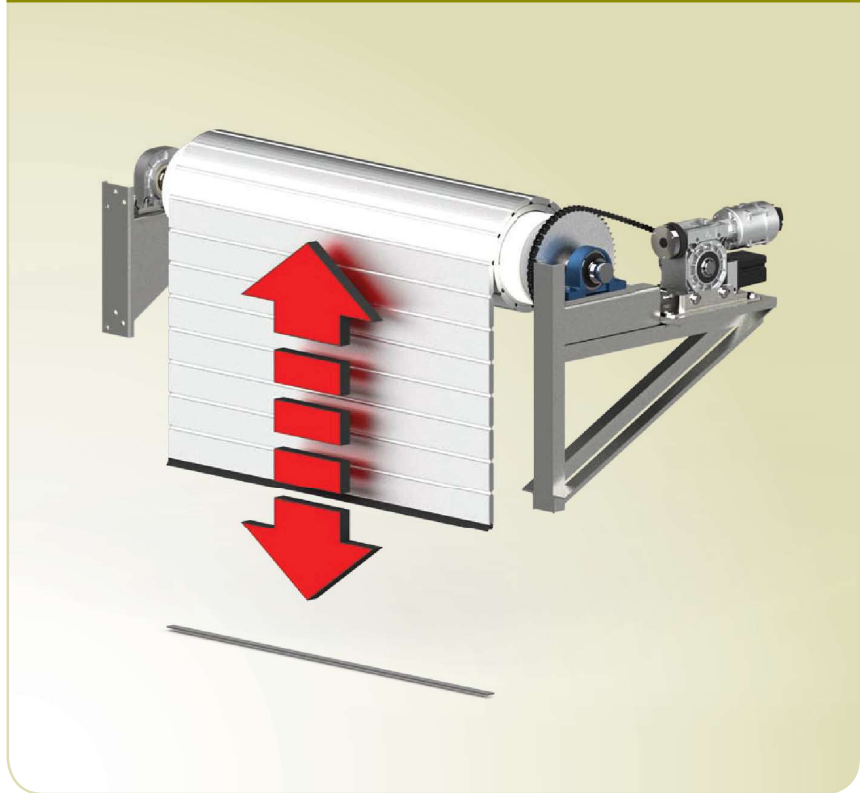


ELEKTROMATEN® KE

Chain-drive

for roller shutters, rolling grilles and vertical lifted doors. Protection of doors against falling back require a safety brake of the appropriate size



KE 9.24 – KE 120.24

Output torque: 90 - 1200 Nm
Output speed: 24 rpm

2.011

KE 9.60 FI – KE 120.30 FI

Output torque: 90 - 1200 Nm
Output speed: 5 - 80 rpm

2.031

ELEKTROMATEN® KE

Chain-drive

For driving:
Roller shutters and rolling grilles

Series SG50
KE 9.24

Series SG85
KE 20.24 - KE 40.24

Series SG115
KE 60.24 - KE 120.24

ELEKTROMATEN KE are special drives for industrial doors. The door shaft is driven by a chain-transmission. Prevention of doors falling back requires a safety brake of the appropriate size.

ELEKTROMATEN KE comprises of:

Worm gear, interchangeable output-shaft, emergency manual operator, integrated limit switches and electrical motor.

Output side

The interchangeable output-shaft allows easy modification from left- to right-hand use.

Approvals and certificates

ELEKTROMATEN

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



SG50



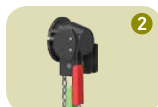
SG85



SG115



1



2



3



4



5

Emergency manual operation

- Hand crank NHK
- Rapid hand chain operator SK (KE 9.24)
- Hand chain operator KNH (≥KE 20.24)

1

2

3

Limit switches

Mechanical limit NES

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

4

Digital limit DES

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

5

Mounting

- Foot angle (standard fitting)
- Bracket (as an additional part or mounted directly on the ELEKTROMATEN)

Special versions

- Increase of cycles per hour
- Higher protection class
- Other voltages and frequencies
- Explosion-proof according to ATEX (page 6.021)
- ELEKTROMATEN KE with built-on frequency inverter (page 2.031)

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		KE 9.24	KE 9.24 WS	KE 20.24	KE 30.24
Series		SG50	SG50	SG85	SG85
Output torque	Nm	90	90	200	300
Output speed	rpm	24	24	24	24
Output shaft / hollow shaft (Ø)	mm	25	25	40	40
Max. holding torque ¹	Nm	90	90	200	300
Max. output speed OPEN / CLOSE for frequency inverter operation ²	rpm	42 / 24	--	42 / 42	42 / 42
Motor power	kW	0,37	0,45	0,40	0,85
Supply voltage	V	3~230 / 400	1N~230	3~230 / 400	3~230 / 400
Operating frequency	Hz	50	50	50	50
Operating current ³	A	2,1 / 1,2	3,9	3,1 / 1,8	4,4 / 2,6
Max. movements per hour ^{4/5}		12	12	16	14
Limit switch range ⁶		20 (40)	20 (40)	20 (40, 60, 110)	20 (40, 60, 110)
Max. hand force NHK / SK or KNH ⁷	N	62 / 165	62 / 165	168 / 187	212 / 105
Weight	kg	13	15	24	26
Spare parts: Catalogue page		9.051	9.051	9.055	9.055
Part no. installation drawing (dxf, dwg)		50000577	50000852	50000579	50000579
Part no. ELEKTROMATEN		10002208	10002268	10002232	10002233

ELEKTROMATEN		KE 40.24	KE 60.24	KE 80.24	KE 120.24
Series		SG85	SG115	SG115	SG115
Output torque	Nm	400	600	800	1200
Output speed	rpm	24	24	24	24
Output shaft / hollow shaft (Ø)	mm	40	55	55	55
Max. holding torque ¹	Nm	400	600	800	XX
Max. output speed OPEN / CLOSE for frequency inverter operation ²	rpm	42 / 42	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 ³	A	5,2 / 3,0	6,7 / 3,9	8,1 / 4,7	11,9 / 6,9
Max. movements per hour ^{4/5}		12	14	12	10
Limit switch range ⁶		20 (40, 60, 110)	20 (60, 110)	20 (60, 110)	20 (60, 110)
Max. hand force NHK / SK or KNH ⁷	N	255 / 126	193 / 156	302 / 244	234 / 189
Weight	kg	28	47	49	57
Spare parts: Catalogue page		9.055	9.056	9.056	9.056
Part no. installation drawing (dxf, dwg)		50000579	50000796	50000822	50000797
Part no. ELEKTROMATEN		10002234	10002538	10002539	10002570

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 Maximum torque that may act on the output shaft of the drive unit when the door is stationary · ² We recommend the selection of a special ELEKTROMATEN KE FI for use with frequency inverter, OPEN drive speed at 87 Hz, see 3.6 and 3.7 · ³ The max. current in door drives can reach up to 4x the rated operating current for limited periods, see 3.6 and 3.7 · 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 at the output-shaft · ⁷ See 3.4

2. Selection chart • for Roller shutters

ELEKTROMATEN	Tube	Transmission		Transmission		Transmission		Transmission	
	EN 10220	1:2		1:3		1:3,8		1:4,5	
	[mm]	F [N]	v _a [cm/s]	F [N]	v _a [cm/s]	F [N]	v _a [cm/s]	F [N]	v _a [cm/s]
KE 9.24 / KE 9.24 WS	101,6 x 3,6	2368	7,6	3553	5,1	4500	4,0	5329	3,4
	108,0 x 3,6	2250	8,0	3375	5,4	4275	4,2	5063	3,6
	133,0 x 4,0	1882	9,6	2824	6,4	3576	5,1	4235	4,3
	159,0 x 4,5	1609	11,2	2413	7,5	3057	5,9	3620	5,0
KE 20.24	133,0 x 4,0	4183	9,6	6275	6,4	7948	5,1	9412	4,3
	159,0 x 4,5	3575	11,2	5363	7,5	6793	5,9	8045	5,0
	177,8 x 5,0	3236	12,4	4853	8,3	6148	6,5	7280	5,5
	193,7 x 5,4	2995	13,4	4492	9,0	5690	7,1	6738	6,0
	219,1 x 5,9	2677	15,0	4015	10,0	5086	7,9	6023	6,7
KE 30.24	133,0 x 4,0	6275	9,6	9412	6,4	11922	5,1	14118	4,3
	159,0 x 4,5	5363	11,2	8045	7,5	10190	5,9	12067	5,0
	177,8 x 5,0	4853	12,4	7280	8,3	9221	6,5	10920	5,5
	193,7 x 5,4	4492	13,4	6738	9,0	8535	7,1	10108	6,0
	219,1 x 5,9	4015	15,0	6023	10,0	7629	7,9	9034	6,7
KE 40.24	159,0 x 4,5	7151	11,2	10726	7,5	13587	5,9	16089	5,0
	177,8 x 5,0	6471	12,4	9707	8,3	12295	6,5	14560	5,5
	193,7 x 5,4	5990	13,4	8985	9,0	11380	7,1	13477	6,0
	219,1 x 5,9	5353	15,0	8030	10,0	10171	7,9	12045	6,7
	244,5 x 6,3	4839	16,6	7259	11,1	9195	8,7	10888	7,4
	273,0 x 6,3	4369	18,4	6553	12,3	8300	9,7	9829	8,2
	298,5 x 7,1	4019	20,0	6028	13,3	7636	10,5	9042	8,9
	323,9 x 7,1	3722	21,6	5583	14,4	7072	11,4	8375	9,6
KE 60.24	177,8 x 5,0	9707	12,4	14560	8,3	18443	6,5	21840	5,5
	193,7 x 5,4	8985	13,4	13477	9,0	17071	7,1	20215	6,0
	219,1 x 5,9	8030	15,0	12045	10,0	15257	7,9	18068	6,7
	244,5 x 6,3	7259	16,6	10888	11,1	13792	8,7	16333	7,4
	273,0 x 6,3	6553	18,4	9829	12,3	12451	9,7	14744	8,2
	298,5 x 7,1	6028	20,0	9042	13,3	11454	10,5	13564	8,9
	323,9 x 7,1	5583	21,6	8375	14,4	10608	11,4	12562	9,6
	368,0 x 8,0	9897	24,4	14845	16,3	18804	12,8	22268	10,8
KE 80.24	177,8 x 5,0	12942	12,4	19414	8,3	24590	6,5	29120	5,5
	193,7 x 5,4	11979	13,4	17969	9,0	22761	7,1	26954	6,0
	219,1 x 5,9	10707	15,0	16060	10,0	20343	7,9	24090	6,7
	244,5 x 6,3	9679	16,6	14518	11,1	18389	8,7	21777	7,4
	273,0 x 6,3	8737	18,4	13106	12,3	16601	9,7	19659	8,2
	298,5 x 7,1	8038	20,0	12057	13,3	15272	10,5	18085	8,9
	323,9 x 7,1	7444	21,6	11166	14,4	14144	11,4	16749	9,6
	368,0 x 8,0	9897	24,4	14845	16,3	18804	12,8	22268	10,8
KE 120.24	177,8 x 5,0	19414	12,4	29120	8,3	36886	6,5	43680	5,5
	193,7 x 5,4	17969	13,4	26954	9,0	34141	7,1	40431	6,0
	219,1 x 5,9	16060	15,0	24090	10,0	30514	7,9	36136	6,7
	244,5 x 6,3	14518	16,6	21777	11,1	27584	8,7	32665	7,4
	273,0 x 6,3	13106	18,4	19659	12,3	24901	9,7	29488	8,2
	298,5 x 7,1	12057	20,0	18085	13,3	22907	10,5	27127	8,9
	323,9 x 7,1	11166	21,6	16749	14,4	21215	11,4	25124	9,6
	368,0 x 8,0	9897	24,4	14845	16,3	18804	12,8	22268	10,8

■ F = Lift [N]

■ v_a = 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 Safety brake / Locking torque / Holding torque

For rising loads a safety brake of the appropriate size must be fitted. The admissible drive speeds for the safety brake may not be exceeded. The locking torque moment must not exceed the admissible loads on mechanical components such as e.g. fixings, shafts, keys etc.

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 2,031).

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 Chain drive

It is not allowed to exceed the admissible loads on chains, shafts, keys and bearings. Observe the direction of the power input.

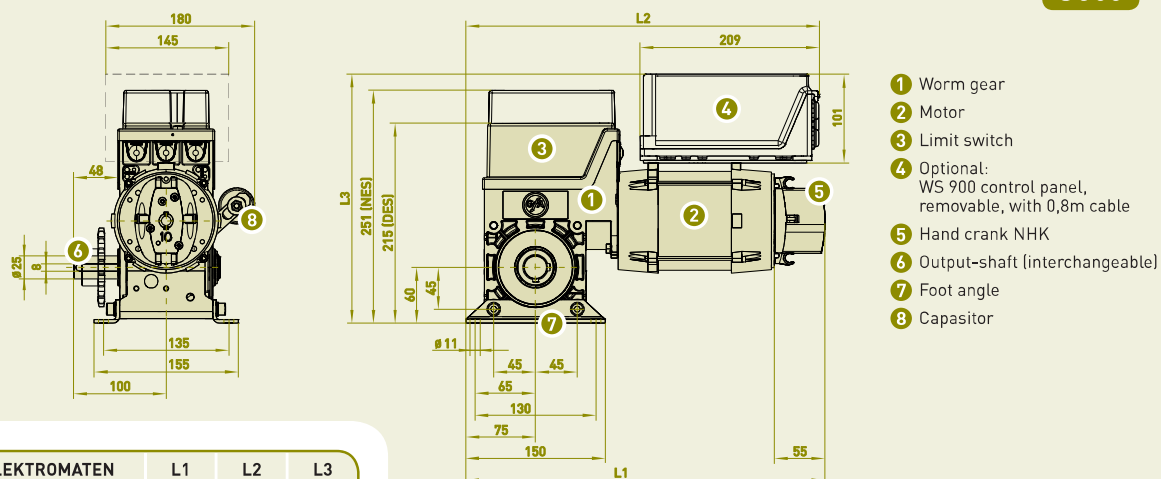
We recommend the use of drive sprockets with at least 15 teeth. The drive sprocket must not protrude beyond the end of the output-shaft.

The chain drive transmission is to be fitted with tensioning devices designed to prevent the chain riding up or disengaging.

4. Dimensions

4.1 KE 9.24 / KE 9.24 WS

SG50

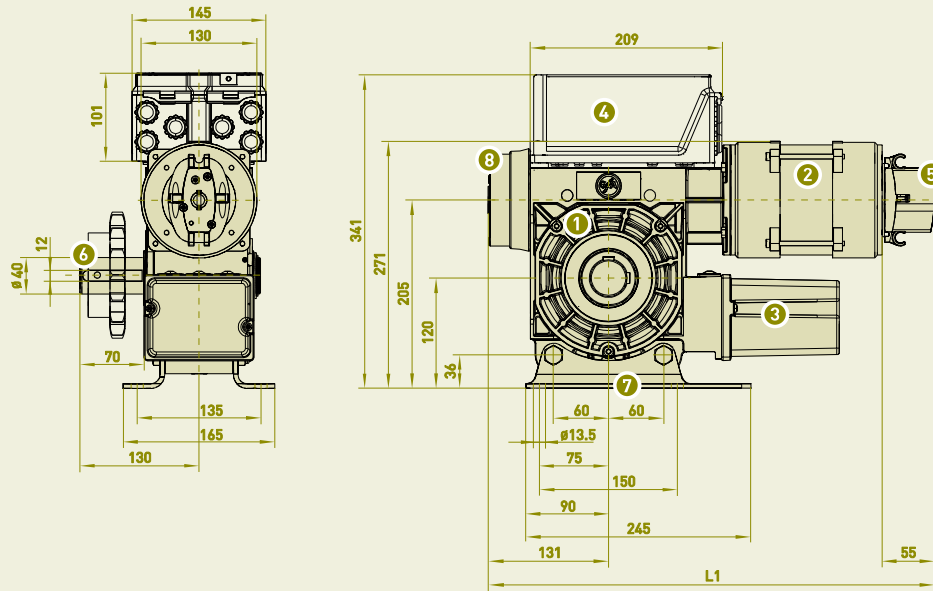


ELEKTROMATEN	L1	L2	L3
KE 9.24	386	398	274
KE 9.24 WS 8	403	396	281

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

4.2 KE 20.24 – KE 40.24

SG85



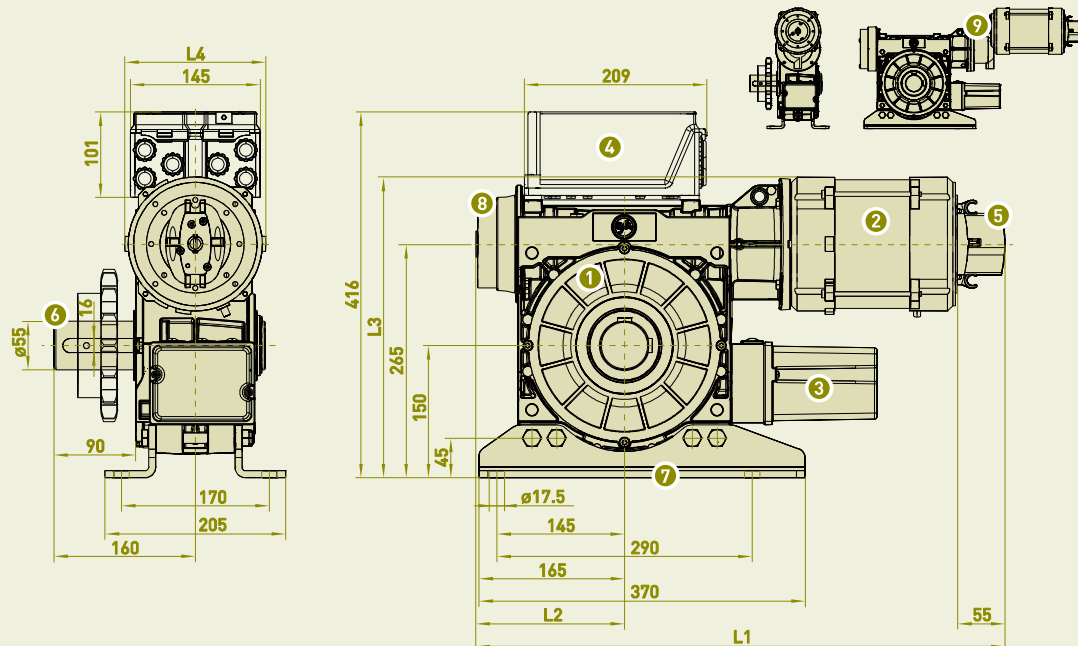
- 1 Worm gear
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0,8m cable
- 5 Hand crank NHK
- 6 Output-shaft (interchangeable)
- 7 Foot angle
- 8 Brake

ELEKTROMATEN	L1
KE 20.24	485
KE 30.24	499
KE 40.24	520

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

4.3 KE 60.24 – KE 120.24

SG115

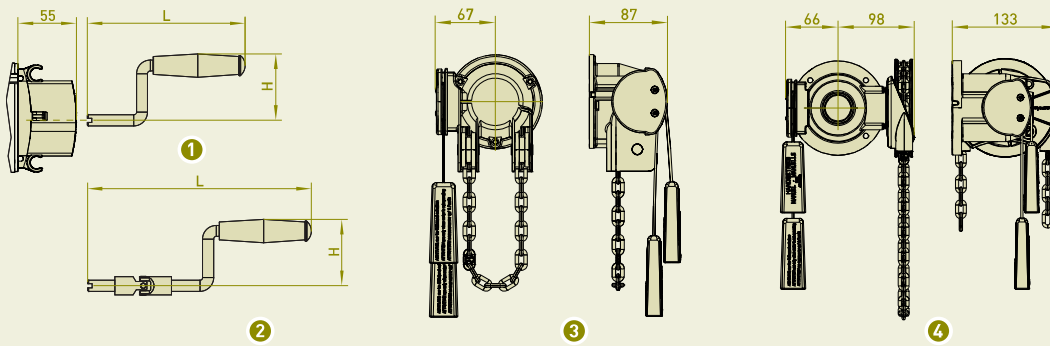


- 1 Worm gear
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0,8m cable
- 5 Hand crank NHK
- 6 Output-shaft (interchangeable)
- 7 Foot angle
- 8 Brake
- 9 Intermediate gear

ELEKTROMATEN	L1	L2	L3	L4
KE 60.24	607	169	342	152
KE 80.24	643	180	342	152
KE 120.24 9	743	180	397	152

■ 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)

2 Manual hand crank operation with knuckle joint NHKK

3 Rapid hand chain operator SK (KE 9.24)

4 Hand chain operator KNH (> KE 20.24)

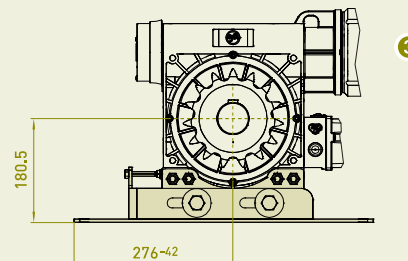
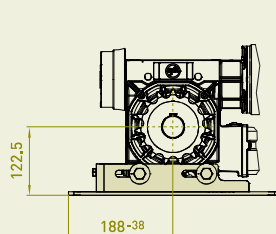
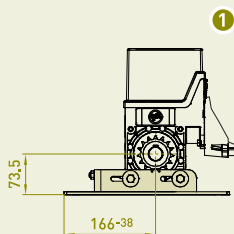
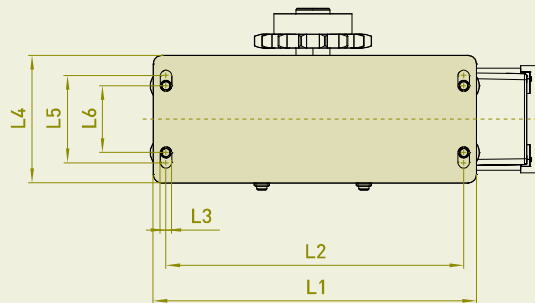
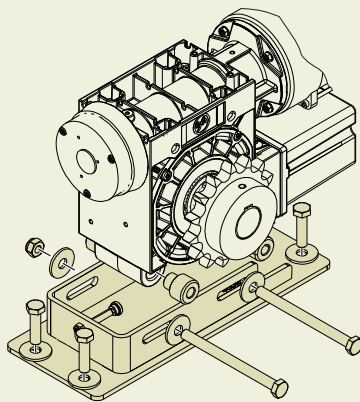
	For Series	Part no.	L	H
1	SG50	30002591	255	92
1	SG85	30002749	235	122
1	SG115	30003112	265	192
2	SG50	30002715	415	112
2	SG85	30002750	425	152

■ Manual forces, see item 1 of technical data

■ Read note in 3.4

6. Attachments / Accessories

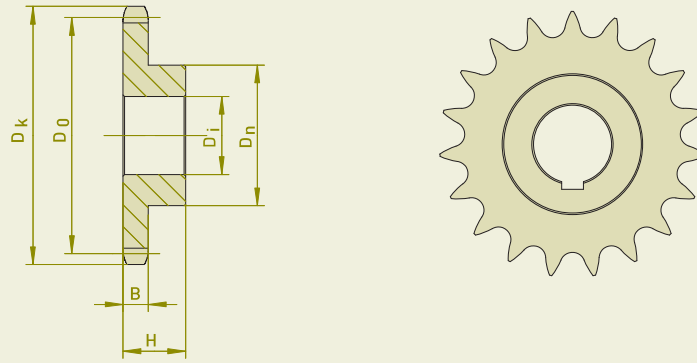
6.1 Bracket (as an additional part or mounted directly on the ELEKTROMATEN)



	For Series	Part no.	L1	L2	L3	L4	L5	L6
1	SG50	30005056	300	258,5	11,5	130	103,5	76,5
2	SG85	30005055	380	350	13,5	150	101,5	78,5
3	SG115	30005100	520	485	17,5	200	112,5	87,5

■ Mounting without Foot angles

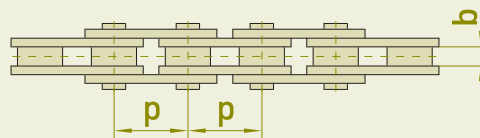
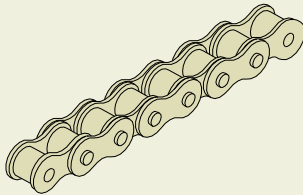
6.2 Sprockets



For ELEKTROMATEN	Designation	Teeth	Part no.	D_k	D_0	D_n	D_i	B	H
KE 9.24	08 B-1 (1/2" x 5/16")	15	30000237	66	61,1	45	25	7,2	20
		19	30000238	82	77,2	60	25	7,2	25
KE 20.24 / KE 30.24	12 B-1 (3/4" x 7/16")	15	30000219	99,3	91,6	70	40	11,1	30
		19	30000220	125	115,7	75	40	11,1	35
KE 30.24 / KE 40.24	16 B-1 (1" x 17,02mm)	15	30000171	132,2	122,2	90	40	16,2	40
		19	30000321	165	154,3	90	40	16,2	50
KE 60.24	16 B-1 (1" x 17,02mm)	15	30000173	132,2	122,2	90	55	16,2	40
		19	30000688	165	154,3	90	55	16,2	50
KE 80.24 / KE 120.24	20 B-1 (1 1/4" x 3/4")	15	30000920	164,6	152,7	110	55	18,6	55
		19	30003163	205,5	192,9	120	55	18,6	55

■ Additional sprockets in Section 9

6.3 Roller chains



Designation	p x b [inch]	p x b [mm]	Ultimate load of chain DIN 8187 [N]	Number of teeth's	Max. M_{ab} [Nm]	Description	Part no.
08 B-1	1/2" x 5/16"	12,7 x 7,75	18.000	15	90	1,5m	40005050
				19	115	5,0m Link	40017783
							40000613
12 B-1	3/4" x 7/16"	19,05 x 11,68	29.000	15	220	2,0m	40003030
				19	280	5,0m Link	40013909
							40000615
16 B-1	1" x 17,02mm	25,4 x 17,02	60.000	15	610	2,5m	40005049
				19	770	5,0m Link	40013910
							40000617
20 B-1	1 1/4" x 3/4"	31,75 x 19,56	95.000	15	1200	3,0m	40014878
				19	1520	5,0m Link	40017784
							40001111

■ For chain and sprockets, the maximum permitted torque M_{ab} on ELEKTROMATEN is as shown in the table (safety factor 6x the breaking strain)

ELEKTROMATEN® KE FI

Chain-drive with built-on frequency inverter

For driving:
Roller shutters and rolling grilles

Series SG50

KE 9.60 FI

Series SG85

KE 20.60 FI / KE 40.40 FI

Series SG115

KE 50.80 FI - KE 120.30 FI

KE-ELEKTROMATEN FI are special drives for industrial doors. The door shaft is driven by a chain-transmission. Prevention of doors falling back requires a safety brake of the appropriate size.

KE-ELEKTROMATEN 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.

Output side

The interchangeable output-shaft allows easy modification from left- to right-hand use.

Built-on frequency inverter to be used with control panels 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



SG50



SG85



SG115



1

Emergency manual operation

- Hand crank NHK
- Rapid hand chain operator SK (KE 9.60 FI)
- Hand chain operator KNH (≥ KE 20.60 FI)

1

2

3



2

Limit switches

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

4



3

Mounting

- Foot angle (standard fitting)
- Bracket (as an additional part or mounted directly on the ELEKTROMATEN)



4

Door controls

- Simple connection by means of non-interchangeable plug connections allowing simple exchange with other GfA control panels
- 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

ELEKTROMATEN			KE 9.60 FI	KE 20.60 FI	KE 40.40 FI
Series			SG60	SG85	SG85
Output torque		Nm	90	200	400
Output speed	OPEN		10-60	10-60	9-40
	CLOSE > 2,5m	rpm	10-30	10-35	9-35
	CLOSE ≤ 2,5m ¹		10-30	10-35	9-24
Output shaft / hollow shaft (∅)		mm	25	40	40
Max. holding torque ²		Nm	90	200	400
Motor power		kW	0,85	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	6,6	7,3	7,3
Max. movements per hour ^{3/4}			26	40	30
Limit switch range ⁵			20 (40)	20 (40, 60)	20 (40, 60)
Max. handforce NHK / SK or KNH ⁶		N	82 / 215	176 / 196	255 / 126
Weight		kg	23	39	40
Spare parts: Catalogue page			9,051	9,055	9,055
Part no. installation drawing (dxf,dwg)			50001548	50001549	50001549
Part no. ELEKTROMATEN			10004014	10003908	10003840

ELEKTROMATEN			KE 50.80 FI	KE 60.45 FI	KE 80.40 FI	KE 120.30 FI
Series			SG115	SG115	SG115	SG115
Output torque		Nm	500	600	800	1200
Output speed	OPEN		22-80	7-45	10-40	5-30
	CLOSE > 2,5m	rpm	22-45	7-28	10-28	5-18
	CLOSE ≤ 2,5m ¹		22-30	7-28	10-28	5-18
Output shaft / hollow shaft (∅)		mm	55	55	55	55
Max. holding torque ²		Nm	500	600	800	1200
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 ^{3/4}			26	20	20	13
Limit switch range ⁵			20 (60)	20 (60)	20 (60)	20 (60)
Max. handforce NHK / SK or KNH ⁶		N	287 / 232	193 / 156	302 / 244	234 / 189
Weight		kg	64	60	64	72
Spare parts: Catalogue page			9,056	9,056	9,056	9,056
Part no. installation drawing (dxf,dwg)			50001546	50001546	50001546	50001547
Part no. ELEKTROMATEN			10003981	10003904	10003905	10003906

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

2. Selection chart • for Roller shutters

ELEKTROMATEN	Tube EN 10220	Transmission 1:2	Transmission 1:3	Transmission 1:3,8	Transmission 1:4,5	
	[mm]	F [N]	F [N]	F [N]	F [N]	
KE 9.60 FI	101,6 x 3,6	2368	3553	4500	5329	
	108,0 x 3,6	2250	3375	4275	5063	
	133,0 x 4,0	1882	2824	3576	4235	
	159,0 x 4,5	1609	2413	3057	3620	
KE 20.60 FI	133,0 x 4,0	4183	6275	7948	9412	
	159,0 x 4,5	3575	5363	6793	8045	
	177,8 x 5,0	3236	4853	6148	7280	
	193,7 x 5,4	2995	4492	5690	6738	
	219,1 x 5,9	2677	4015	5086	6023	
KE 40.40 FI	159,0 x 4,5	7151	10726	13587	16089	
	177,8 x 5,0	6471	9707	12295	14560	
	193,7 x 5,4	5990	8985	11380	13477	
	219,1 x 5,9	5353	8030	10171	12045	
	244,5 x 6,3	4839	7259	9195	10888	
	273,0 x 6,3	4369	6553	8300	9829	
	298,5 x 7,1	4019	6028	7636	9042	
	323,9 x 7,1	3722	5583	7072	8375	
	KE 50.80 FI	177,8 x 5,0	8089	12133	15369	18200
		193,7 x 5,4	7487	11231	14226	16846
219,1 x 5,9		6692	10038	12714	15056	
244,5 x 6,3		6049	9074	11493	13611	
273,0 x 6,3		5461	8191	10375	12287	
298,5 x 7,1		5024	7535	9545	11303	
323,9 x 7,1		4653	6979	8840	10468	
KE 60.45 FI		177,8 x 5,0	9707	14560	18443	21840
	193,7 x 5,4	8985	13477	17071	20215	
	219,1 x 5,9	8030	12045	15257	18068	
	244,5 x 6,3	7259	10888	13792	16333	
	273,0 x 6,3	6553	9829	12451	14744	
	298,5 x 7,1	6028	9042	11454	13564	
	323,9 x 7,1	5583	8375	10608	12562	
	KE 80.40 FI	177,8 x 5,0	12942	19414	24590	29120
193,7 x 5,4		11979	17969	22761	26954	
219,1 x 5,9		10707	16060	20343	24090	
244,5 x 6,3		9679	14518	18389	21777	
273,0 x 6,3		8737	13106	16601	19659	
298,5 x 7,1		8038	12057	15272	18085	
323,9 x 7,1		7444	11166	14144	16749	
KE 120.30 FI	177,8 x 5,0	19414	29120	36886	43680	
	193,7 x 5,4	17969	26954	34141	40431	
	219,1 x 5,9	16060	24090	30514	36136	
	244,5 x 6,3	14518	21777	27584	32665	
	273,0 x 6,3	13106	19659	24901	29488	
	298,5 x 7,1	12057	18085	22907	27127	
	323,9 x 7,1	11166	16749	21215	25124	
	368,0 x 8,0	9897	14845	18804	22268	

■ F = Lift [N]

■ Read note in 3.2

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



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 390N 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 Safety brake / Locking torque / Holding torque

For rising loads a safety brake of the appropriate size must be fitted. The admissible drive speeds for the safety brake may not be exceeded. The locking torque moment must not exceed the admissible loads on mechanical components such as e.g. fixings, shafts, keys etc.

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 Chain drive

It is not allowed to exceed the admissible loads on chains, shafts, keys and bearings. Observe the direction of the power input.

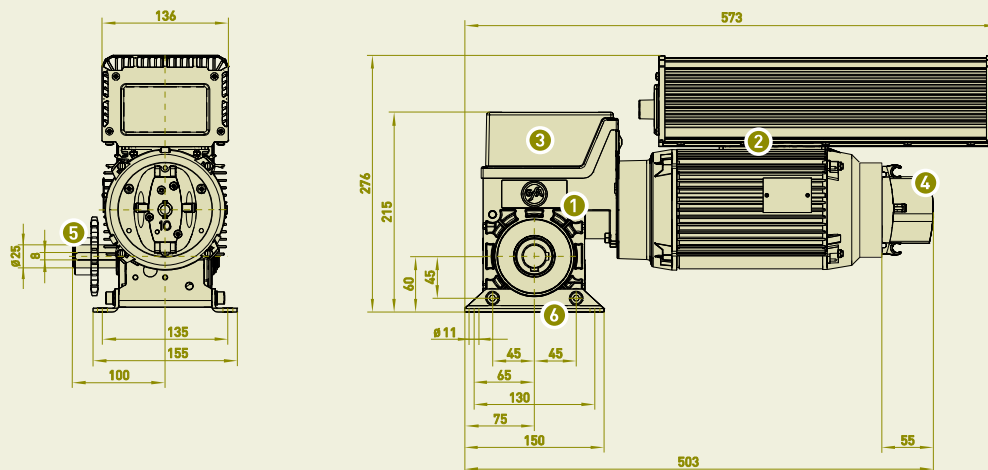
We recommend the use of drive sprockets with at least 15 teeth. The drive sprocket must not protrude beyond the end of the output-shaft.

The chain drive transmission is to be fitted with tensioning devices designed to prevent the chain riding up or disengaging.

4. Dimensions

4.1 KE 9.60 FI

SG50

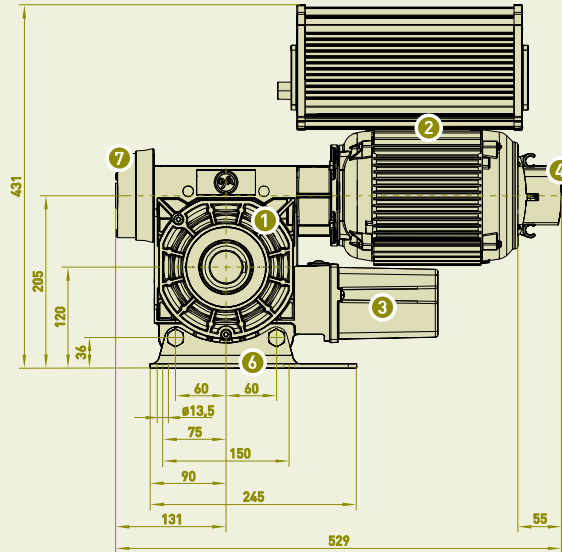
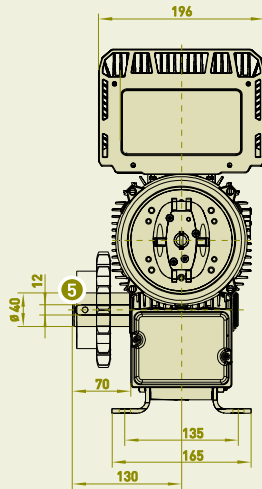


- 1 Worm gear
- 2 Motor with built-on frequency inverter
- 3 Limit switch
- 4 Hand crank NHK
- 5 Output-shaft (interchangeable)
- 6 Foot angle

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

4.2 KE 20.60 FI / KE 40.40 FI

SG85

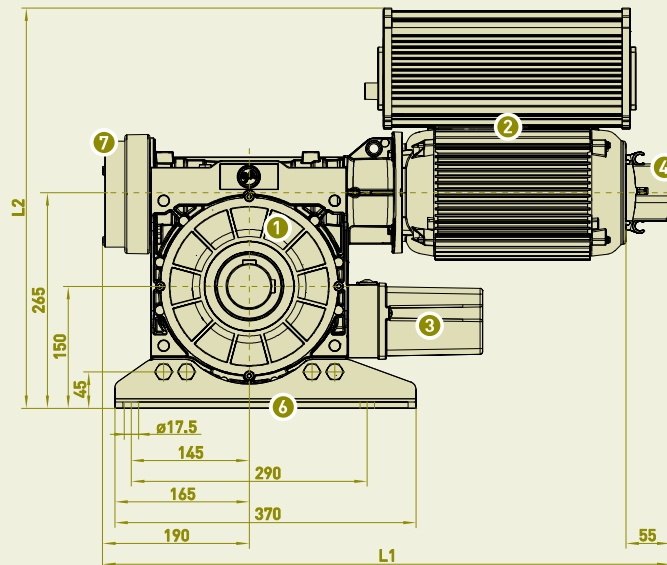
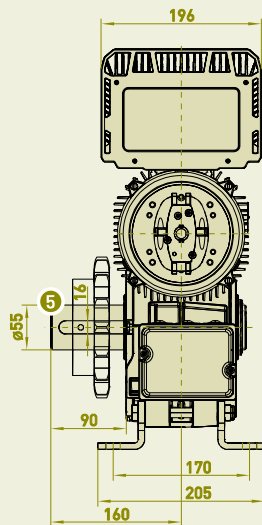


- 1 Worm gear
- 2 Motor with built-on frequency inverter
- 3 Limit switch
- 4 Hand crank NHK
- 5 Output-shaft (interchangeable)
- 6 Foot angle
- 7 Brake

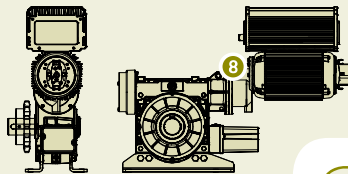
■ Permitted installation: Horizontal (as shown) or vertical (motor at the bottom)

4.3 KE 50.80 FI – KE 120.30 FI

SG115



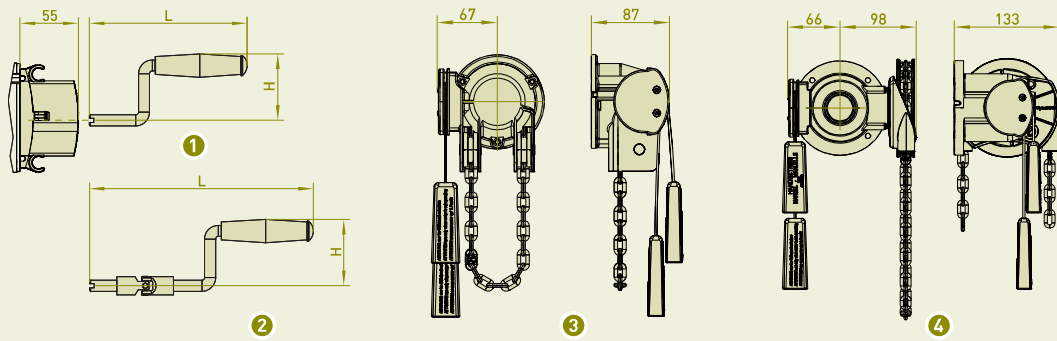
- 1 Worm gear
- 2 Motor with built-on frequency inverter
- 3 Limit switch
- 4 Hand crank NHK
- 5 Output-shaft (interchangeable)
- 6 Foot angle
- 7 Brake
- 8 Intermediate gear



ELEKTROMATEN	L1	L2
KE 50.80 FI / KE 60.45 FI / KE 80.40 FI	697	492
KE 120.30 FI	777	548

■ 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 NHH (Standard)
 2 Manual hand crank operation with knuckle joint NHHK

- 3 Rapid hand chain operator SK (KE 9.60 FI)
 4 Hand chain operator KNH (> KE 20.60 FI)

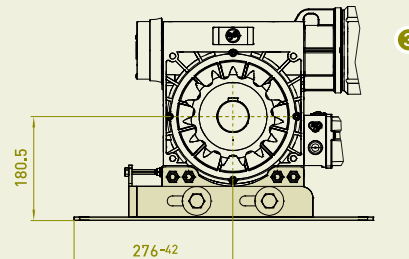
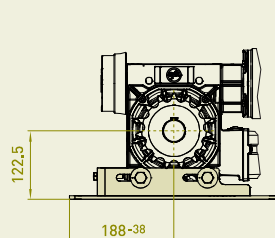
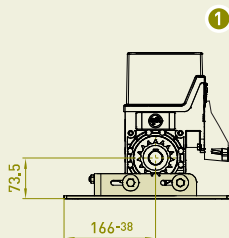
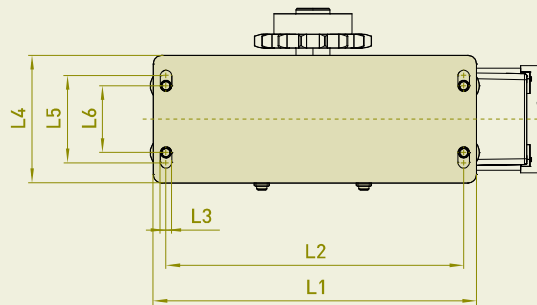
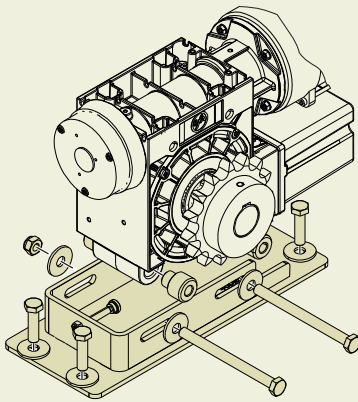
	For Series	Part no.	L	H
1	SG50	30002591	255	92
1	SG85	30002749	235	122
1	SG115	30003112	265	192
2	SG50	30002715	415	112
2	SG85	30002750	425	152

■ Manual forces, see item 1 of technical data

■ Read note in 3.4

6. Attachments / Accessories

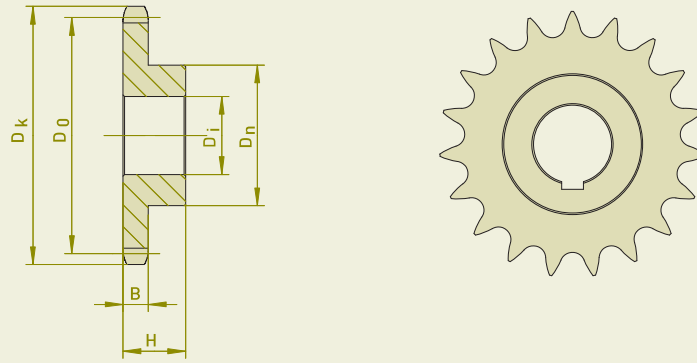
6.1 Bracket (as an additional part or mounted directly on the ELEKTROMATEN)



	For Series	Part no.	L1	L2	L3	L4	L5	L6
1	SG50	30005056	300	258,5	11,5	130	103,5	76,5
2	SG85	30005055	380	350	13,5	150	101,5	78,5
3	SG115	30005100	520	485	17,5	200	112,5	87,5

■ Mounting without Foot angles

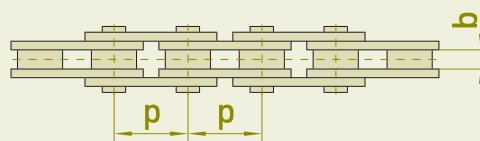
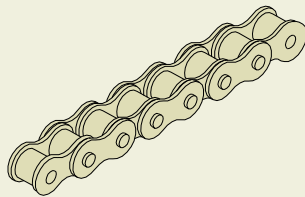
6.2 Sprockets



For ELEKTROMATEN	Designation	Teeth	Part no.	D_k	D_0	D_n	D_i	B	H
KE 9.24	08 B-1 (1/2" x 5/16")	15	30000237	66	61,1	45	25	7,2	20
		19	30000238	82	77,2	60	25	7,2	25
KE 20.24 / KE 30.24	12 B-1 (3/4" x 7/16")	15	30000219	99,3	91,6	70	40	11,1	30
		19	30000220	125	115,7	75	40	11,1	35
KE 30.24 / KE 40.24	16 B-1 (1" x 17,02mm)	15	30000171	132,2	122,2	90	40	16,2	40
		19	30000321	165	154,3	90	40	16,2	50
KE 60.24	16 B-1 (1" x 17,02mm)	15	30000173	132,2	122,2	90	55	16,2	40
		19	30000688	165	154,3	90	55	16,2	50
KE 80.24 / KE 120.24	20 B-1 (1 1/4" x 3/4")	15	30000920	164,6	152,7	110	55	18,6	55
		19	30003163	205,5	192,9	120	55	18,6	55

■ Additional sprockets in Section 9

6.3 Roller chains



Designation	p x b [inch]	p x b [mm]	Ultimate load of chain DIN 8187 [N]	Number of teeth's	Max. M_{ab} [Nm]	Description	Part no.
08 B-1	1/2" x 5/16"	12,7 x 7,75	18.000	15	90	1,5m	40005050
				19	115	5,0m Link	40017783
							40000613
12 B-1	3/4" x 7/16"	19,05 x 11,68	29.000	15	220	2,0m	40003030
				19	280	5,0m Link	40013909
							40000615
16 B-1	1" x 17,02mm	25,4 x 17,02	60.000	15	610	2,5m	40005049
				19	770	5,0m Link	40013910
							40000617
20 B-1	1 1/4" x 3/4"	31,75 x 19,56	95.000	15	1200	3,0m	40014878
				19	1520	5,0m Link	40017784
							40001111

■ For chain and sprockets, the maximum permitted torque M_{ab} on ELEKTROMATEN is as shown in the table (safety factor 6x the breaking strain)

