

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
SI 63 3,5.350 FI - SI 17.60 FI

Series SG85F
SI 8.300 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 speed ¹⁾
- The speed appears directly into the display – extra work to evaluate frequency and speed is not required
- Soft start and soft stop
- Automatic optimising of acceleration and deceleration speed
- Adjustable distance for acceleration and deceleration speed
- Individual adjustment and programming of all FI 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

1

2



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: 24 V DC
- Frequency: 50 Hz / 60 Hz
- Mains supply at motors with 0,85 kW / 1,5 kW: 1N-230V, 3-230V ²⁾, 3N-400 V
- Mains supply at motors with 4,5 kW: 3N-400 V, 3-400 V

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

¹⁾ See 3.6

²⁾ Use additional adapter part no. 30005855

1. Technical data

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

ELEKTROMATEN Series		SI63 3,5.350 FI SG63F	SI63 5.250 FI SG63F	SI63 8.180 FI SG63F	SI 13.100 FI SG63F	SI 17.30 FI SG63F	SI 17.60 FI SG63F
Output torque	Nm	35	50	80	130	170	170
Output speed	rpm	30-350	30-250	30-180	18-100	8-30	8-60
OPEN		30-150	30-150	30-90	18-80	8-20	8-35
CLOSE > 2,5 m		30-100	30-100	30-90	18-60	8-20	8-35
CLOSE ≤ 2,5 m ¹⁾							
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	30/40	25/25,4/30/31,75/40
Locking torque ²⁾	Nm	510	510	510	510	420	420
Safety brake (approval number)		14-003612- PR02	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	170
Motor power	kW	0,85	0,85	0,85	0,85	0,85	0,85
Supply voltage	V	1N~230	1N~230	1N~230	1N~230	1N~230	1N~230
Operating frequency	Hz	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60
Operating current	A	6,6	6,6	6,6	6,6	6,6	6,6
Max. cycles per hour ⁴⁾		34 (33)	34 (33)	30 (29,5)	25 (24,5)	17 (16,6)	16 (15)
Limit switch range ⁵⁾		20	20	20	20	10	20
Max. hand force NHK / KNH ⁶⁾	N	173 / 140	199 / 161	217 / 175	225 / 182	95 / 77	157 / 127
Weight	kg	28	28	28	29	29	28
Spare parts: Catalogue page		9.054	9.054	9.054	9.054	9.054	9.054
Part no. installation drawing (dxf, dwg)		50001458	50001458	50001458	50001458	50001458	50001458
Part no. ELEKTROMATEN		10003987 (Ø 25) 10004778 (Ø 25,4) 10003928 (Ø 30) 10005262 (Ø 31,75) 10004037 (Ø 40)	10003888 (Ø 25) 10003889 (Ø 25,4) 10003745 (Ø 30) 10005263 (Ø 31,75) 10003881 (Ø 40)	10003896 (Ø 25) 10003897 (Ø 25,4) 10003843 (Ø 30) 10004505 (Ø 31,75) 10003898 (Ø 40)	10005195 (Ø 25) 10005196 (Ø 25,4) 10005198 (Ø 30) 10005199 (Ø 31,75) 10005200 (Ø 40)	— — 10005346 (Ø 30) — 10005200 (Ø 40)	10004186 (Ø 25) 10003900 (Ø 25,4) 10003844 (Ø 30) 10003901 (Ø 31,75) 10003902 (Ø 40)

1.2 SG85F Output torque 80 Nm - 200 Nm / 1,5 kW

ELEKTROMATEN Series		SI 8.300 FI SG85F	SI 10.200 FI SG85F	SI 15.140 FI SG85F	SI 20.100 FI SG85F
Output torque	Nm	80	100	150	200
Output speed	rpm	30-300	25-200	19-140	18-100
OPEN		30-300	25-110	19-80	18-55
CLOSE > 2,5 m		30-120	25-90	19-75	18-55
CLOSE ≤ 2,5 m ¹⁾					
Output shaft / hollow shaft (Ø)	mm	30 / 40	30 / 40	30 / 40	30 / 40
Locking torque ²⁾	Nm	635	635	480	635
Safety brake (approval number)		14-003612- PR03	14-003612- PR03	14-003612- PR03	14-003612- PR03
Max. holding torque ³⁾	Nm	90	140	160	200
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. cycles per hour ⁴⁾		36 (36)	34 (34)	30 (29)	26 (26)
Limit switch range ⁵⁾		20	20	20	20
Max. hand force NHK / KNH ⁶⁾	N	168 / 187	175 / 195	195 / 217	203 / 226
Weight	kg	39	39	39	39
Spare parts: Catalogue page		9.055	9.055	9.055	9.055
Part no. installation drawing (dxf, dwg)		50001422	50001422	50001422	50001422
Part no. ELEKTROMATEN		10003923 (Ø 30) 10004108 (Ø 40)	10004460 (Ø 30) 10004462 (Ø 40)	10004456 (Ø 30) 10004459 (Ø 40)	10004224 (Ø 30) 10004227 (Ø 40)

Footnotes under 1.5

1.3 SG85F Output torque 250 Nm - 550 Nm / 1,5 kW

ELEKTROMATEN Series		SI 25.60 FI SG85F	SI 25.80 FI SG85F	SI 40.40 FI SG85F	SI 45.15 FI SG85F	SI 55.20 FI SG85F
Output torque	Nm	250	250	400	450	550
Output speed	rpm	10-60	18-80	9-40	7-15	4-20
OPEN		10-35	18-50	9-35	7-15	4-20
CLOSE > 2,5 m CLOSE ≤ 2,5 m ¹⁾		10-35	18-50	9-24	7-15	4-15
Output shaft / hollow shaft (Ø)	mm	30 / 31,75 / 40	30 / 31,75 / 40	40	40	40
Locking torque ²⁾	Nm	635	990	760	1100	1100
Safety brake (approval number)		14-003612- PR03	14-003612- PR03	14-003612- PR03	14-003612- PR03	14-003612- PR03
Max. holding torque ³⁾	Nm	250	250	400	450	550
Motor power	kW	1,50	1,50	1,50	1,50	1,50
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	7,3	7,3	7,3	7,3	7,3
Max. cycles per hour ⁴⁾		20 (20)	26 (26)	17 (16,4)	11 (6,4)	12 (8,4)
Limit switch range ⁵⁾		20	20	20	20	20
Max. hand force NHK / KNH ⁶⁾	N	200 / 99	233 / 115	255 / 126	153 / 170	189 / 93
Weight	kg	39	39	39	37	47
Spare parts: Catalogue page		9.055	9.055	9.055	9.055	9.055
Part no. installation drawing (dxf, dwg)		50001422	50001422	50001422	50001554	50002090
Part no. ELEKTROMATEN		10003845 (Ø 30) 10004054 (Ø 31,75) 10003871 (Ø 40)	10003827 (Ø 30) 10003828 (Ø 31,75) 10003826 (Ø 40)	10003672	10004022	10005164

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

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	rpm	17-150	15-100	7-60	8-40
OPEN		17-70	15-55	7-35	8-30
CLOSE > 2,5 m CLOSE ≤ 2,5 m ¹⁾		17-70	15-55	7-35	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. cycles per hour ⁴⁾		30 (29)	24 (23,1)	15 (14,5)	12 (9,9)
Limit switch range ⁵⁾		20	20	20	20
Max. hand force NHK / KNH ⁶⁾	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 500 Nm - 1800 Nm / 1,5 kW - 4,5 kW

ELEKTROMATEN Series		SI 50.80 FI SG115F	SI 60.55 FI SG115F	SI 75.20 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	600	750	750	1000	1400	1800
Output speed OPEN CLOSE > 2,5 m CLOSE ≤ 2,5 m ¹⁾	rpm	22-80	8-55	5-20	8-45	5-30	5-20	5-12
		22-45	8-55	5-20	8-28	5-18	5-14	5-12
		22-30	5-30	5-14	8-28	5-18	5-14	5-12
Output shaft / hollow shaft (Ø)	mm	55	55	55	55	55	55	60
Locking torque ²⁾	Nm	2800	2800	1980	2800	2800	2800	3125
Safety brake (approval number)		14-003305- PR01	14-003305- PR01	14-003305- PR01	14-003305- PR01	14-003305- PR01	14-003305- PR01	14-003305- PR01
Max. holding torque ³⁾	Nm	500	600	750	750	1000	1400	1800
Motor power	kW	4,50	4,50	1,50	4,50	4,50	4,50	4,50
Supply voltage	V	3~400	3~400	1N~230	3~400	3~400	3~400	3~400
Operating frequency	Hz	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60
Operating current	A	12,4	12,4	7,3	12,4	12,4	12,4	12,4
Max. cycles per hour ⁴⁾		19 (18,9)	14 (13,2)	17 (16,4)	12 (11)	11 (7,5)	10 (5,1)	10 (4,7)
Limit switch range ⁵⁾		20	20	10	20	20	20	10
Max. hand force NHK / KNH ⁶⁾	N	287 / 232	254 / 205	142 / 115	290 / 234	206 / 166	263 / 212	348 / 281
Weight	kg	59	59	59	58	64	64	66
Spare parts: Catalogue page		9.056	9.056	9.056	9.056	9.056	9.056	9.056
Part no. installation drawing (dxf, dwg)		50001439	50001439	50002091	50001439	50001424	50001424	50001591
Part no. ELEKTROMATEN		10003743	10004299	10005349	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) 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 · 5) Maximum revolutions of hollow shaft, E20 standard with DES · 6) 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 55.20 FI	SI 50.80 FI	SI 75.20 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]	SI 55.40 FI F [N]	F [N]	SI 75.45 FI 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 20 mm)

■ Select not mentioned drives as required by the door construction

2.2 Sectional doors Cable drum [mm]	SI 17.30 FI	SI 25.60 FI	SI 40.40 FI	SI 45.15 FI	SI 55.20 FI	SI 50.80 FI	SI 75.20 FI	SI 100.30 FI	SI 140.20 FI
	SI 17.60 FI F [N]	SI 25.80 FI F [N]	F [N]	SI 45.60 FI F [N]	SI 55.40 FI F [N]	F [N]	SI 75.45 FI 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 / 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 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

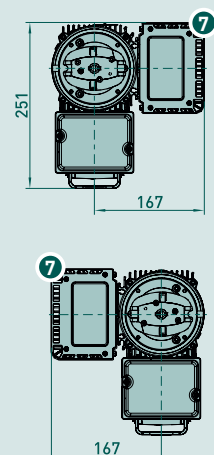
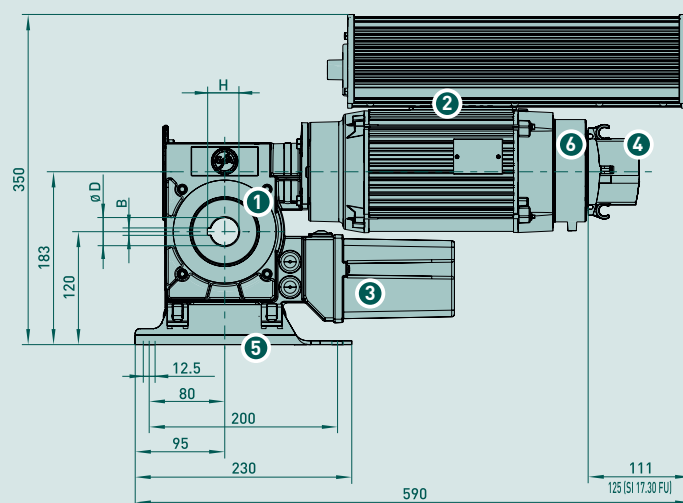
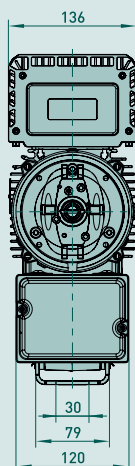
When calculating the cable size the max. permitted door weight is required with a safety of 6x for the cables requirement of EN 12604.

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
- 2 Motor with built-on frequency inverter
- 3 Limit switch
- 4 Hand crank NHK
- 5 Floating foot
- 6 Brake (not with SI 17.30 FI)
- 7 Option: rotated motor (upon request)

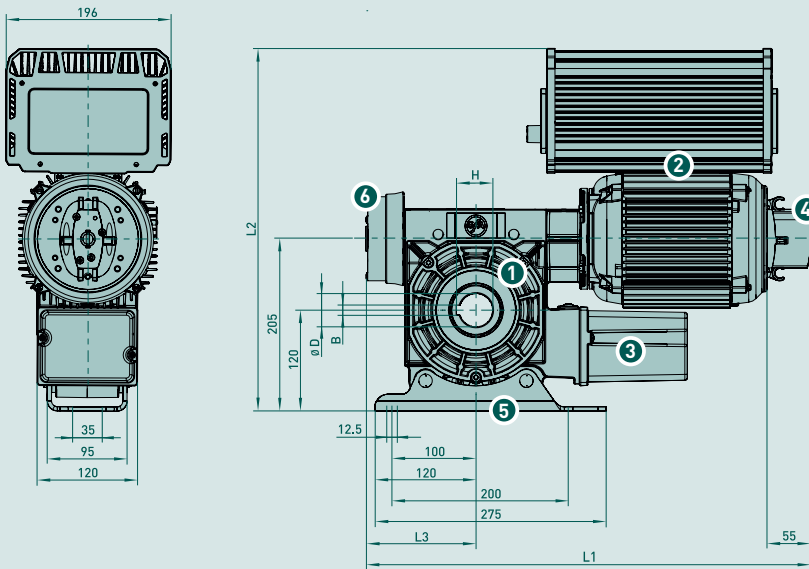
Ø D	H	B
25	28,3	8
25,4	28,4	6,35
30	33,3	8
31,75	34,7	6,35
40	43,3	12

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

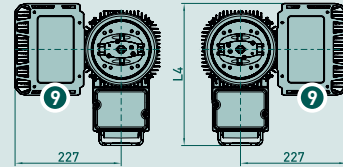


4.2 SI 8.300 FI – SI 55.40 FI

SG85F

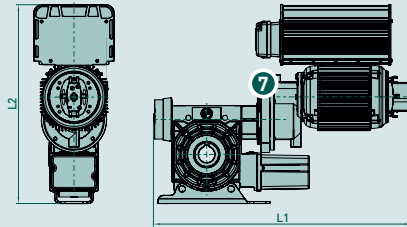


- 1 Worm gear with safety brake
- 2 Motor with built-on frequency inverter
- 3 Limit switch
- 4 Hand crank NHK
- 5 Floating foot
- 6 Brake
- 7 Intermediate gear
- 8 2nd brake (not shown)
- 9 Option: rotated motor (upon request)



ELEKTROMATEN	L1	L2	L3	L4
SI 8.300 FI, SI 10.200 FI SI 15.140 FI, SI 20.100 FI SI 25.60 FI, SI 25.80 FI SI 40.40 FI 6	531	431	131	303
SI 45.15 FI	519	431	120	303
SI 55.20 FI 6 7	629	488	131	360
SI 25.150 FI 6 8	637	431	131	303
SI 35.100 FI 6 8	637	431	131	303
SI 45.60 FI 6	594	431	131	303
SI 55.40 FI 6	594	431	131	303

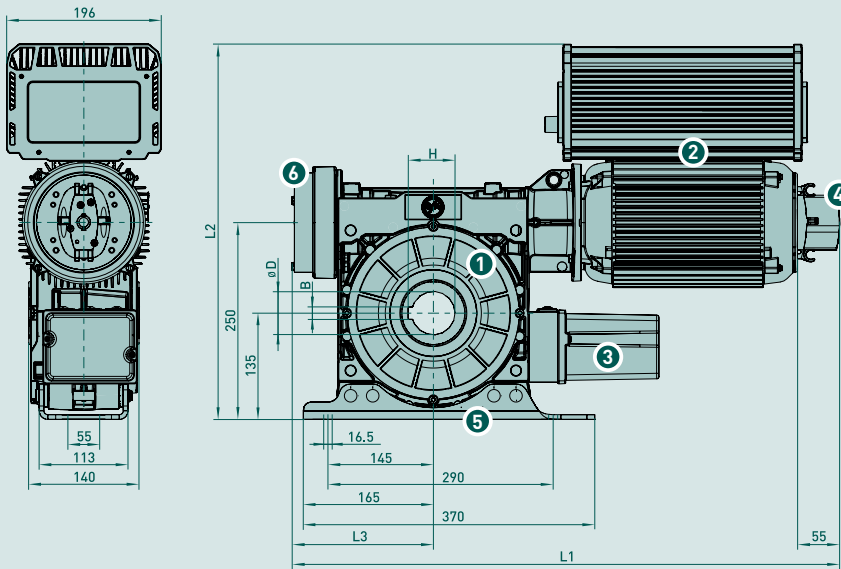
Ø D	H	B
30	33,3	8
31,75	34,7	6,35
40	43,3	12



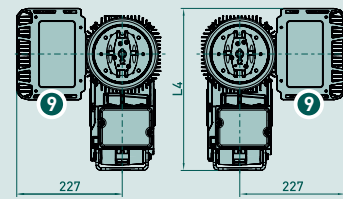
■ Permitted installation: Horizontal (as shown) or vertical (motor at the bottom)

4.3 SI 50.80 FI – SI 180.12 FI

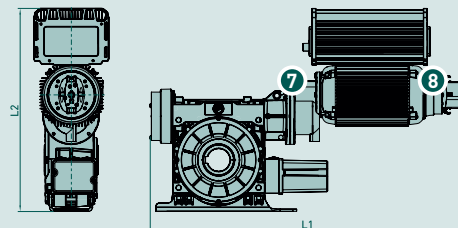
SG115F



- 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
- 9 Option: rotated motor (upon request)

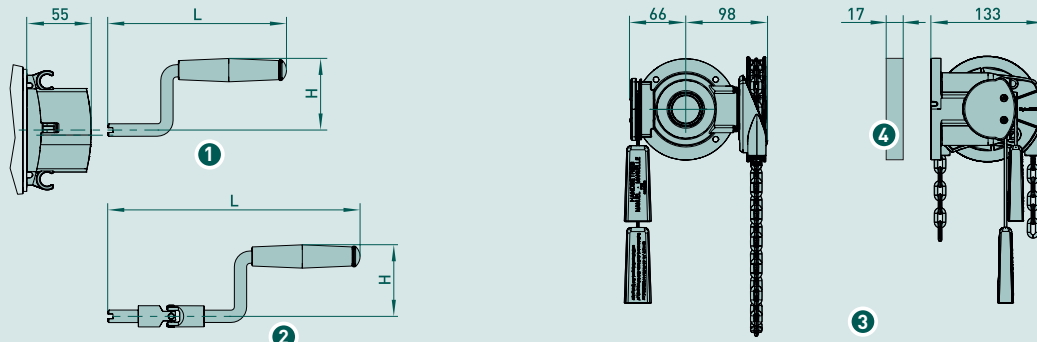


ELEKTROMATEN	D	H	B	L1	L2	L3	L4
SI 50.80 FI	55	59,3	16	697	477	180	348
SI 60.55 FI	55	59,3	16	697	477	180	348
SI 75.20 FI 7	55	59,3	16	700	533	169	404
SI 75.45 FI	55	59,3	16	697	477	180	348
SI 100.30 FI 7	55	59,3	16	775	533	180	404
SI 140.20 FI 7	55	59,3	16	775	533	180	404
SI 180.12 FI 7 8	60	64,4	18	820	533	180	404



■ 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:
SI 25.150 FI, SI 35.100 FI,
SI 180.12 FI

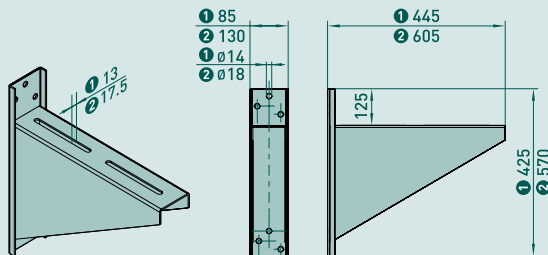
	For Series	Part.-no.	∅	L	H
1	SG63F	30002591	10	255	92
1	SG85F	30002749	12	235	122
1	SG115F	30003112	12	265	192
2	SG63F	30002715	10	415	111
2	SG85F	30002750	12	425	152

■ Manual forces, see item 1 of technical data

■ Read note in 3.4

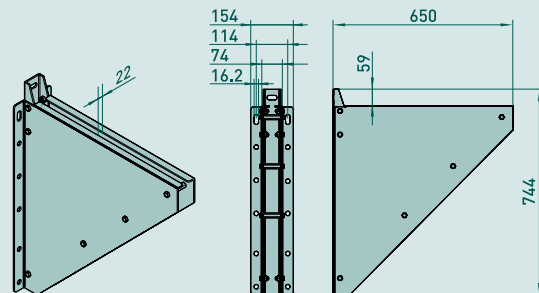
6. Attachments / Accessories

6.1 Bracket



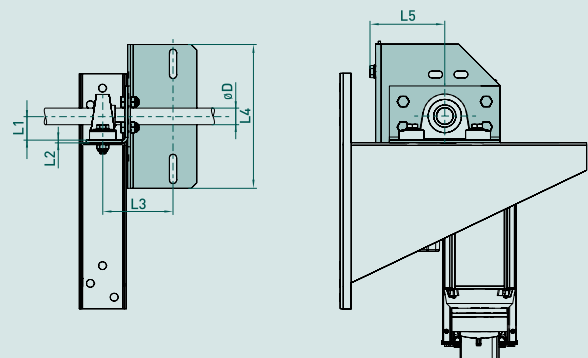
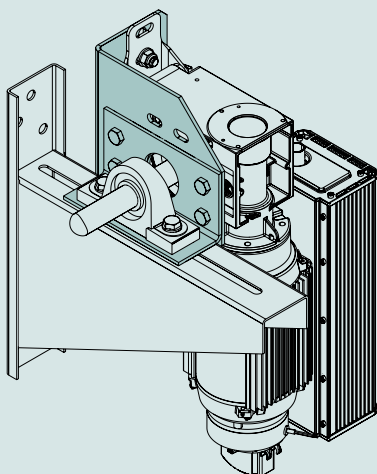
For Series	Part.-no.	Max. load
SG63F / SG85F 1	40006488	5 kN
SG115F (≤ SI 140.20 FI) 2	40012396	12 kN

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	∅ 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