

# OPERATING MANUAL

## INDUSTRIAL DOOR DRIVES

**CHAMBERLAIN™**  
**GAROG®**  
HUBKRAFT MIT PRÄZISION



### DK/DKA-SERIES

Serial nummer:

(see motor gearbox)

Installed on:

Switchgear standart:

**2 YEAR WARRANTY**

**CE**

D

GB

F

NL

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## IMPORTANT SAFETY INFORMATION

**Before installation, operation or maintenance of this door drive, this operating manual must be read through carefully and all the safety advice must be followed.**



This symbol means "Caution" and stands in front of safety advice intended to avoid personal injury or material damage. Please read such advice carefully. The door drive is of course designed and tested for safe operation. It is however only possible to guarantee this if the following safety instructions are accurately followed during installation and operation.



This symbol is intended to advise that if the respective instruction is not followed serious personal injury or material damage can occur.



The door should be counterbalanced. If this is not done then additional measures must be taken, such as unwinding protection, to guarantee proper operation. In the case of DKA drives unwinding protection is standard! Non-movable or stuck doors must be repaired. Doors, door springs, cables, pulleys, retainers and rails are under extreme tension in such situations and this can lead to serious injuries.



**Do not attempt to loosen, move or realign the door yourself. Contact your maintenance service.**



Suitable protective clothing should be worn during maintenance or installation of the door opener. This includes safety glasses, back supporting belt, and protective gloves. When installing or maintaining a door opener **no** jewellery, watches or loose clothing may be worn. When working from ladders or on extended platforms the corresponding safety procedures must be followed.



To avoid serious injuries resulting from getting tangled or caught in the mechanisms, **all ropes and chains, which are connected to the door, must be removed before installing the door opener.**



During installation and connection of the electrical supply the local building and electrical regulations must be followed. Power cables may only be connected to a properly earthed network. **This system must not be installed in damp or wet rooms.**



Work on the door opener may only be carried out by one (1) person working on his own.



**When working on the door opener all the local safety regulations must be observed. Installation of this device must be done according to EN12453.**



The force on the closing door edge must not exceed 150 N(15kg). If the closing force is set to more than 150N then the corresponding additional safety accessories must be installed (see "Installation of safety applications"). The force must never be set to move a stuck door.



Too high a force leads to faults in the proper operation of the reversing system or to damage to the door.



To remind all operators of the safety procedures the corresponding warning sign should be attached beside the operating control unit.



To avoid damage to the door all the blocking devices should be deactivated. If however the blocking devices must remain in operation an unlatching switch can be installed.



**The three-switch block, main disconnecting switch and all other control devices must be installed within view of the door and out of reach of children. Children should not be allowed to operate switches or the remote controller. Misuse of the door opener can lead to serious injuries.**



The door opener may only be operated if the operator can see the whole door area, if it is free from obstacles and the door opener is properly adjusted. **No one may pass through the door while it is moving and children must not be allowed to play in the vicinity of the door.**



**Before carrying out repairs or removing the covers on the door opener, it is essential to ensure that no one can inadvertently start the drive by installing a lockout device or disconnecting the cables.**

## IMPORTANT SAFETY INFORMATION



Live and moving parts of electrical machines can cause serious or fatal injuries. The installation, connection and starting up, as well as maintenance and repair work may only be carried out by qualified specialist personnel.



To avoid damage to the door or the drive, all the locking devices must be put out of operation. Set locking device(s) to the "Open" position. If a lock is to remain in operation an unlatching switch must be installed.

**Please find the technical data for the geared motor from the type plate or from the attached documents.**

**In doing so you should also follow:**

- The instructions in this manual
- All other project planning documents for the drive
- The start-up instructions and circuit diagrams
- The currently-valid national regulations (safety and accident prevention)

### **Guarantee, storage**

It is essential to follow these instructions and advice since they are the basis for trouble-free operation as well as for any guarantee claims. Check the delivery immediately after receipt for any transport damage. Report any damage immediately to the transport company as well as to the supplier. If you do not install the geared motor straight away you should store it in a dry, dust-free, low-vibration room at temperatures between 0 and +40°C.

Zustand bei Auslieferung

### **Delivered condition**

Every geared motor is manufactured according to the valid technical documentation and subjected to a test run at Chamberlain. We retain the right to make changes to technical data and design, which are in the interests of progress. Dispatch takes place in the appropriate packaging.

## GENERAL INFORMATION

**We thank you for purchasing our product.**

**If you still have questions on the installation then please contact:**



Chamberlain GmbH, Alfred-Nobel-Str. 4,  
66793 Saarwellingen Germany  
Tel: (0049)(0)6838-907222  
Fax: (0049)(0)6838-907179  
e-mail: [info@garog-service.de](mailto:info@garog-service.de)  
Internet: [www.garog-service.de](http://www.garog-service.de)

## PREPARATORY MEASURES

### The drive may only be installed:



- If the details on the rating plate on the drive correspond with the mains voltage.
- If the drive is undamaged
- If the ambient temperature is between 0 and 40°C
- If the installation height is not more than 1000m above sea level
- If the type of protection has been appropriately selected.

Output shafts and mounting surfaces are to be thoroughly cleaned to remove the corrosion protection agent (use standard commercial solvent). To avoid material damage the solvent must not get onto the sealing edges of the rotary shaft seals. Abrasive agents must not be used.

### To avoid shaft breakages and hence serious or fatal injuries it is essential to note the following during mounting:

The precondition for suitable dimensioning of the shaft with respect to its fatigue strength is stress-free installation and an immovable bearing device for the gearbox support as well as any additional or essential supporting bearings in each direction as supplied by the user.

The machine frame and force introduction points are to be designed with respect to construction and strength according to the bearing forces which arise. The gearbox housing with two bearings and all the other bearing points are located on a common, stable framework on which the bearing surfaces have been machined in one operation. Thereby the installer must ensure that any deformation of the frame under load will not have any negative influences on the shaft load. The screws may only be fully tightened once the gearbox has been accurately aligned. Installation in damp rooms or in the open air is only permitted following agreement with the manufacturer. If the drives are stored for a lengthy period of time it is also necessary to discuss this with the manufacturer.

## INSTALLATION ADVICE

**Before starting the installation work make sure that all the necessary safety measures have been implemented.**

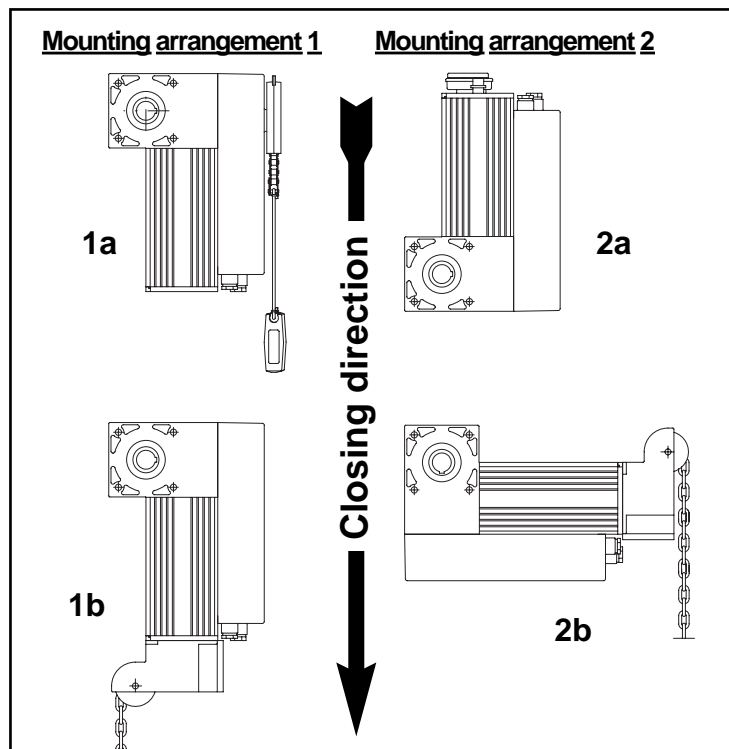
### 1. Installation

Place machine down on smooth mounting plate or aligned slide rails and tighten fixing screws uniformly.

### Make sure beforehand that:

- The drive is not damaged or sticking
- The drive has been reprepared after a lengthy storage period
- The supply line is switched off and safeguarded against being switched on again (VDE regs.) (VDE = German assoc. of electronic engineers)
- The connections have been made properly
- The turning direction of the geared motor is correct
- All motor protection devices are active
- No other danger sources exist

## MOUNTING ARRANGEMENT



## INSTALLATION ADVICE

### Electrical connection

The connections according to the circuit diagram and the maintenance of the electrical drive may **only** be carried out by **electrical specialist personnel**.



The corresponding accident prevention regulations must be followed. For switching the motor and the brake connections, switching contacts of utilization category AC-3 acc. to IEC 158 must be used.



The types of line and their cross-sections must be selected according to the relevant regulations. The nominal flows and the type of connection are given on the motor type plate. The drive details must agree with the connected values.



If operated with electronic control devices it is essential to take account of the corresponding start-up instructions and circuit diagrams.

### Commissioning:

During commissioning check whether:

- The drive does not get excessively hot

In the event of **unusual running noises** the drive must be **stopped immediately** and Customer Services should be informed. If oil is lost Customer Services should be called, the oil level should be checked by means of the dipstick on the vent screw and the drive must also be switched off if the level falls below the minimum filling quantity.

To ensure efficient support in the event of a fault we require the following information:

- The data from the type plate on your drive unit
- The type and extent of the fault
- When and under what accompanying conditions the fault occurred.
- Whether the drive was subject to speed variations or other distinctive happenings

## ELECTRICAL CONNECTION



Before the installation of power cables and control devices it is essential to take note of all the following specifications and warnings. If they are not heeded serious injuries or damage to the drive can occur.



The control housing of the door drive may only be opened by trained "Chamberlain" specialist personnel. If necessary please contact your local Chamberlain dealer.



Before electrical installation or the starting up of the drive please study the circuit diagram carefully. The valid local regulations must be followed for all the electrical wiring work.



Before carrying out any maintenance work on the door drive it is first necessary to disconnect the power supply / power transmission at the main switch.



After completion of the maintenance work the danger zone must be cleared and secured again before restarting.

If you require additional accessories or spare parts  
please contact your local **Chamberlain dealer**.

**CHAMBERLAIN - GmbH**  
Alfred-Nobel-Str. 4  
66793 Saarwellingen

ORDERING FAX NO: (0049)(0)6838-907179  
TECHNICAL HOTLINE: (0049)(0)6838-907222

## MATRIX FOR THE USE OF SAFETY EQUIPMENT

TYPE OF CONTROL	DOOR WILL BE USED BY		
	Trained people (inaccessible to the public) Group 1	Public area Group 2	(General public area) Group 3
Control by continuous switch operation	A	B	No info.
Pulse actuation within visual range of door	C	C and D	C and E
Automatic control	C and D	C and E	C and E

- I    **A:**    Pushbutton for control by holding down continuously
- I    **B:**    Keyswitch, or suchlike for controlling by means of continuous actuation
- I    **C:**    Limitation of driving force by force limiting (clutch) and protection devices (safety edge padding).
- I    **D:**    Device to detect people or obstacles which are on the ground on one side (inside) of the door leaf (infrared light barrier)
- I    **E:**    Device to detect people or obstacles which are on the ground on both sides (inside and outside) of the door leaf (infrared light barrier).

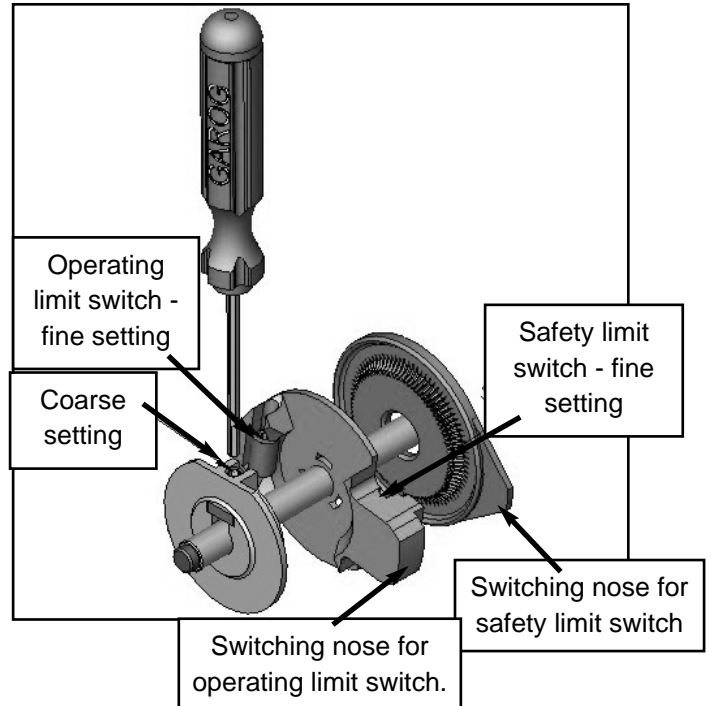
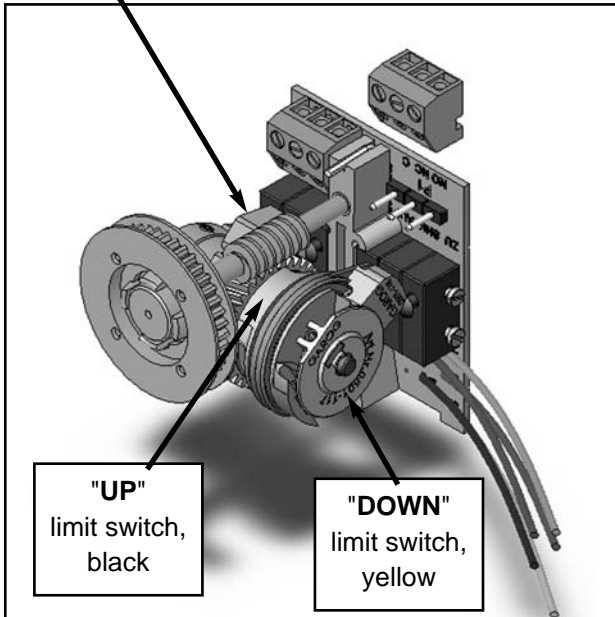
**ADVICE:** For more detailed information see EN12453.

## NEC LIMIT SWITCH WITH ILLUSTRATION

### Limit switch setting:

The limit switch is delivered in a non-adjusted state. It has two all-purpose cams which each consist of an operating limit switch and a safety limit switch (black and yellow cams) and potential-free contacts (grey, white and blue cams). The design of the new cams significantly simplifies the setting of the end positions, since both the end position as well as the respective safety limit switch can be set in one movement.

Two freely-adjustable changeover contacts (grey and blue cams) are fitted to plug-in terminals. A third switch is set as a pre-limit switch (white cam).



The limit switch configuration is explained in the illustration above. Move the door in "dead-man" state to the end position to be set and place the adjusting screwdriver into the stud screw for coarse setting as shown in the right-hand picture. Set the all-purpose cams for the corresponding end positions (**BLACK for UP and YELLOW for DOWN**) so that the microswitch is almost actuated.

Note: Take note of the approach direction of the cam to the microswitch. Tighten the screw thus safeguarding the cam from turning.

Now turn the fine setting screw on the operating limit switch until the limit switch is actuated. Check the end position in travel operation. For re-adjustment purposes the door should always be travelled about 0.5 m away from the respective end position.

In the normal situation it is not necessary to separately set the safety limit switch since delayed switching of the safety limit switch is guaranteed due to the special shape of the actuating noses on the all-purpose cams. This means it is unimportant from which side the microswitch is actuated. However in the normal case the safety limit switch should be actuated about 10 cm after the normal end position has been reached. It is possible to alter this switching point at any time by means of the "Safety limit switch - fine setting" (see picture at top right).

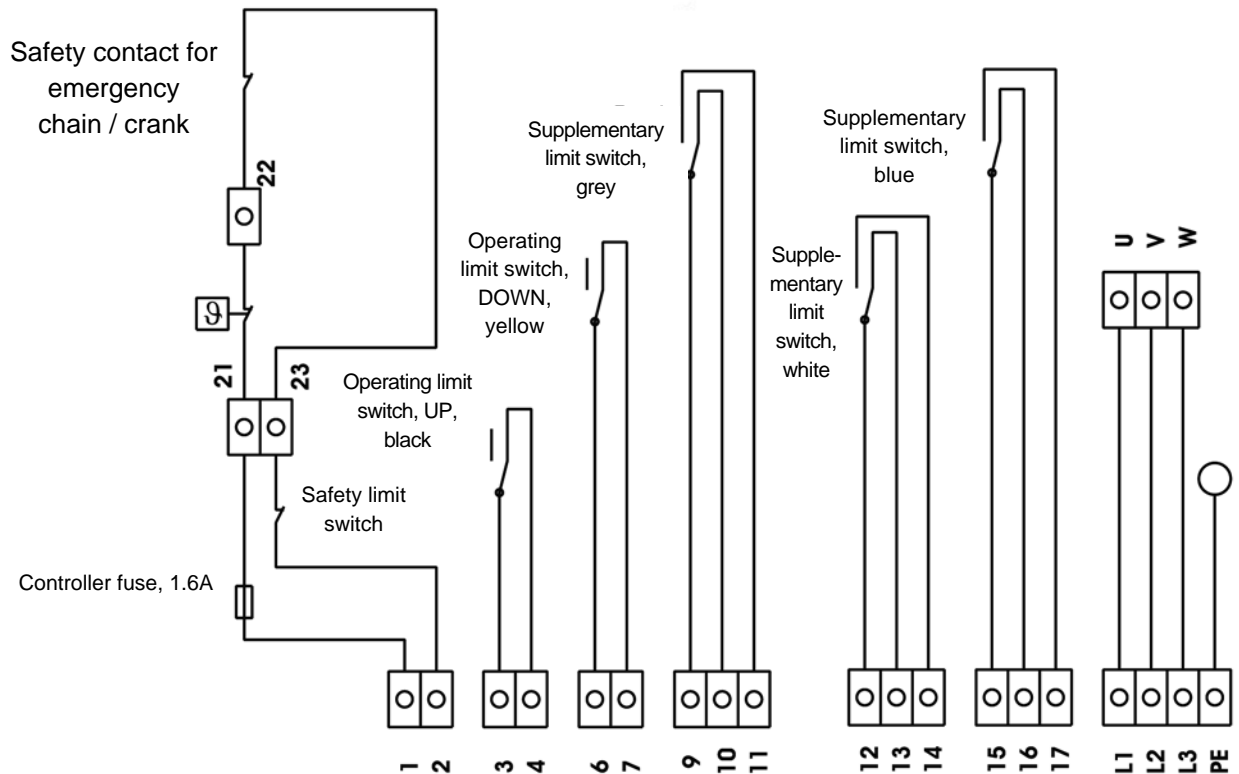
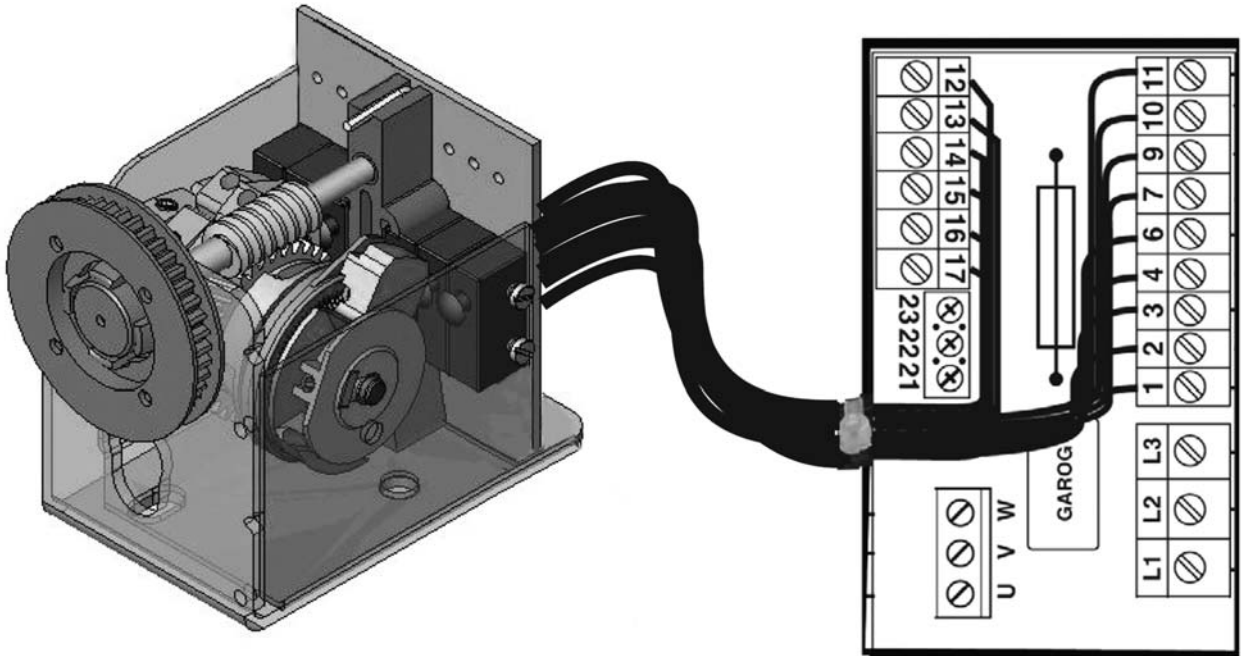
Repeat the procedure for the other end position. If the safety limit switch is actuated an error is displayed optically in the case of GAROG processor controllers. Don't forget that after finishing the setting work the coarse setting screws must be tightened up so that the limit switch cannot move during door operation. The cams in the supplementary contacts, which can be overrun, can only be adjusted with the coarse setting screw.



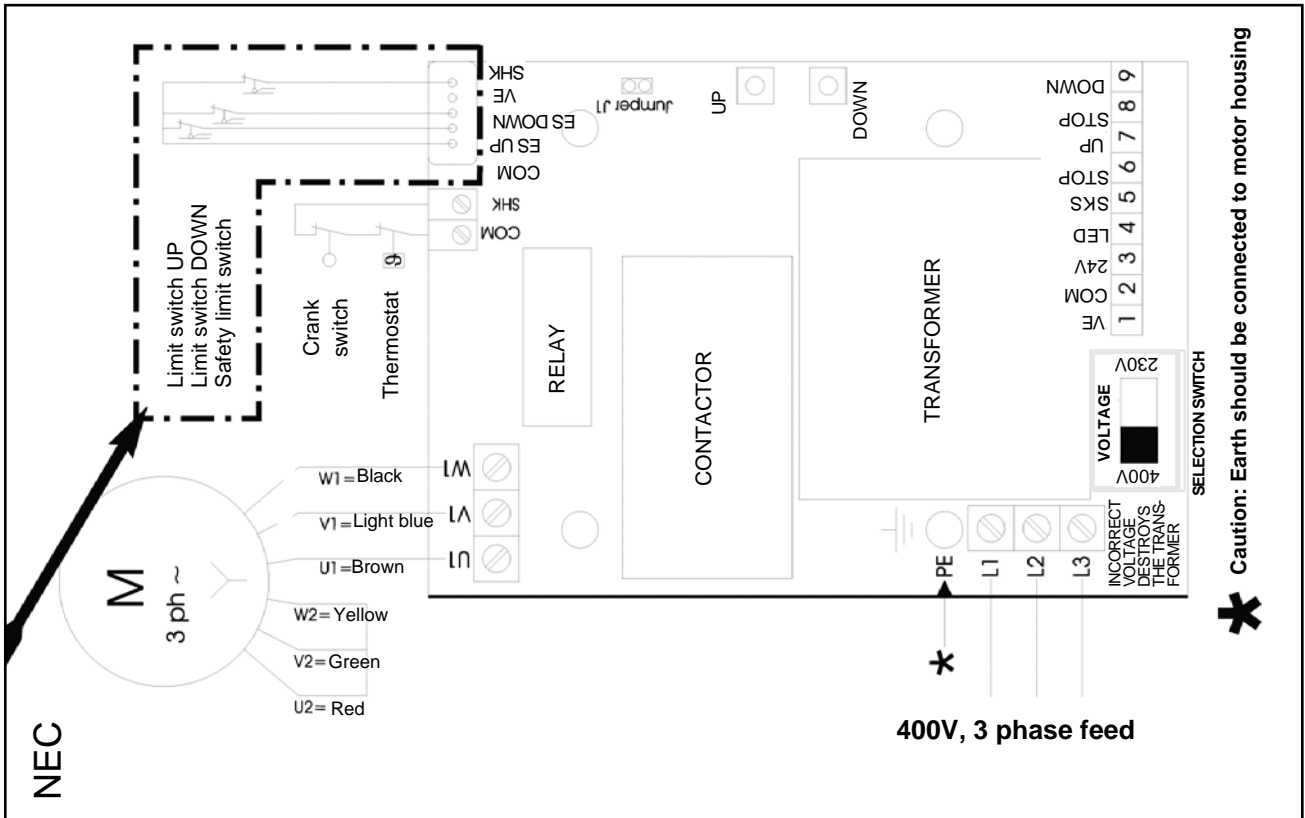
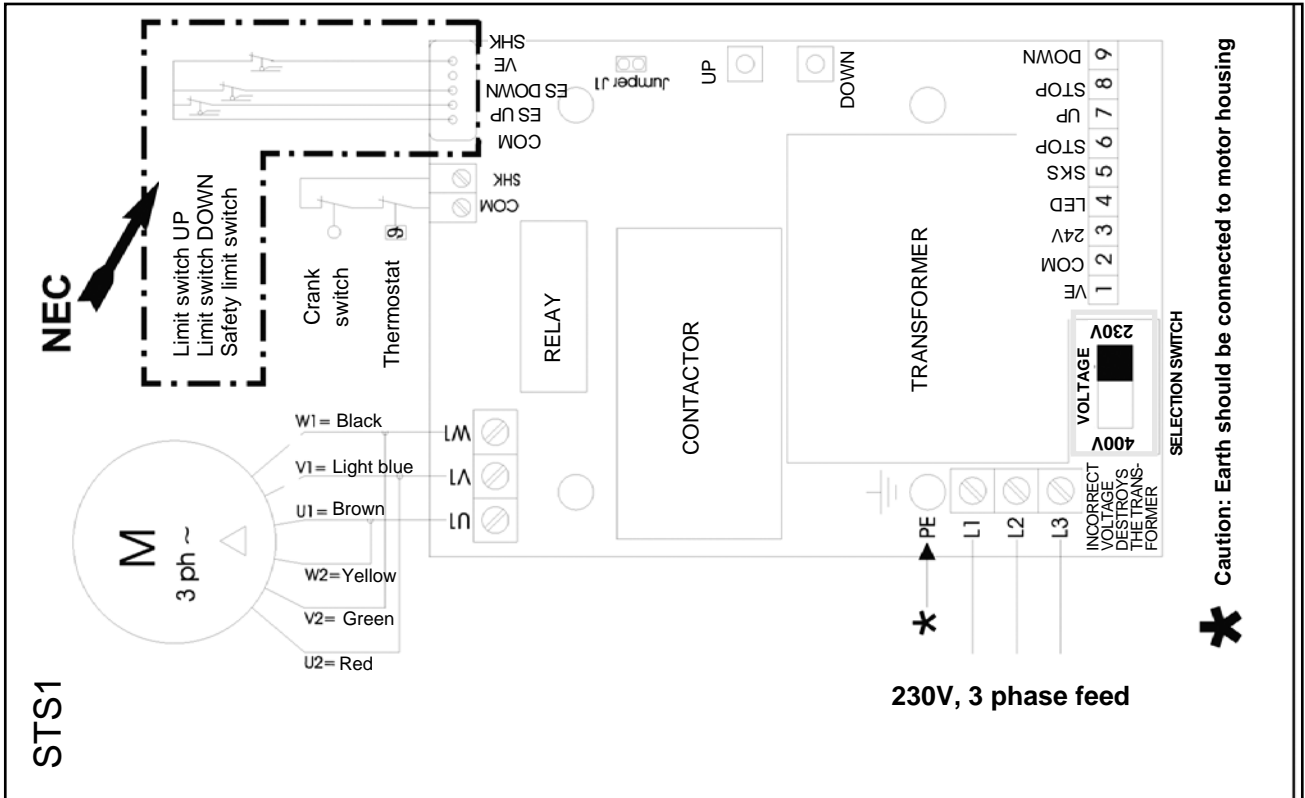
# CAM LIMIT SWITCH WITH CONNECTING TERMINAL STRIP



Redundant safety devices are self-monitoring, i.e. they can detect an error within the circuit and in the device connections. This type of circuit requires the use of self-monitoring sensing equipment.



# CIRCUIT DIAGRAM STS1 / NEC / MOTOR

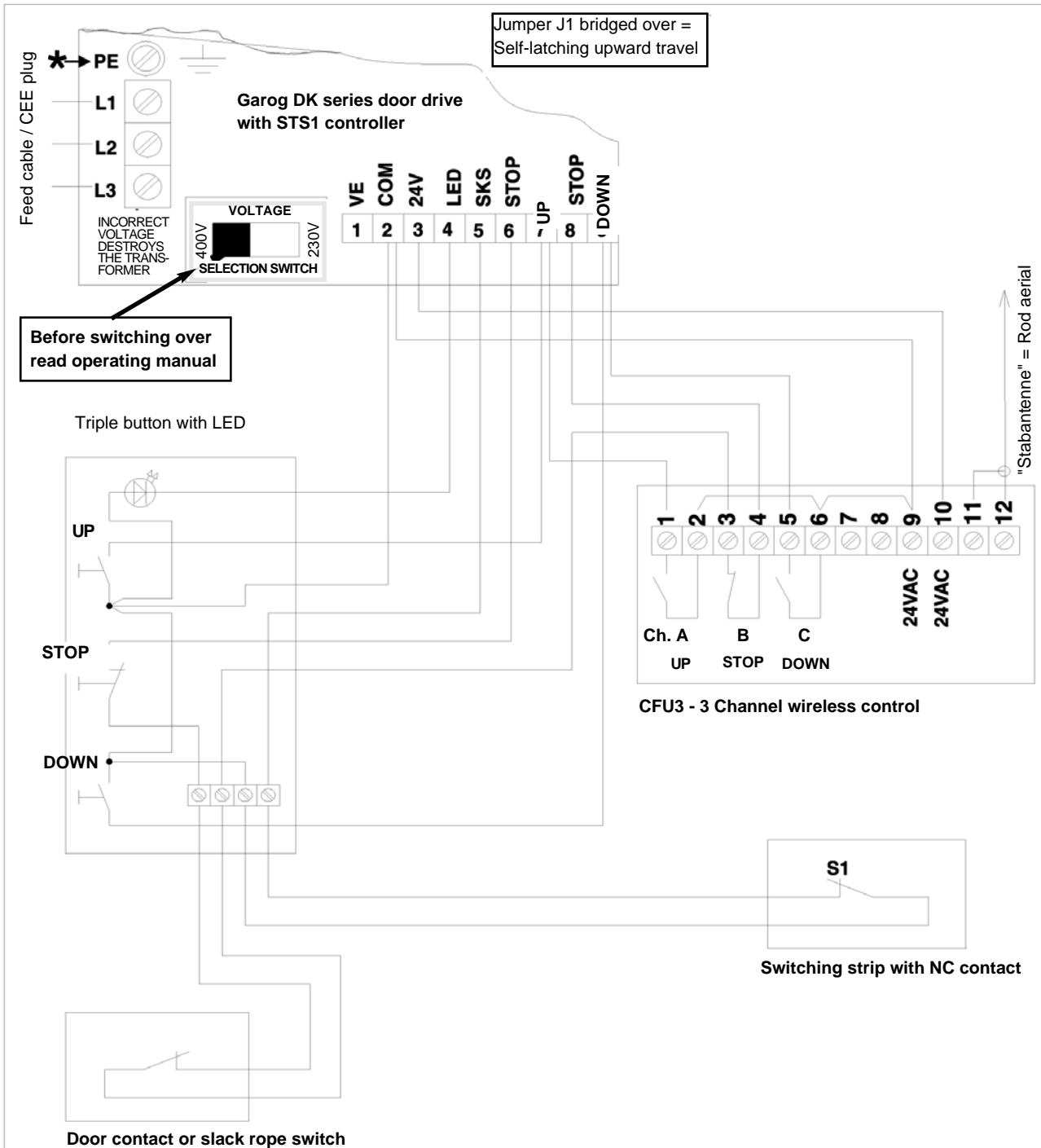


# CIRCUIT DIAGRAM - STS1



Redundant safety devices are self-monitoring, i.e. they can detect an error within the circuit and in the device connections.

This type of circuit requires the use of self-monitoring sensing equipment.



### Connection example 4: Self-latching

STS1 with triple button, door contact and 3-channel remote controller

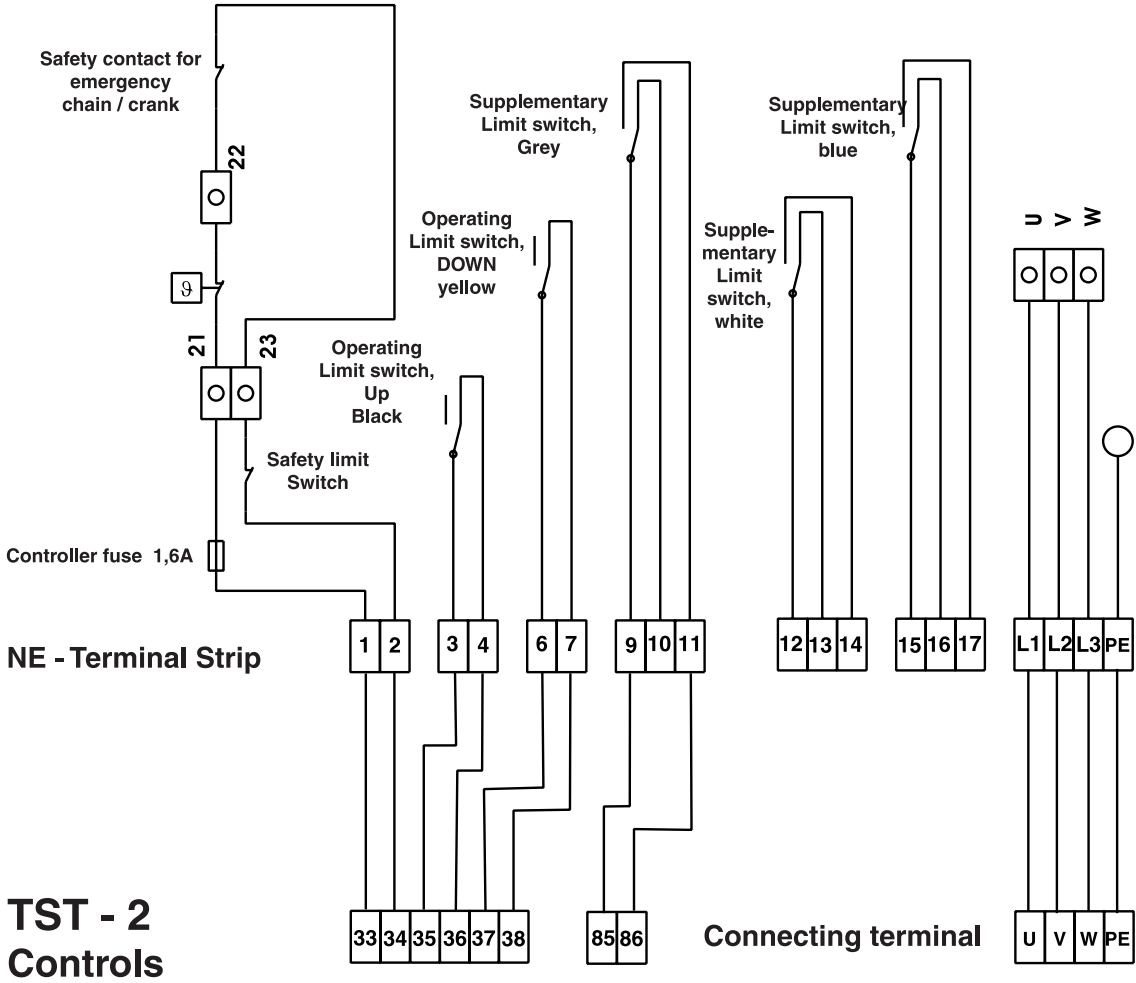
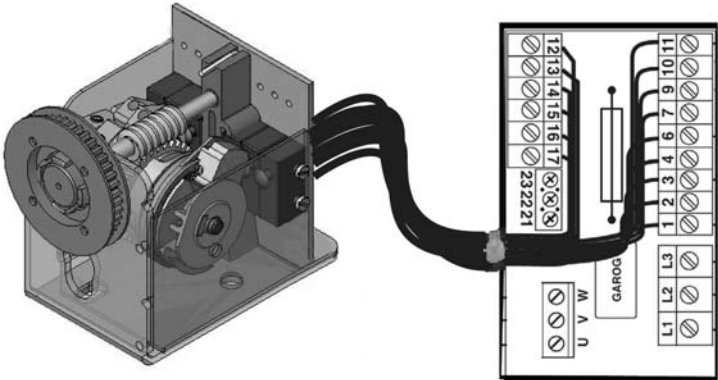


**Caution: Earth should be connected to motor housing**

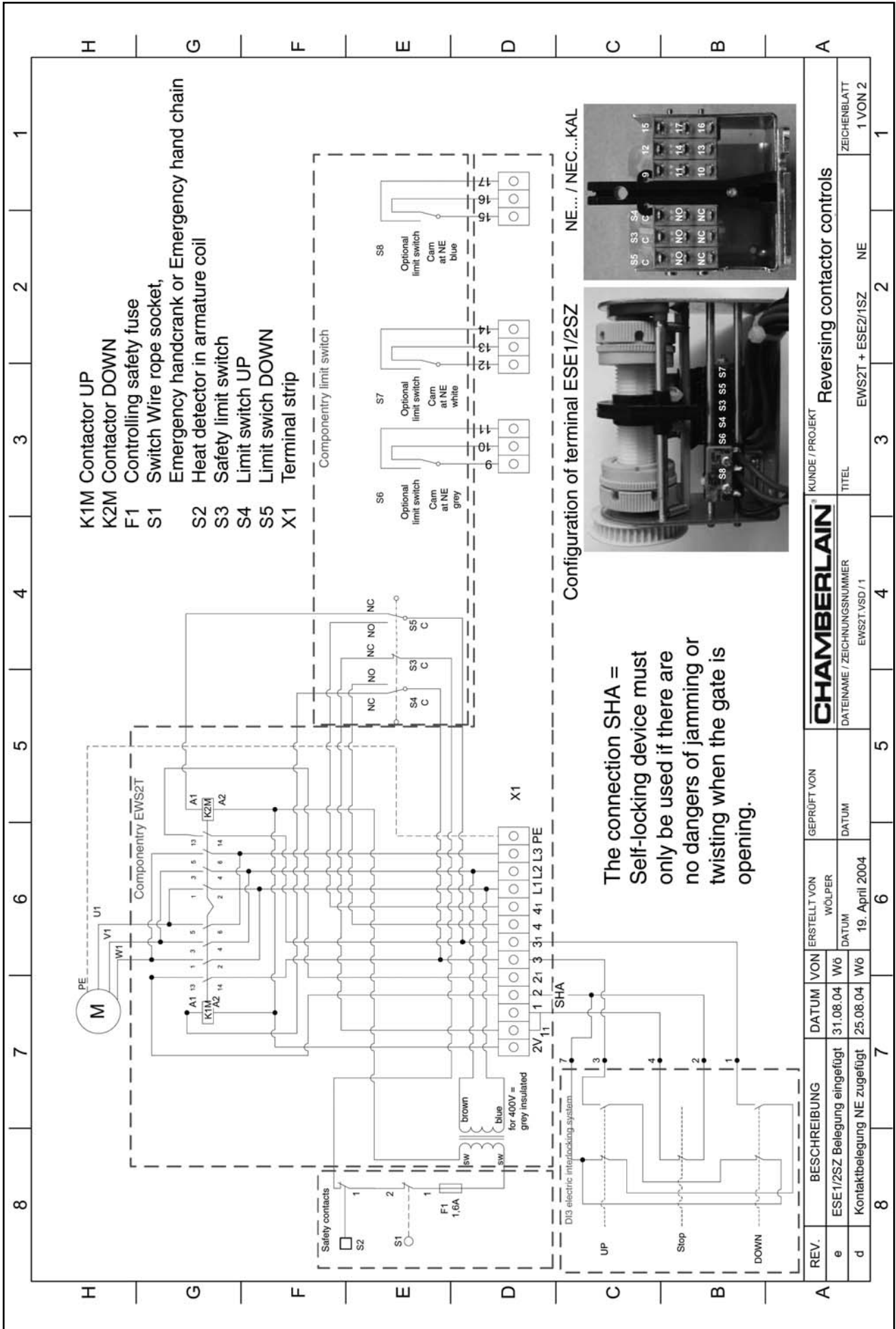


**Caution: Switching over to 230V may only be carried out in the case of 3 x 230V applications.**

**ATTENTION!!!**  
**CIRCUIT DIAGRAMM HAS**  
**BEEN CHANGED!!**



# CIRCUIT DIAGRAM EWS2T/TST1



REV.	BESCHREIBUNG	DATUM	VON	ERSTELLT VON	GEPRÜFT VON	KUNDE / PROJEKT
e	ESE1/2SZ Belegung eingefügt	31.08.04	Wo	WÜLPER		Reversing contactor controls
d	Kontaktbelegung NE zugefügt	25.08.04	Wo	19. April 2004		
				DATEINAME / ZEICHNUNGSNUMMER		ZEICHENBLATT
				EWS2T.VSD / 1		1 VON 2
				EWS2T + ESE2/1SZ		NE
						1

## TECHNICAL DATA - DK / DKS DRIVES

Chamberlain Garog base set drives include the ready wired door drive with a potential-free cam limit switch (NE) or a 24V contactor controller (STS) with cam limit switch (NEC). Various types of emergency actuators are available: The short emergency crank handle (NHK), the automatic emergency chain (NKU) as well as the quick-action clutch (DKS).

MODEL	TYPE	LIMIT SWITCH	NM	RPM	EMERGENCY ACTUATION
DK70/30A1A	DK	NE	70	30	NHK-Emergency crank handle
DK70/30A2B	DK	NEC-STS	70	30	NHK-Emergency crank handle
DK70/30B1A	DK	NE	70	30	NKU-Emergency crank handle
DK70/30B2B	DK	NEC-STS	70	30	NKU-Emergency crank handle
DK90/22A1A	DK	NE	90	22	NKU-Emergency crank handle
DK90/22A2B	DK	NEC-STS	90	22	NKU-Emergency crank handle
DK90/22B1A	DK	NE	90	22	NKU-Emergency crank handle
DK90/22B2B	DK	NEC-STS	90	22	NKU-Emergency crank handle
DK90/22S1A	DK	NE	90	22	DKS - Quick-action clutch
DK90/22S2B	DK	NEC-STS	90	22	DKS - Quick-action clutch

### Technical data

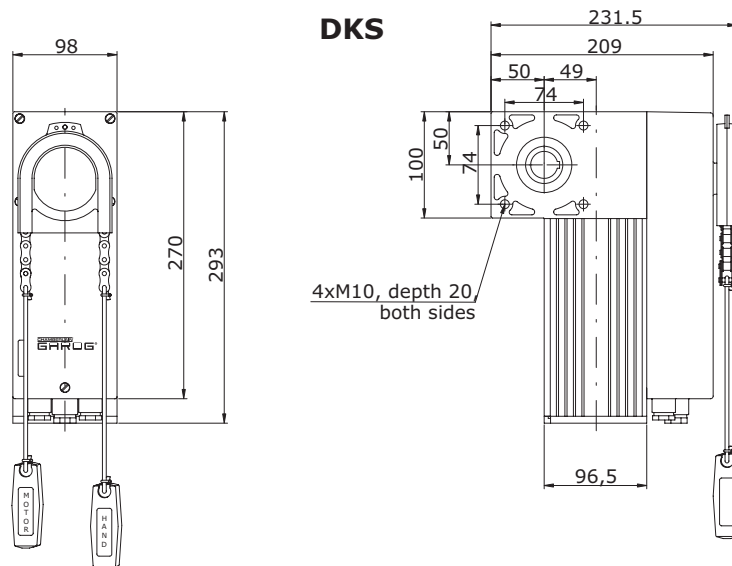
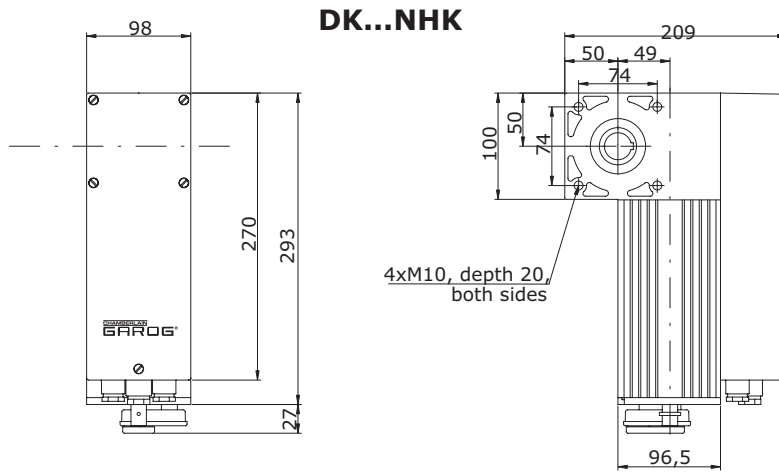
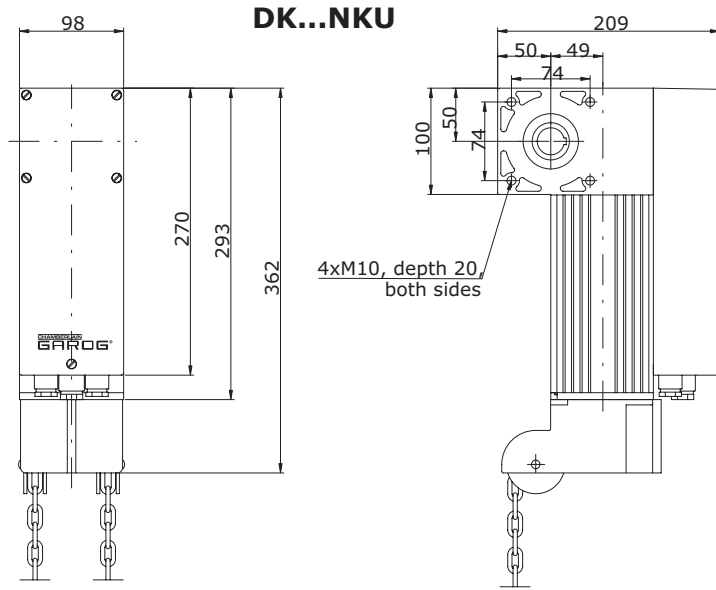
Type:	DK(S)	70/30	90/22
Motor power	P [kW]	0,37	0,37
Torque	M [Nm]	70	90
Speed	n2 [rpm]	30	22
Duty factor	DF	S3 = 60%	
Type of motor protection		IP54	
Operating voltage	U [V]	3x400	
Nominal current	I [A]	1,5 / 2,6	1,5 / 2,6
Hollow shaft	D [mm]	25,4	
Weight:	DK NHK	[kg]	10
	DK NKU		12
	DKS		11

### Accessories for sectional door drives

Article	Description
G-E719	Torque bracket E719 - zinc-plated flat steel with fixing screws for sectional doors DK(S) 70-90
G-1315	Mounting set for indirect drive - DK series - for sectional doors, complete with assembly brackets (E - 1104), 1" plug-in shaft, setting rings, chain wheel transmission ratio 1:1, 1.5 m chain, 2 pinions - ½ * 3/16"
G-HK4	Chain hoist extension (HK4) - 4m chain length, 4 mm, with two connecting elements.
G-E1111	Articulated crank (E1111) with universal joint, useful in restricted installation conditions (drive mounted on wall)

# DIMENSIONAL DRAWINGS DK / DKS DRIVES

**Fig. 1**



## CIRCUIT DIAGRAM: SEK

Chamberlain Garog base set drives include the ready wired door drive with a potential-free cam limit switch (NE) or a 24V contactor controller (STS) with cam limit switch (NEC). Various types of emergency actuators are available: The short emergency crank handle (NHK), the automatic emergency chain (NKU) as well as the quick-action clutch (DKS).

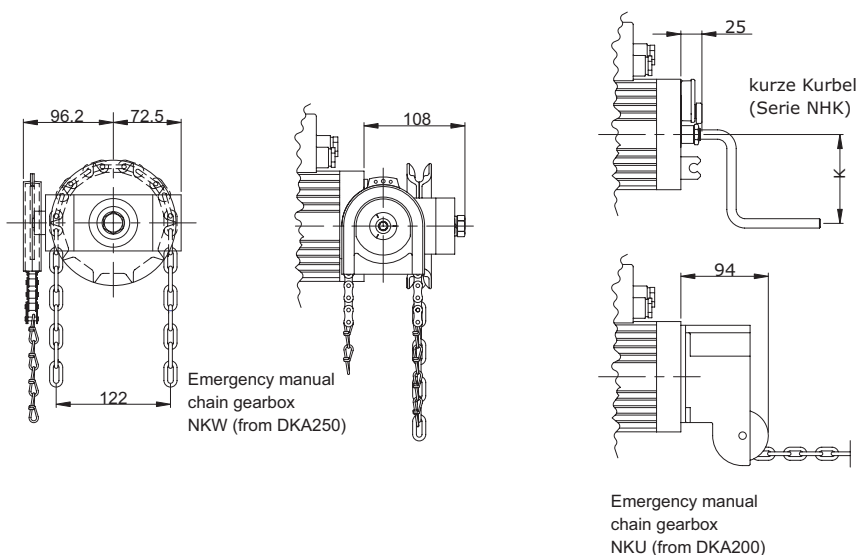
MODEL	TYPE	LIMIT SWITCH	NM	RPM	EMERGENCY ACTUATION
DKA120/16A1A	DK	NE	120	16	NHK-Emergency crank handle
DKA120/16A2B	DK	NEC-STC	120	16	NHK-Emergency crank handle
DKA200/14A1A	DK	NE	200	14	NKU-Emergency crank handle
DKA200/14A2B	DK	NEC-STC	200	14	NKU-Emergency crank handle
DKA250/14A1A	DK	NE	250	14	NHK-Emergency crank handle
DKA250/14A2B	DK	NEC-STC	250	14	NHK-Emergency crank handle
DKA250/14C2B	DK	NEC-STC	250	14	NHW-Emergency crank handle
DKA300/14A1A	DK	NE	300	14	A2B-Emergency crank handle
DKA300/14A2B	DK	NEC-STC	300	14	A2B-Emergency crank handle
DKA400/14A1A	DK	NE	400	14	A2B-Emergency crank handle
DKA500/14A1A	DK	NE	500	14	A2B-Emergency crank handle
DKA500/14A2B	DK	NEC-STC	500	14	A2B-Emergency crank handle

### Technical Data

Type:	DK(S)	120/16	200/14	250/14	300/14	400/14	500/14
Motor power	P [kW]	0,37	0,4	0,8	1,0	1,3	1,5
Torque	M [Nm]	120	200	250	300	400	500
Speed	n <sub>2</sub> [rpm]	16	14	14	14	14	14
Duty factor	DF				S3 = 60%		
Type of motor protection					IP54		
Operating voltage	U [V]	3x400, 50 Hz, PE, (3x230V, 50 Hz, PE optional)					
Nominal current	I [A]	1,6 / 2,7	2,4 / 4,1	2,8 / 4,8	3,0 / 5,2	4,5 / 7,8	5,3 / 9,2
Hollow shaft	D [mm]	30			40		
Weight: DK NHK	[kg]	10	20		22	22,5	23
Arresting torque	M <sub>f</sub> ( Nm )	651	948	1308	1401	1596	2185
ABE no.		01081	98122	98122	98122	00083	00083

## DIMENSIONAL DRAWINGS DKA DRIVES 1.1

Fig. 2

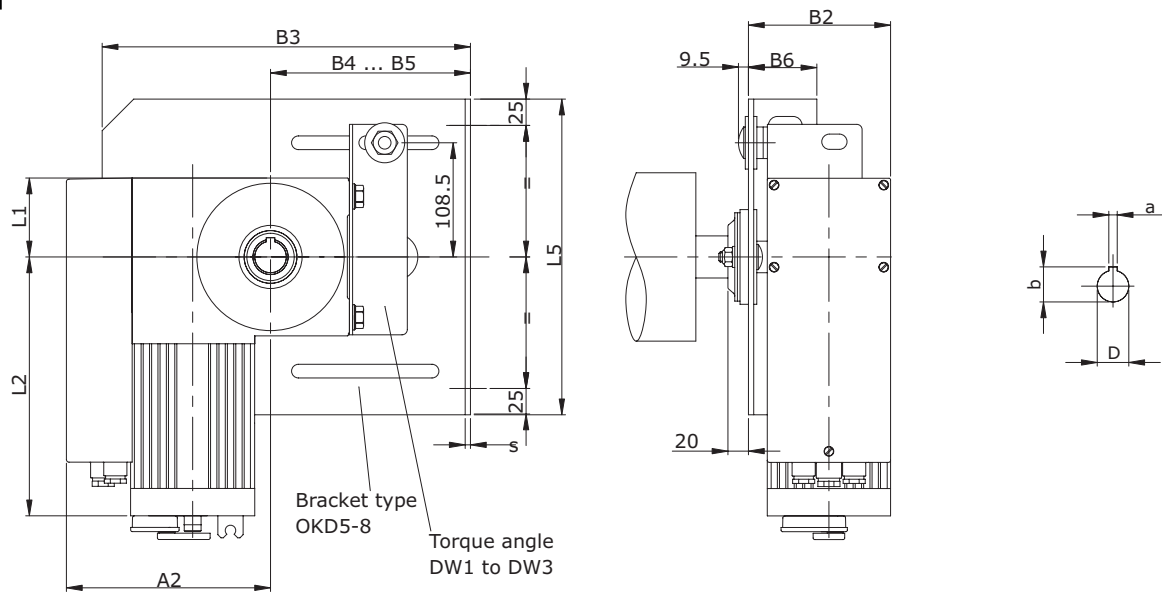




# DIMENSIONAL DRAWINGS DKA DRIVES 1.2

## Section 2

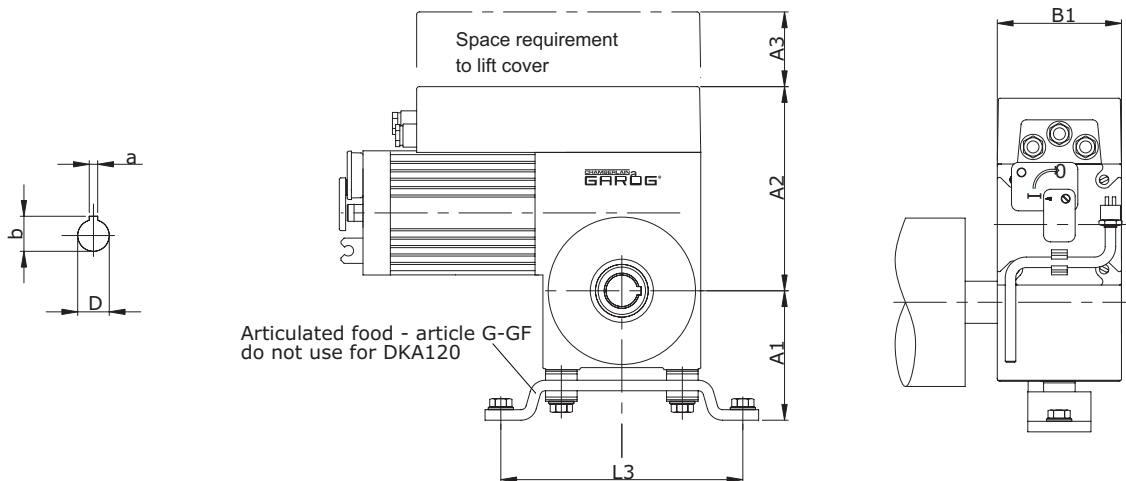
**Fig. 3**



**Drive dimensions (in mm)**

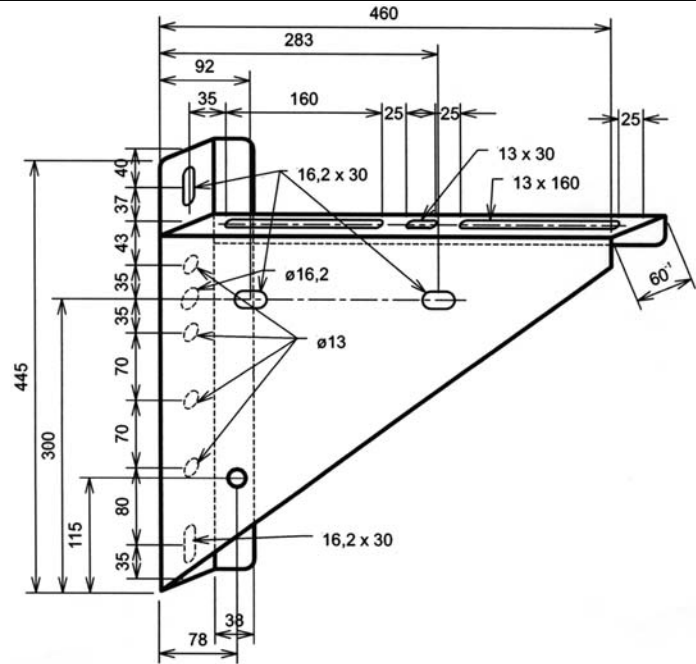
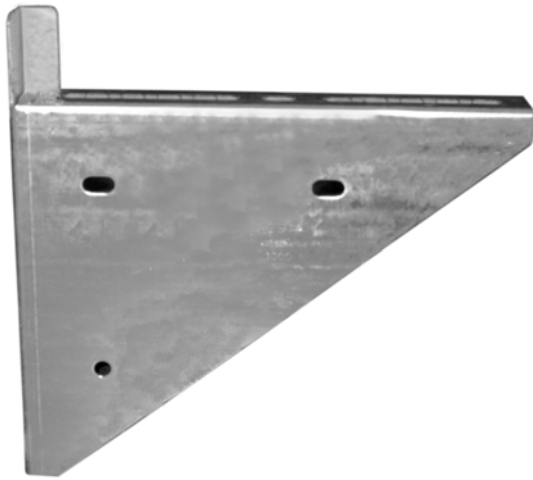
Drive type:	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	B <sub>1</sub>	B <sub>2</sub>	a	b	D
DKA120/16	56	159	71	98	117	8	33,3	30
DKA200/14	123	194	71	118	136	8	33,3	30
DKA250/14	123	194	71	118	136	8	33,3	30
DKA300/14	123	194	71	118	136	8	33,3	30
DKA400/14	138	192	36	160*	187	12	43,3	40
DKA500/14	138	192	36	160*	187	12	43,3	40

**Fig. 4**



# DIMENSIONAL DRAWINGS - ANGLE BRACKETS / UNIVERSAL BRACKETS

**Fig. 5** Angle brackets: WK3L or 3R / WK4L or 4R / WK5L or 5R

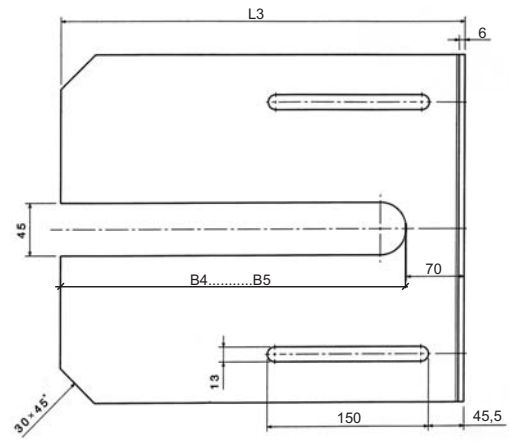
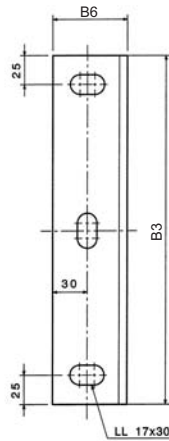


### WK angle brackets

Bracket type:	L <sub>5</sub>	B <sub>3</sub>	B <sub>4</sub>	B <sub>5</sub>	B <sub>6</sub>	Material thickness	Door weight	Article no.
WK3 L o.R	368	460	165**	310	60	3	300 kg	G-WK3 L o. R
WK4 L o.R	368	460	165**	310	60	4	450 kg	G-WK4L o. R
WK5 L o.R	445	550	170	420	65	5	700 kg	G-WK5L o. R

\*\* = 110 mm for DKA 120

**Fig. 6** OKD

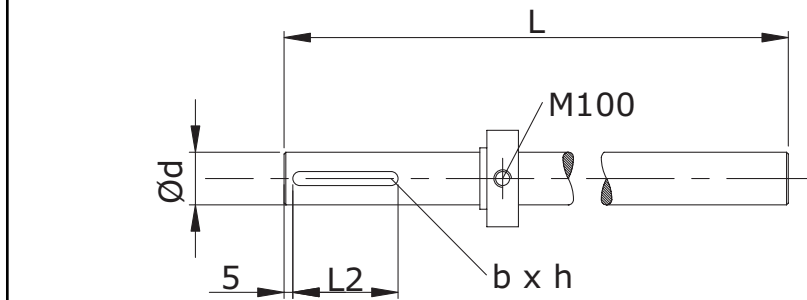


### OKD universal brackets with bearings

Bracket type:	L <sub>5</sub>	B <sub>3</sub>	B <sub>4</sub>	B <sub>5</sub>	B <sub>6</sub>	Material thickness	Door weight	Article no.
OKD 5/30	300	350	146	272	65	5	250 kg	G-OKD5/30
OKD 6/30	350	375	161	297	65	6	350 kg	G-OKD6/30
OKD 6/40	350	375	161	297	65	6	350 kg	G-OKD6/40
OKD 8/40	400	400	161	297	65	8	450kg	G-OKD8/40

## DIMENSIONAL DRAWINGS - WELDED AXES / SET COLLARS

**Fig. 7** Welded axes / set collars



**Welded axes and set collars**

Axis	Dia. d	L	L <sub>2</sub>	w x h	Use	Article no.
A30	30*	500	—	none	Bearing side	G-A30
AP30	30*	500	60	8 x 7	Drive side	G-AP30
A40	40*	500	—	none	Bearing side	G-A40
AP40	40*	500	60	10 x 8	Drive side	G-AP40
Set collar 30	30	-----	-----	-----	Both sides	G-APS30
Set collar 40	40	-----	-----	-----	Both sides	G-APS40

\* = h9 fit

## CALCULATION OF LIFTING SPEED

**Table for determination of the lifting speed & lifting force for roller doors**

Roller/bale diameter	(mm)	130	160	190	220	250	270	300	350	400
V with n <sub>2</sub> = 14 rpm	(cm/s)	10	12	14	16	18	20	22	26	29
V with n <sub>2</sub> = 16 rpm	(cm/s)	11	13	16	18	21	23	25	29	34
Lifting force with M = 120 Nm	(N*)	1477	1200	1011	873	768	711	640	549	480
M = 200Nm	(N*)	2426	2000	1684	1455	1280	1185	1067	914	800
M = 250Nm	(N*)	3077	2500	2105	1818	1600	1481	1333	1143	1000
M = 300Nm	(N*)	3692	3000	2526	2182	1920	1778	1600	1371	1200
M = 400Nm	(N*)	4923	4000	3368	2909	2560	2370	2133	1829	1600
M = 500Nm	(N*)	6154	5000	4211	3636	3200	2963	2667	2286	2000

\* = Theoretical values, direct on the winding shaft, 20% deduction for friction has already been calculated.  
With special door dimensions a load arm increase must be separately considered due to the profile thickness

### Formula for roller door speed calculation:

$$V_m = \frac{(D+d \times 3,14 \times n)}{2 \times 60} \text{ [cm/sec]}$$

**V<sub>m</sub>** = Average lifting speed in cm/sec  
**D** = Largest bale diameter in cm  
**d** = Smallest bale diameter in cm  
**n** = Nominal speed of drive in rpm  
**3,14** = Circle constant  $\pi$

# MAINTENANCE PLAN



If for whatever reason your drive does not operate as desired or not as is described in the operating manual, please first check whether you have read and correctly followed all the instructions. If faults are still occurring please make contact with your local Chamberlain dealer who will be happy to support you in rectifying the fault.



Before carrying out any maintenance work on the door drive it is first necessary to disconnect the power supply / power transmission at the main/ emergency switch. All maintenance work may only be carried out by trained "Chamberlain" specialist personnel. If necessary please contact your local Chamberlain dealer.

## Maintenance



All gearboxes are filled with lubricant in the factory. This lubricant is suitable for at least 1000 operating hours. After this time or at the very latest every 6 years it is advisable to renew the special oil. For this purpose only SHELL OMALA 460 should be used in the following filling quantities. The oil quantities for the different types of drive are as follows:

Drive	Filling quantity	Drive	Filling quantity
DK 70/30	110 ml	DKA 120/16	110 ml
DK 90/22	110 ml	DKA 200/14	130 ml
DKS 70/30	110 ml	DKA 250/14	130 ml
DKS 90/22	110 ml	DKA 300/14	130 ml
-----	-----	DKA 400/14	390 ml
-----	-----	DKA 500/14	390 ml



In the case of low running times and favourable temperature conditions the lubricant may still be fit for use even after 6 years. In this case however we still recommend that about 1/3 of the given amount of lubricant is added.

**If losses of lubricant take place it is necessary to top up with the special oil given above at the correct time.**

Before starting up, a check should be made on whether all the internal and external conditions have been met so as to ensure perfect functioning.

### Definition of qualified personnel

Within the meaning of the operating manual and the warning information concerning the product itself, these are people who are familiar with the setting out, installation, commissioning and operation of the product and have suitable qualifications for their work, such as:

- a. Training or instruction in, and authorization to connect up, switch on and off, earth and mark power circuits and devices according to the engineering safety standards.
- b. Training or instruction according to engineering safety standards in the care and use of the appropriate safety equipment.
- c. Training in first aid.

### The fitting of drive elements

The fitting of drive elements such as rope pulleys, wheels etc is best done after previous warming of the respective part.

The preheating temperature should be 100°C.

A precoating of a copper paste eases mounting and provides long-term protection from frictional corrosion.

**To avoid damage to bearings, housings and shafts the drive elements must never be mounted on the end of the shaft by hammer blows.**

The fitting of drive elements by means of pressure requires a force introduction surface (seating on output shaft).

Fitted transmission elements must be counterbalanced and must not cause any non-permitted radial or axial forces.

The corresponding tolerances must be observed during the fitting work (see dimension drawing).

## SPARE PARTS

The spare parts kits obtainable for your drive are given in the following parts lists. If your drive already has optional modifications and/or accessories, certain parts can be added or removed from the list. Possibly individual parts of a kit are not obtainable - please contact a member of staff responsible for spare parts and maintenance. He will be happy to inform you about the availability of individual parts in the kits listed below.

You will find general information on ordering on page 24.

### MOTOR / GEARBOX

Art. no: GA-DK70/30  
Art. no: GA-DK90/22  
Art. no: GA-DK120/16  
Art. no: GA-DK200/14

Art. no: GA-DK250/14  
Art. no: GA-DK300/14  
Art. no: GA-DK400/14  
Art. no: GA-DK500/14

### LIMIT SWITCHES

NEC cam limit switch system for DK70 - DKA120  
NEC cam limit switch system for DK200 - DKA300  
NEC cam limit switch system for DK300 - DKA500  
NE cam limit switch system for DK70 - DKA120  
NE cam limit switch system for DKA200 - DKA300  
NE cam limit switch system for DKA400 - DKA500

### MECHANICAL SPARE PARTS

Art. No.: 041G-NHK-GH1 Emergency hand crank for GH1/DK series  
Art. No.: 041G-NHK-GH2 Emergency hand crank for GH2/DK series  
Art. No.: 041G-NHK-GH3 Emergency hand crank for GH3/DK series



## Declaration of Conformity

The industrial door drive .....

corresponds to the applicable sections and standards .....

in accordance with the regulations and amendments

of EU Guidelines.....73/23EEC & 89/336/EEC

## Manufacturer's Declaration

Provided that the **industrial door drive, Series DK type** is installed and maintained in accordance with all the manufacturer's instructions in conjunction with an industrial door, which is also installed and maintained in accordance with all the manufacturer's instructions, it meets the regulations of **EU Guideline 89/239/EEC** in its amended form.

Chamberlain-GmbH  
66793 Saarwellingen  
August 2004



### This is how to order:

When ordering spare parts or accessories we need  
the following information from you:  
Part number, description, model number

#### IN NORTH AMERICA

**ADDRESS FOR ORDERS:**  
The Chamberlain Group Inc.  
Electronic Parts and Service Department  
2301 N. Forbes Blvd., Suite 104  
Tucson, Arizona 85745 USA

**TEL. NO. FOR ORDERS:**  
1-520-792-0511

**FAX NO. FOR ORDERS:**  
1-520-884-0966

**TECHNICAL HOTLINE:**  
1-800-528-2806

#### IN EUROPE

**ADDRESS FOR ORDERS:**  
Chamberlain-GmbH  
Alfred-Nobel-Str. 4  
66793 Saarwellingen

**TEL. NO. FOR ORDERS:**  
+(49) 6838-907222

**FAX NO. FOR ORDERS:**  
+(49) 6838-907179

**TECHNICAL HOTLINE:**  
+(49) 6838-907222

**ONLINE-SERVICE:**  
[www.garog-service.de](http://www.garog-service.de)