

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.

For rising loads a safety brake of the appropriate size must be fitted.

ELEKTROMATEN KE comprises:

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

Control panels to suit all requirements can be found in section 7.

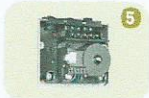
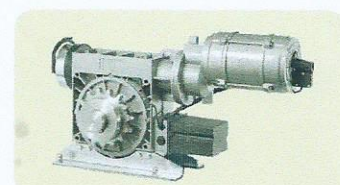
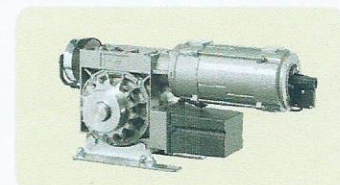
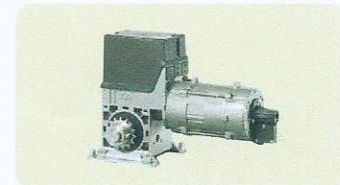
Output side:

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

Approvals and certificates

ELEKTROMATEN and control panels:

Mark approval certificate according to DIN EN 12453



Emergency manual operation

- Hand crank NHK
- Rapid hand chain operator SK for KE 9.24
- Hand chain operator KNH from KE 20.24

Limit switches

Mechanical limit NES

- For WS 900, TS 956/961 control panels
- 2 operating, 2 emergency- and 2 auxiliary limit switches

Digital limit DES

- For TS 958/970/981 control panels
- Absolute encoder
- After a power failure, re-adjustment is not required.

Mounting

- Foot angle (standard fitting)
- Bracket (page 2.17)
- Slide rails (page 2.17)

Special versions

- Higher motor duty cycle
- Higher protection class
- Other voltages, frequencies on request
- Explosion-proof according to ATEX (page 5.11)

Control panels

- Simple connection to the limit switch by means of non-interchangeable plug connections allowing simple exchange with other GfA control panels.
- Control voltage: 24V, 50Hz
- Supply voltage: 1x230V/N/PE, 3x230V/PE, 3x400V/N/PE, 3x400V/PE

To be used with mechanical limit switch NES

- Reversing contactor control WS 900 (page 7.11)
- Hold to run control panel TS 956 (page 7.21)
- Automatic control panel TS 961 (page 7.31)

To be used with digital limit switch DES

- Hold to run control panel TS 958 (page 7.25)
- Automatic control panel TS 970 (page 7.41)
- Automatic control panel with traffic management TS 981 (page 7.51)

Details of the above GfA control panels can be found in section 7.

Subject to measurement and design revisions.

1. Technical data

ELEKTROMATEN Series		KE 9.24 SG50	KE 9.24 WS SG50	KE 20.24 SG85	KE 30.24 SG85
Output torque	Nm	90	90	200	300
Output speed	rpm	24	24	24	24
Output-shaft Ø	mm	25	25	40	40
Permitted OPEN / CLOSE output speed in frequency-inverter operating mode ¹	rpm	42 / 24	--	42 / 42	42 / 42
Motor power	kW	0,37	0,45	0,40	0,85
Supply voltage, frequency	V - Hz	3x230/400-50	1x230-50	3x230/400-50	3x230/400-50
Nominal current ²	A	2,1 / 1,2	3,9	3,1 / 1,8	3,7 / 2,1
Motor duty cycle	ED	S3-60%	S3-20%	S3-60%	S3-60%
Max. cycles per hour ³		12	12	16	14
Supply side wiring / fusing (delayed action)		5x1,5 ² / 10A	3x1,5 ² / 10A	5x1,5 ² / 10A	5x1,5 ² / 10A
Limit switch range ⁴		20 (40)	20 (40)	20 (40, 60, 110)	20 (40, 60, 110)
Max. hand force NHK / SK and / or KNH ⁵	N	70 / 180	70 / 180	150 / 90	190 / 110
ELEKTROMATEN weight	Kg	16	17	23	28
Spare parts: Catalogue page		8.71	8.71	8.72	8.72
Part no. installation drawing [dxf, dwg]		50000577	50000852	50000579	50000579
Part no. ELEKTROMATEN		10002208	10002268	10002232	10002233

ELEKTROMATEN Series		KE 40.24 SG85	KE 60.24 SG115	KE 80.24 SG115	KE 120.24 SG115
Output torque	Nm	400	600	800	1200
Output speed	rpm	24	24	24	24
Output-shaft Ø	mm	40	55	55	55
Permitted OPEN / CLOSE output speed in frequency-inverter operating mode ¹	rpm	42 / 42	42 / 42	42 / 42	42 / 42
Motor power	kW	1,10	1,50	2,00	3,00
Supply voltage, frequency	V - Hz	3x230/400-50	3x230/400-50	3x230/400-50	3x230/400-50
Nominal current ²	A	4,6 / 2,7	6,8 / 3,9	8,1 / 4,7	12,0 / 6,9
Motor duty cycle	ED	S3-60%	S3-60%	S3-60%	S3-60%
Max. cycles per hour ³		12	14	12	10
Supply side wiring / fusing (delayed action)		5x1,5 ² / 10A	5x2,5 ² / 16A	5x2,5 ² / 16A	5x2,5 ² / 16A
Limit switch range ⁴		20 (40, 60, 110)	20 (60, 110)	20 (60, 110)	20 (60, 110)
Max. hand force NHK / KNH ⁵	N	225 / 135	190 / 155	300 / 240	225 / 180
ELEKTROMATEN weight	kg	31	48	52	58
Spare parts: Catalogue page		8.72	8.73	8.74	8.74
Part no. installation drawing [dxf, dwg]		50000579	50000796	50000822	50000797
Part no. ELEKTROMATEN		10002234	10002538	10002539	10002570

The following applies for all ELEKTROMATEN: Protection class IP54, permissible temperature range -5°C to +40°C, operating sound pressure level SPL <70 dB(A)
¹ We recommend to select a special ELEKTROMATEN (enquire) for use with frequency inverter, OPEN drive speed at 87 Hz, read note in 3.7 · ² The operating current in door drives can reach up to 4x the rated current for limited periods, read notes in 3.6 and 3.7 · ³ Read note in 3.2 · ⁴ Maximum possible revolutions of output-shaft ·
⁵ Read note in 3.4

2. Selection chart

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page 2.13

ELEKTROMATEN	Tube DIN 2448	Transmission 1:2		Transmission 1:3		Transmission 1:3,8		Transmission 1:4,5	
	[mm]	F [N]	v _i [cm/s]	F [N]	v _i [cm/s]	F [N]	v _i [cm/s]	F [N]	v _i [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
KE 30.24	219,1 x 5,9	2677	15,0	4015	10,0	5086	7,9	6023	6,7
	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
KE 40.24	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
	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
KE 60.24	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
KE 80.24	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
	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
KE 100.24	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
KE 120.24	323,9 x 7,1	5583	21,6	8375	14,4	10608	11,4	12562	9,6
	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
KE 140.24	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
KE 160.24	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
KE 180.24	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

■ F = Lift [N]

■ v_i = initial speed [cm/s]

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

■ Read note in 3.2

Subject to measurement and design revisions.

3. Notes

3.1 European directive

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

3.2 Selection chart

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

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

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/electric brake/brake release

ELEKTROMATEN without an electro magnetic brake have a self-sustaining worm gear and stop automatically.

On ELEKTROMATEN with electric brake, stopping is achieved by the external brake. Brake inspection must always be carried out by trained service engineers. Ensure that the brake is not released.

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 ELEKTROMATEN units with electric brake, emergency manual operation is carried out against the engaged brake.

3.5 Safety brake

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 nominal motor current because the starting current of the drive unit can reach these levels for short periods.

3.7 Use with frequency inverter

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 (item 1, technical data). The operating forces must comply with DIN EN 12453.

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

When using a frequency inverter we recommend ELEKTROMATEN in special version (enquire).

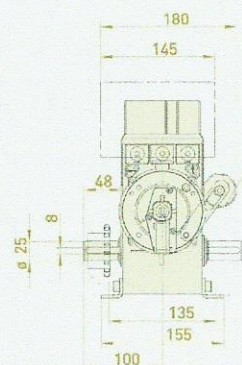
3.8 Chain drive

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

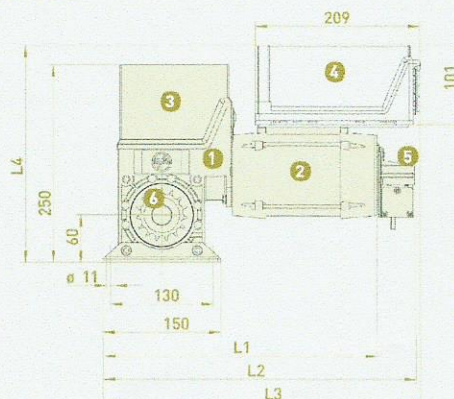
We recommend the use of drive sprockets with at least 15 teeth. The drive sprocket must not protrude beyond the end of the output-shaft.

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

4.1 Dimensions • KE 9.24/KE 9.24 WS Series SG50



KE 9.24WS



- 1 Worm gear
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0.7m cable
- 5 Hand crank NHK
- 6 Output-shaft (interchangeable)

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

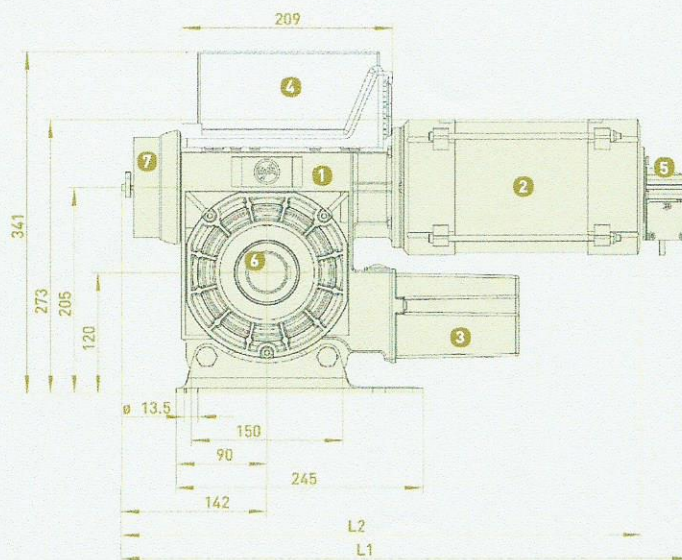
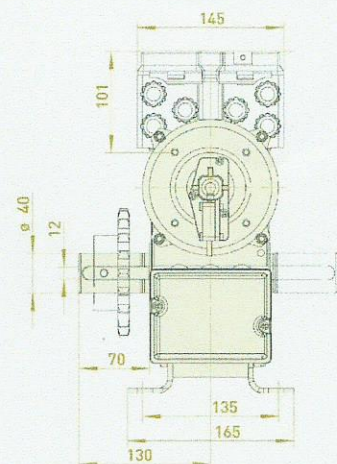
ELEKTROMATEN	L1	L2	L3	L4
KE 9.24	338	385	398	277
KE 9.24 WS	349	396	396	285



Subject to measurement and design revisions.

4.2 Dimensions • KE 20.24/KE 30.24/KE 40.24

Series SG85



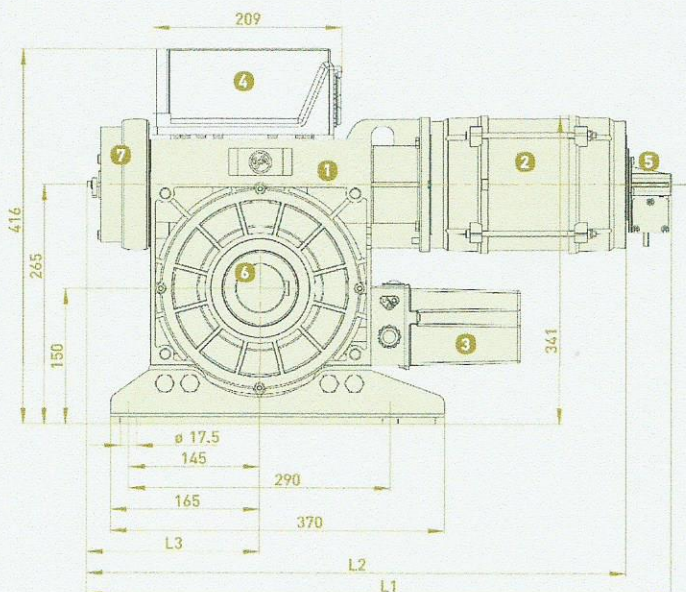
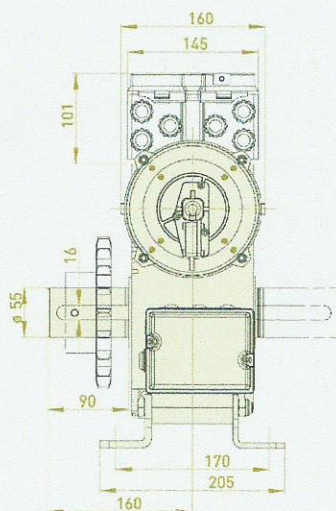
- 1 Worm gear
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0.7m cable
- 5 Hand crank NHK
- 6 Output-shaft (interchangeable)
- 7 Electric brake

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

ELEKTROMATEN	L1	L2
KE 20.24	487	440
KE 30.24	534	487
KE 40.24	566	519

4.3 Dimensions • KE 60.24/KE 80.24

Series SG115



- 1 Worm gear
- 2 Motor
- 3 Limit switch
- 4 Optional: WS 900 control panel, removable, with 0.7m cable
- 5 Hand crank NHK
- 6 Output-shaft (interchangeable)
- 7 Electric brake

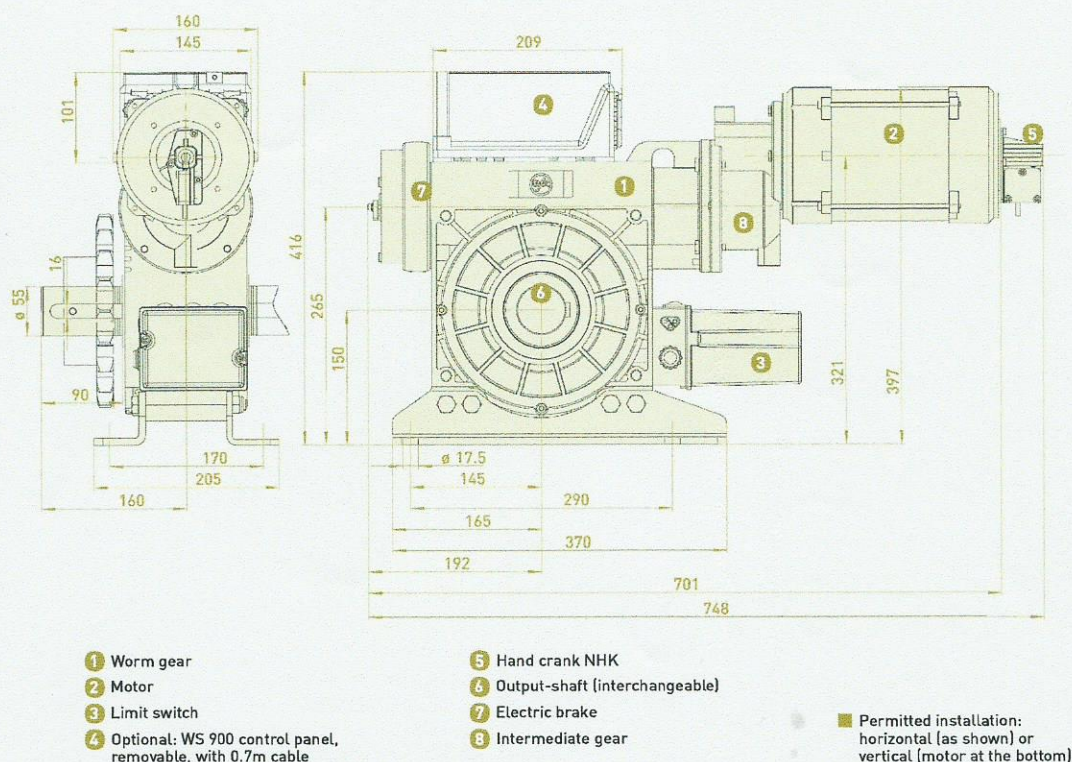
■ Permitted installation:
horizontal (as shown) or
vertical (motor at the bottom)

ELEKTROMATEN	L1	L2	L3
KE 60.24	607	560	179
KE 80.24	645	598	192

Subject to measurement and design revisions.

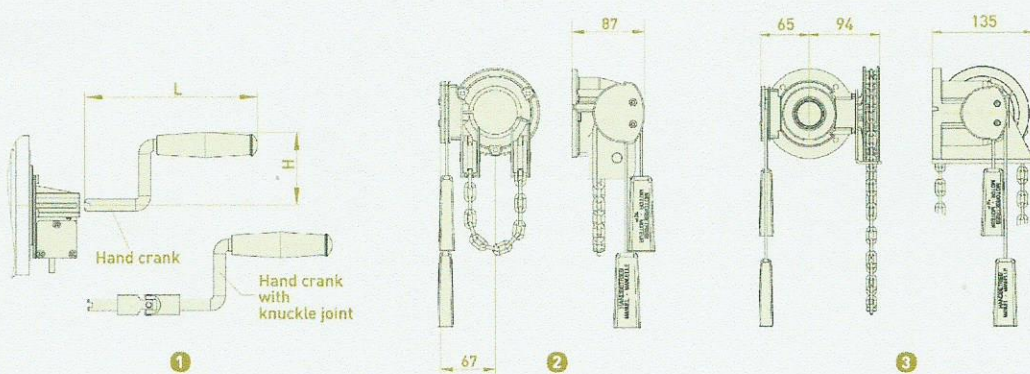
4.3 Dimensions • KE 120.24

Series SG115 with intermediate gear



5. Emergency manual operation

for horizontal or vertical installation



- 1 Manual hand crank operation NHK/NHKK
- 2 Rapid hand chain operator SK for KE 9.24
- 3 Hand chain operator KNH from KE 20.24

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

Series	Emergency manual operation NHK / NHKK	L	H	Part no.
SG50	Hand crank	255	92	30002591
	Hand crank with knuckle joint	420	112	30002715
SG85	Hand crank	205	142	30002749
	Hand crank with knuckle joint	420	152	30002750
SG115	Hand crank	265	192	30003112



Subject to measurement and design revisions.