

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
TÜV NORD CERT GmbH



Built-in safety brake

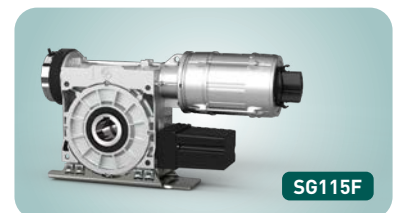
Certificate of conformity according to:
DIN EN 12604 / 12605
ift Rosenheim GmbH



SG63F



SG85F



SG115F



1

Emergency manual operation

- Hand crank NHK
- Hand chain operator KNH

1

2



2

Limit switches

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

3



3

Digital limit DES

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

4



4

Mounting

- Floating foot (standard fitting)
- Torque bracket

Special versions

- Increase of cycles 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: 24 V
- Frequency: 50 Hz / 60 Hz
- Mains supply: 1N~230 V, 3~230 V, 3N~400 V, 3~400 V

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 / 35 / 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. cycles per hour ^{5)/6)}		11 (5,6)	11 (5,6)	12 (8,2)	11 (6,9)
Limit switch range ⁶⁾		20 (40)	20 (10, 60)	20 (10, 60)	20 (10)
Max. hand force NHK / KNH ⁷⁾	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)		50002081	50000733	50000733	50000733
Part no. ELEKTROMATEN		10005321 (Ø 25) 10005322 (Ø 25,4) 10005323 (Ø 30) 10005324 (Ø 31,75) 10005325 (Ø 35) 10005326 (Ø 40)	10002564 (Ø 30) 10002678 (Ø 31,75)	10002565 (Ø 30) 10002679 (Ø 31,75)	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. cycles per hour ^{5)/6)}		11 (5,6)	11 (6,9)	12 (8,3)	11 (6,9)
Limit switch range ⁶⁾		20 (10, 60)	20 (60)	20 (60)	20 (60)
Max. hand force NHK / KNH ⁷⁾	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 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) One cycle consists of a complete opening and closing movement of the door. The value according to EN 60335-2-103 is given in brackets. If the limit switch range is not fully used, the number of possible cycles can be increased in relation to the reduced number of revolutions of the output shaft, see also 3.2 · 6) Maximum revolutions of hollow shaft · 7) 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 (∅)	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. cycles per hour ⁵⁾		17 (16,3)	22 (22)	26 (25,6)	17 (16,7)	12 (10,7)
Limit switch range ⁶⁾		20 (10)	20 (10)	20 (10)	20 (10)	20 (10)
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 (∅ 30) 10002693 (∅ 40)	10002670 (∅ 30) 10002694 (∅ 40)	10002698 (∅ 30) 10002699 (∅ 40)	10002657	10002665

Generally applies: IP54, permissible temperature range -10 °C...+40 °C (+40 °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) One cycle consists of a complete opening and closing movement of the door. The value according to EN 60335-2-103 is given in brackets. If the limit switch range is not fully used, the number of possible cycles can be increased in relation to the reduced number of revolutions of the output shaft, see also 3.2 - 6) Maximum revolutions of hollow shaft - 7) 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 ₀ [cm/s]	F [N]	v ₀ [cm/s]	F [N]	v ₀ [cm/s]	F [N]	v ₀ [cm/s]	F [N]	v ₀ [cm/s]	F [N]	v ₀ [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 ₀ [cm/s]	F [N]	v ₀ [cm/s]	F [N]	v ₀ [cm/s]	F [N]	v ₀ [cm/s]	F [N]	v ₀ [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]

■ v₀ = Initial speed [cm/s]

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

■ 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 / Cycles per hour

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

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

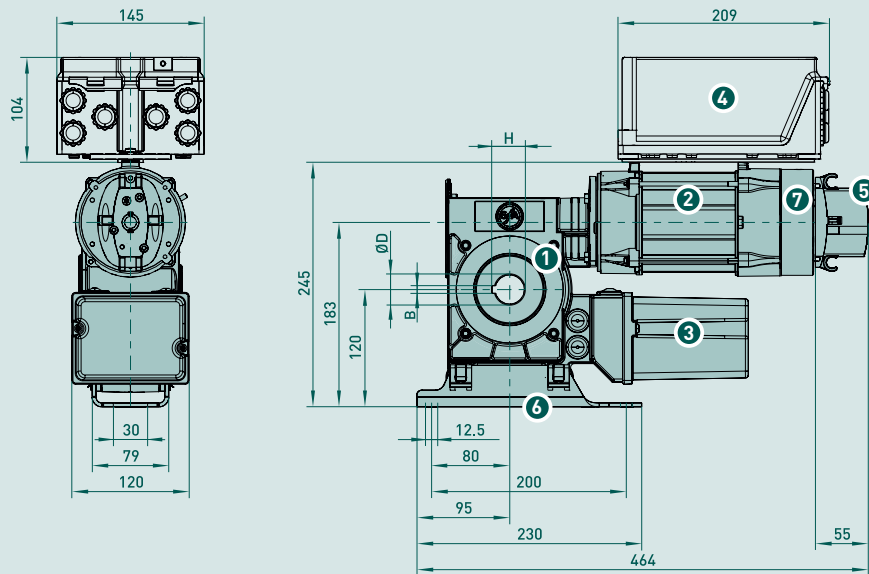
When calculating the cable size the max. permitted door weight is required with a safety of 6x for the cables requirement of EN 12604.

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



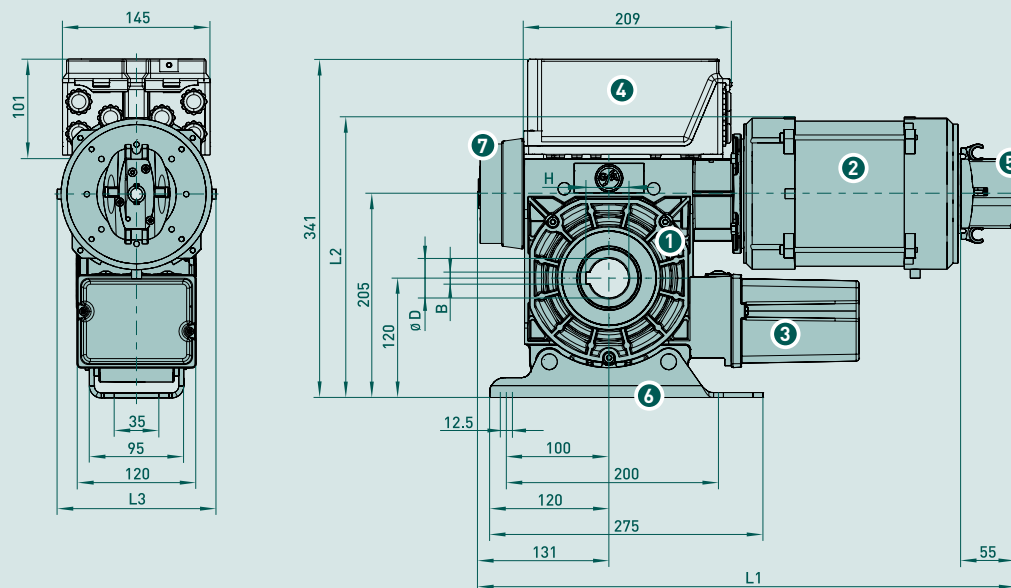
- 1 Worm gear with safety brake
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0,8 m cable
- 5 Hand crank NHK
- 6 Floating foot
- 7 Brake

Ø D	H	B
25	28,3	8
25,4	28,4	6,35
30	33,3	8
31,75	34,7	6,35
35	38,3	10
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 0,8 m cable
- 5 Hand crank NHK
- 6 Floating foot
- 7 Brake

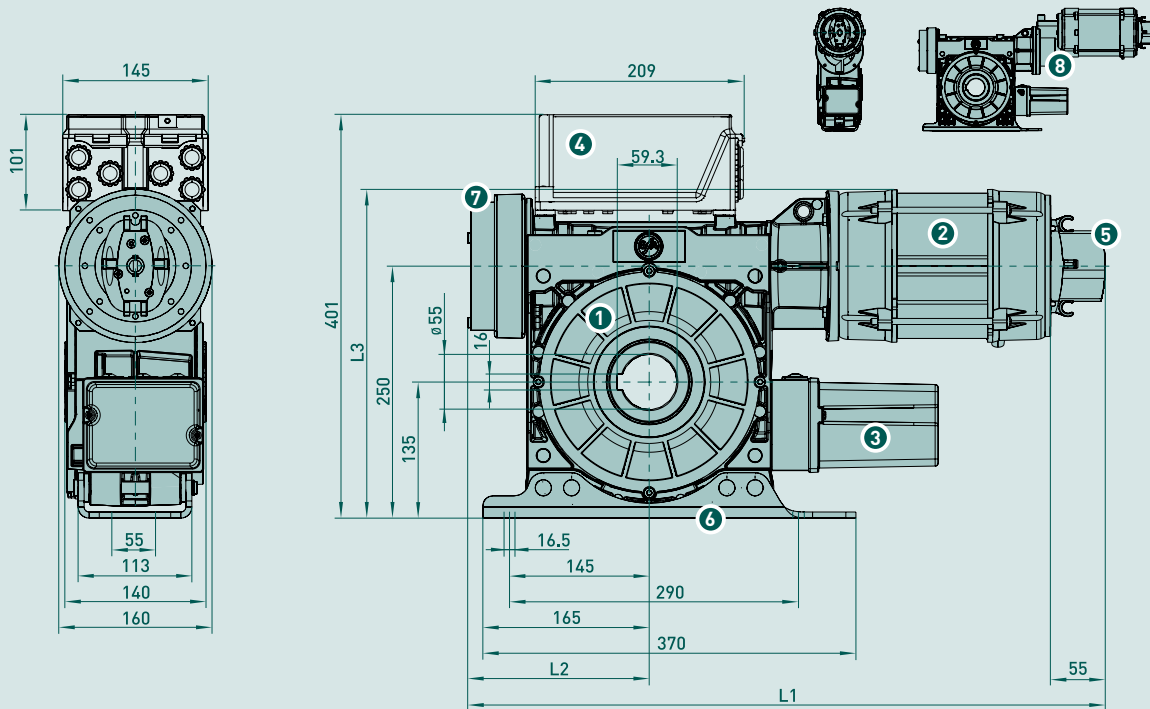
Ø D	H	B
30	33,3	8
31,75	34,7	6,35
40	43,3	12

ELEKTROMATEN	L1	L2	L3
SI 25.24	515	279	130
SI 25.35	515	279	130
SI 35.30	543	279	130
SI 40.24	543	279	130
SI 10.70	483	269	126
SI 13.70	543	279	130
SI 20.90	560	279	130
SI 25.60	560	279	130
SI 28.46	543	279	130

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

4.3 SI 60.24 – SI 100.24

SG115F

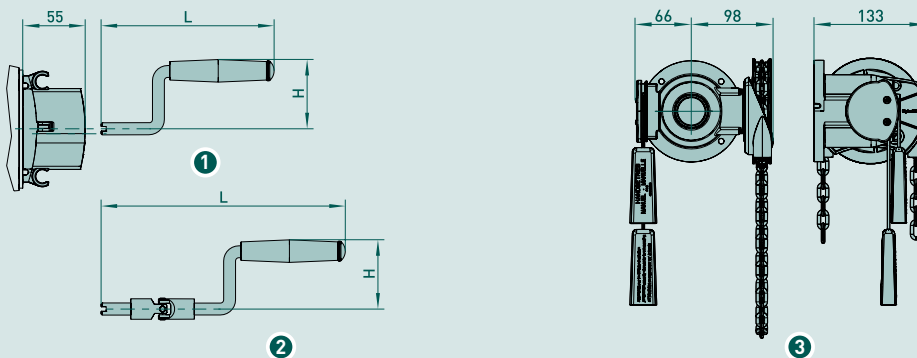


- 1 Worm gear with safety brake
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0,8 m cable
- 5 Hand crank NHK
- 6 Floating foot
- 7 Brake
- 8 Intermediate gear

ELEKTROMATEN	L1	L2	L3
SI 60.24	608	169	326
SI 75.24	639	179	326
SI 100.24 8	737	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

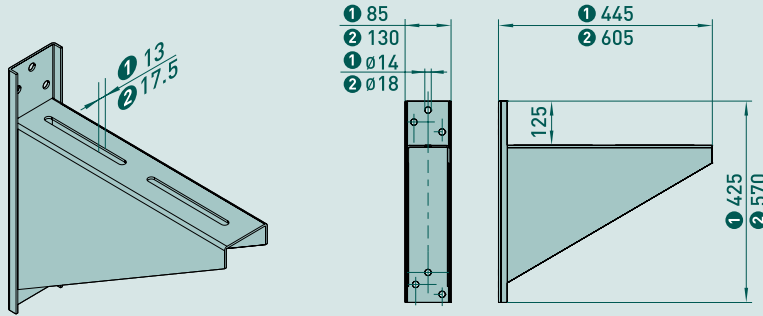
	For series	Part no.	Ø	L	H
1	SG63F / SG85F	30002749	12	235	122
1	SG115F	30003112	12	265	192
2	SG63F / SG85F	30002750	12	425	152

■ Manual forces, see item 1 of technical data

■ Read note in 3.4

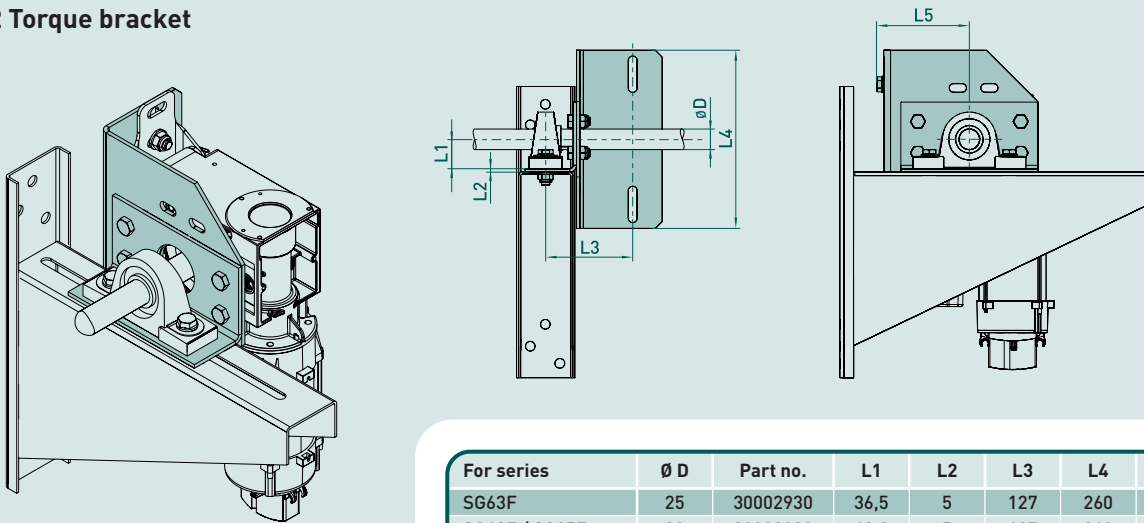
6. Attachments / Accessories

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)