
| 31,75 | 34,7 | 6,35 |
| 40 | 43,3 | 12 |

- 1 Worm gear with safety brake
- 2 Motor with built-on frequency inverter
- 3 Limit switch
- 4 Hand crank NHK
- 5 Floating foot
- 6 Brake
- 7 2nd brake (not shown)

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

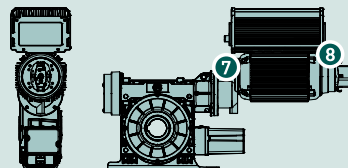
4.3 SI 50.80 FI – SI 180.12 FI

SG115F



- 1 Worm gear with safety brake
- 2 Motor with built-on frequency inverter
- 3 Limit switch
- 4 Hand crank NHK
- 5 Floating foot
- 6 Brake
- 7 Intermediate gear
- 8 2nd brake

| ELEKTROMATEN | D | H | B | L1 | L2 | |
|--------------|-----|------|------|-----|-----|-----|
| SI 50.80 FI | 55 | 59,3 | 16 | 697 | 477 | |
| SI 75.45 FI | 55 | 59,3 | 16 | 697 | 477 | |
| SI 100.30 FI | 7 | 55 | 59,3 | 16 | 775 | 533 |
| SI 140.20 FI | 7 | 55 | 59,3 | 16 | 775 | 533 |
| SI 180.12 FI | 7 8 | 60 | 64,4 | 18 | 820 | 533 |



■ Permitted installation: Horizontal (as shown), vertical (motor at the bottom) only with torque mount [page 1.107 item 6.2]

5. Emergency manual operation • for horizontal or vertical installation

1 Manual hand crank operation NHK (Standard)
2 Manual hand crank with knuckle joint NHKK
3 Hand chain operator KNH
4 Flange in use with:
 SI63 3,5.350 FI, SI63 5.250 FI,
 SI63 8.180 FI, SI 13.100 FI,
 SI 17.60 FI, SI 25.150 FI,
 SI 35.100 FI, SI 180.12 FI

| For Series | Part.-no. | L | H |
|-----------------|-----------|-----|-----|
| 1 SG63F | 30002591 | 255 | 91 |
| 1 SG85F | 30002749 | 235 | 122 |
| 1 SG115F | 30003112 | 265 | 192 |
| 2 SG63F | 30002715 | 415 | 111 |
| 2 SG85F | 30002750 | 425 | 152 |

■ Manual forces, see item 1 of technical data
 ■ Read note in 3.4

6. Attachments / Accessories

6.1 Bracket

| For Series | Part.-no. | Max. load |
|----------------------------------|-----------|-----------|
| SG63F / SG85F 1 | 40006488 | 5 kN |
| SG115F (≤ SI 140,20 FI) 2 | 40012396 | 12 kN |

6.2 Bracket (SI 180.12 FI)

| For Series | Part.-no. | Max. load |
|-----------------------|-----------|-----------|
| SG115F (SI 180.12 FI) | 40016189 | 29 kN |

6.3 Torque bracket

| For Series | ø D | Part.-no. | L1 | L2 | L3 | L4 | L5 |
|---------------|-----|-----------|------|----|-----|-----|-----|
| SG63F | 25 | 30002930 | 36,5 | 5 | 127 | 260 | 135 |
| SG63F / SG85F | 30 | 30002930 | 42,9 | 5 | 127 | 260 | 135 |
| SG85F | 40 | 30002930 | 49,2 | 5 | 127 | 260 | 135 |
| SG115F | 55 | 30003162 | 63,5 | 6 | 174 | 350 | 148 |
| SG115F | 60 | 30003162 | 69,8 | 6 | 174 | 350 | 148 |

- Right- or left-hand use
- ELEKTROMATEN vertical (as shown) or horizontal (for vertical mounting, the FI-motor has to be turned by 90°)
- For mounting with floating foot additional requirements: Bracket 6.1 or 6.2 and bearing



ELEKTROMATEN® SI FI

Safedrive® with built-on frequency inverter

For driving:

Non-balanced sectional doors, roller shutters and rolling grilles which require an anti-fallback device

Series SG186F
SI 500.10 FI

“Safedrive® FI” ELEKTROMATEN SI are special drives for industrial doors which require an anti-fallback device. The patented safety brake is built into the gear. The drive unit is fitted directly to the door shaft. Safedrive ELEKTROMATEN SI FI comprises of:
Worm gear with safety brake and hollow shaft, emergency manual operator, integrated limit switches and electrical motor with built-on frequency inverter.



Patented built-in safety brake

- Safety against failure of worm or wheel
- Independent of speed / direction
- Maintenance free, self-monitoring
- Excellent damping characteristics in operation

Built-on frequency inverter to be used with door controls TS 970, TS 971 or TS 981

- Individual adjustable output speed¹
- 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 and FI-motors

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



Built-in safety brake

Certificate of conformity according to:
DIN EN 12604 / 12605
ift Rosenheim GmbH



1

Emergency manual operation

- Hand chain operator KNH

1



2

Limit switches

Digital limit DES

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

2

Mounting

- Floating foot
(Fitting requires a torque mount system)

Door controls

- Simple connection by means of non-interchangeable plug connections allowing simple exchange with other GfA control panels
- Control voltage: 24V
- Frequency: 50 / 60 Hz
- Mains supply: 3N~400V, 3~400V

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

¹ See 3.6

1. Technical data

| ELEKTROMATEN | | SI 500.10 FI | |
|--|-----|--------------|--|
| Series | | SG186F | |
| Output torque | Nm | 5000 | |
| Output speed | rpm | 6-10 | |
| OPEN | | 2-5 | |
| CLOSE > 2,5m | | 2-5 | |
| CLOSE ≤ 2,5m ¹ | | | |
| Output shaft / hollow shaft (∅) | mm | 100 | |
| Locking torque ² | Nm | 8255 | |
| Safety brake (approval number) | | 11-003301-PR | |
| Max. holding torque ³ | Nm | 5000 | |
| Motor power | kW | 4,50 | |
| Supply voltage | V | 3-400 | |
| Operating frequency | Hz | 50 / 60 | |
| Operating current | A | 12,4 | |
| Max. movements per hour ^{4/5} | | 8 | |
| Limit switch range ⁶ | | 10 | |
| Max. hand force KNH ⁷ | N | 261 | |
| Weight | kg | 138 | |
| Part no. installation drawing (dxf, dwg) | | 50001578 | |
| Part no. ELEKTROMATEN | | 10004095 | |

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 3.6 · ² See 3.5 · ³ Maximum torque that may act on the output shaft of the drive unit when the door is stationary · ⁴ When using a temperature range of +40°C...+60°C use half of maximum movements per hour, see also 3.2 · ⁵ The specified value must be halved when considering cycles per hour according to EN 60335-2-103 · ⁶ Maximum revolutions of hollow shaft, other limit switch ranges on request · ⁷ See 3.4

2. Selection chart

| Roller shutters Tube EN 10220 [mm] | SI 500.10 FI | |
|---------------------------------------|--------------|-----------------------|
| | F [N] | v _b [cm/s] |
| 323,9 x 7,1 | 20355 | 3,6 - 18,0 |
| 368,0 x 8,0 | 18041 | 4,1 - 20,3 |
| 406,4 x 8,8 | 16417 | 4,5 - 22,3 |
| 419,0 x 10,0 | 15945 | 4,6 - 23,0 |
| 457,2 x 10,0 | 14669 | 5,0 - 25,0 |
| 508,0 x 11,0 | 13258 | 5,5 - 27,6 |

■ F = Lift [N]

■ v_b = Range of speed

■ Includes 30% friction for single-wall profiles (profile thickness 20 mm)

■ Read note in 3.2

3. Notes

3.1 European directive

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

3.2 Selection chart / Movements per hour

The specified movements per hour (see Technical data) apply to an even distribution and the limit switch range first mentioned and must not be exceeded. For other limit switch ranges or heavily used doors, the drag forces must be reduced (enquire). The selection chart includes 30% friction for roller shutters with single-wall profiles (profile thickness 20mm) and 10% friction for sectional doors.

Reduce the weight by a further 20% for vertical lifted doors and insulated shutters with double walled, thick and/or deep sections. Do not calculate using the tube diameter. The highest torque will occur normally after 1-2 turns of the barrel from close.

3.3 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.

3.4 Manual operation

In accordance with EN 12453 and 12604 hand force up to 390 N is permissible. For large, heavy doors, manual operation is only used for closing the door. In the case of drive units with an electric brake; emergency manual operation is carried out against the closed brake (Read note in 3.3).

3.5 Locking torque / Holding torque

The permissible loads on walls, fastenings, mountings and transmission elements must not be exceeded, even for maximum holding torques or locking torques.

3.6 Output speed

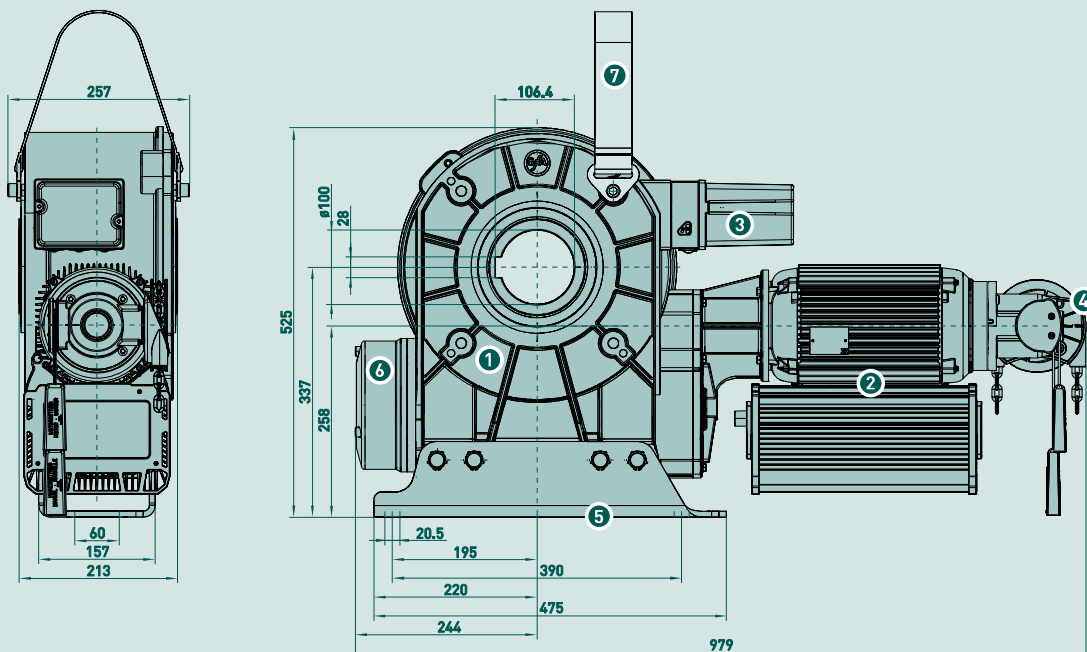
The maximum admissible speed is dependent on the door construction and type of the door. All materials must be designed to be used for doors with higher speeds.

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

4. Dimensions

SI 500.10 FI

SG186F



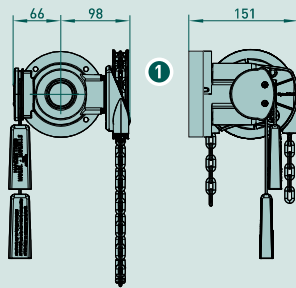
- 1 Worm gear with safety brake
- 2 Motor with built-on frequency inverter

- 3 Limit switch
- 4 Emergency manual operation KNH
- 5 Floating foot

- 6 Brake
- 7 Assembling aid

■ Permitted installation: Horizontal with an additional torque mount system, see 6

5. Emergency manual operation • for horizontal installation



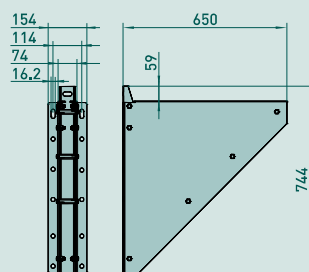
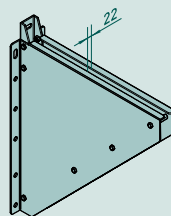
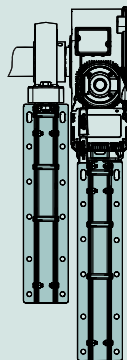
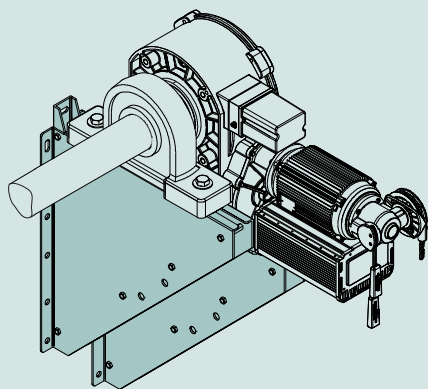
1 Hand chain operator KNH

■ Manual forces, see item 1 of technical data

■ Read note in 3.4

6. Attachments / Accessories

Bracket



| For series | Part.-no. | Max. load |
|------------|-----------|-----------|
| SG186F | 40016189 | 29 kN |

■ Mounting of the door shaft via separate bearing
 ■ 2nd bracket as a torque mount is required

■ Permitted installation: Horizontal