Marantec
Antriebstechnik

GB

Operating instructions

Last updated: 04.2016

Motor unit for hinged gates

Comfort 560

Table of Contents

⚠ DANGER!

IMPORTANT SAFETY INSTRUCTIONS:
ATTENTION! IT IS VITALLY IMPORTANT FOR THE SAFETY OF PERSONS THAT YOU FOLLOW ALL THE INSTRUCTIONS.
KEEP THESE INSTRUCTIONS IN A SAFE PLACE.

IMPORTANT INSTRUCTIONS FOR SAFE INSTALLATION:
ATTENTION! SERIOUS INJURIES CAN BE CAUSED IF THE EQUIPMENT IS NOT INSTALLED CORRECTLY – BE SURE TO FOLLOW ALL THE INSTALLATION INSTRUCTIONS.

Regarding this document

– Original instruction manual.
– Part of the product.
– Read these instructions carefully before use and keep them in a safe place for future reference.
– Protected by copyright.
– No part of this manual may be reproduced without our prior approval.
– Subject to alterations in the interest of technical progress.
– All dimensions are given in millimetres.
– The drawings are not true to scale.

Meaning of symbols

⚠ DANGER!

Safety notice indicating a danger that will directly result in death or severe injury.

⚠ WARNING!

Safety notice indicating a danger that could result in death or severe injury.

⚠ CAUTION!

Safety notice indicating a danger that could result in slight or moderate injuries.

NOTICE

Safety notice indicating a danger that could result in damage to property or in irreparable damage to the product.

CHECK

Reference to a check that needs to be carried out.

REFERENCE

Reference to separate documents that must be observed.

• Instruction requiring action

– List, itemisation

➔ Reference to other sections of this document

Factory settings

1. General safety instructions

⚠ DANGER!

Failure to comply with the documentation could result in life-threatening danger!

- Be sure to follow all the safety instructions in this document.

1.1 Intended use

– The motor unit is to be used only for opening and closing hinged gates.
– Never use the gate system to help move persons or objects.

The following applies for this product Comfort 560:
– The path of the gate must be horizontal. Do not install on inclined surfaces (gates on a slope are special cases that require expert advice).
– The following values must be observed:
  – Maximum torque value
  – Maximum gate size
  – Maximum gate weight

➔ "11.1 Technical data"

– The product is suitable for operating hinged gates only.

1.2 Target group

– Installation, connection, setting in operation and servicing: qualified, trained specialist personnel.
– Operation, inspection and maintenance: the operator of the gate system.

Requirements to be met by qualified and trained specialist staff:
– Knowledge of the general and specific safety and accident-prevention regulations.
– Knowledge of the relevant electrical regulations.
– Training in the use and care of appropriate safety equipment.
– Adequate instruction and supervision by qualified electricians.
– The ability to recognise hazards that can be caused by electricity.
– Knowledge of the application of the following standards
  – EN 12635 ("Doors and gates - Installation and use"), EN 12453 ("Safety in use of power operated doors - Requirements"),
  – EN 12445 ("Safety in use of power operated doors - Test methods"),
  – EN 13241-1 ("Industrial, commercial and garage doors and gates - Part 1: Products without fire resistance or smoke control characteristics")

Requirements to be met by the operator of the gate system:
– Knowledge and safekeeping of the instruction manual.
– Safe and proper keeping of the inspection logbook.
– Knowledge of general safety and accident-prevention regulations.
– Instruction of all persons who use the door system.
– Ensure that the door system is serviced and maintained periodically by qualified and trained professionals.

Special requirements apply to the following users:
– Children aged eight and above.
– Persons with with reduced physical, sensory or mental capabilities.
– Persons with a lack of experience and knowledge.

These users are only authorised to operate the device.
Special requirements:
– The users must be supervised.
– The users must have been briefed on how to use the device.
– The users must understand the dangers involved in handling the device.
– Children are not allowed to play with the device.

1.3 Warranty

The product is manufactured in accordance with the guidelines and standards listed in the manufacturer's declaration and in the declaration of conformity.
The product left the factory in perfect order with regard to safety.

In the following cases, the manufacturer will accept no liability for damage. The warranty on the product and accessory components becomes void in the event of:
– failure to observe these operating instructions,
– incorrect handling and use of the product for anything other than its intended purpose,
– the deployment of unqualified personnel,
– changes or modifications being made to the product,
– the use of replacement parts that have not been approved or were not produced by the manufacturer.

The warranty does not include batteries, rechargeable batteries, fuses or bulbs.

Further safety instructions are given in the relevant sections of the document.

➔ "4. Installation"
➔ "6. Care and cleaning"
➔ "8. Disassembly"

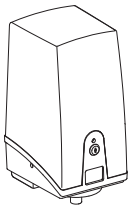
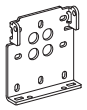
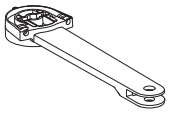
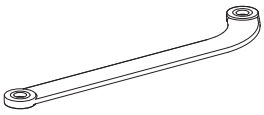
2. Scope of supply

Standard scope of supply
The following models of the Comfort 560 are available:

Single-wing gate system:
– Comfort 560

Double-wing gate system:
– Comfort 560
  2x motor unit with connection cable

The scope of supply is doubled for the double-wing model.

Item	Gate opener	
1		1x
2		1x
3		1x
4		1x
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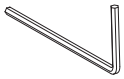
6		1x
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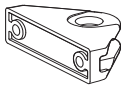
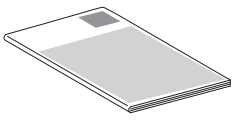
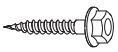
8		1x
9		1x
10		1x

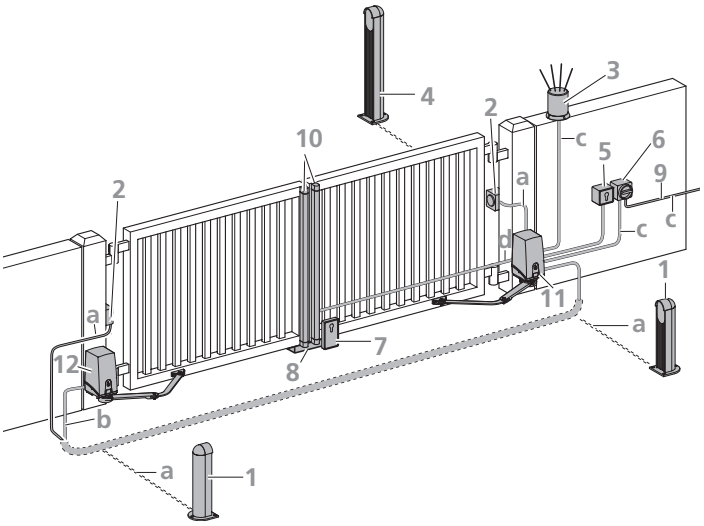
Item	Bag of screws for rotating arm	
11		4x
12		3x
13		2x
14		2x
15		1x
16		2x
17		1x
18		1x

Item	Bag of screws for gate opener	
19		4x
20		2x
21		6x
22		2x
23		2x

Item	Bag of screws for mounting plate	
24		1x
25		8x
26		8x
27		4x

3. Gate system

3 / 1



This is just an example of a gate system. The details can vary according to the type of gate and the associated equipment. The system shown comprises the following components:

1 Photocell
2 Photocell
3 Signal light
4 Free-standing post (for code keypad, transponder etc.)
5 Key switch
6 Mains switch (mains isolator switch)
7 Electric lock
8 Stop plate
9 Mains cable
10 Closing edge safety device (SKS/8K2)
11 Gate opener with integrated controls
12 Gate opener without controls

Cable cross-sections:

a 2 x 0.5 mm²
b 8 x 0.75 mm²
c 3 x 1.5 mm²
c 2 x 0.75 mm²

REFERENCE

For the installation and cabling of the parking barrier sensors, control elements and safety equipment, the relevant installation instructions must be observed.

4. Installation

DANGER!

Life-threatening danger due to electric shock!

- It is vital that you disconnect the opener system from the power supply before commencing cabling work. Take measures to ensure that the power supply remains disconnected for the duration of the work.
- Observe the local safety regulations.
- It is imperative that you lay power cables separately from control cables.
  The control voltage is 24 V DC.

NOTICE

Material damage due to incorrect installation of the opener!

To avoid installation errors and damage to the gate or opener system, the following installation instructions must be observed at all costs.

- Ensure that the gate is in good mechanical condition:
  – The gate can be moved easily.
  – The gate opens and closes properly.
- When installing the motor unit, the gate must be in the closed position.
- Only use fixing materials that are suitable for the foundation material in question.

4.1 Preparing for installation

Before commencing installation, the following works must be carried out without fail.

Scope of supply
- Check that all the parts are present.
- Check that all the necessary accessory parts for your installation situation are to hand.

Gate system
- Ensure that a suitable mains connection and a mains disconnection facility are available for your gate system.
  The cross-section of the earth cable must be at least 3 x 1.5 mm^2.
- Ensure that all cables are suitable for outdoor use (with respect to UV resistance and cold resistance).
- Ensure that a suitable control system is available.
- In the case of double-wing gates, you must provide a cable to connect the second gate opener to the controls.
  The cross-section of this cable must be at least 8 x 0.75 mm^2.
- Make sure that your gate system has a stop plate to prevent the gate from travelling beyond the closed position.
- Remove the gate catches or take them out of service.
- Ensure that the gate can be moved easily by hand.
- Observe the gate requirements:

➔ "11.1 Technical data"

The use of an electric lock is recommended.

REFERENCE

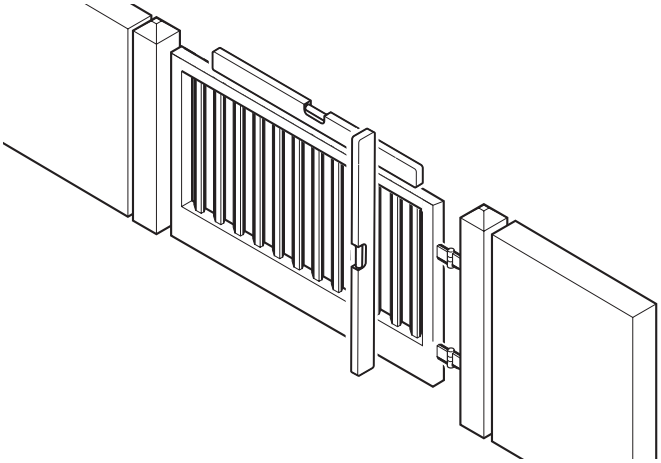
When using and installing accessory equipment, observe the corresponding documentation.

4.2 Installation conditions

NOTICE

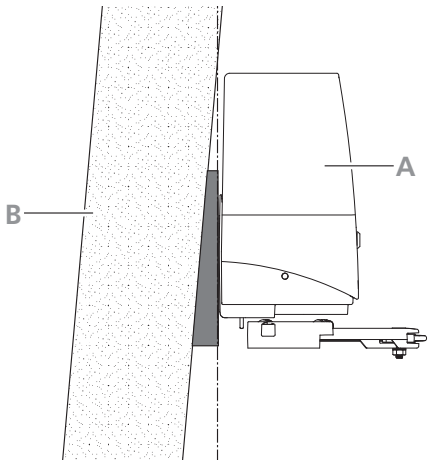
Possible malfunction of the motor unit!
In order to ensure that the motor unit functions correctly, all of the installation instructions must be followed.

4.2 / 1



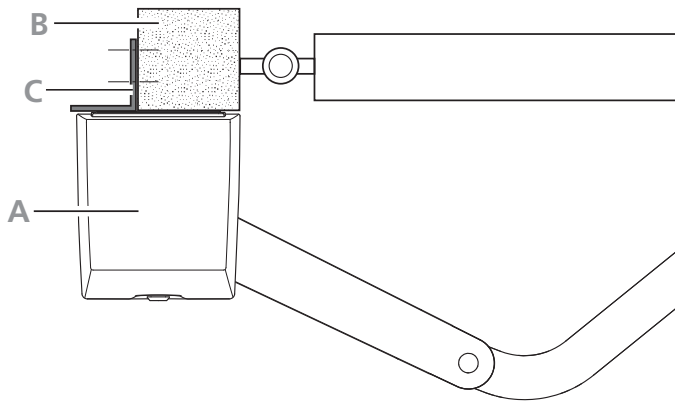
– The gate must be horizontally and vertically aligned.

4.2 / 2



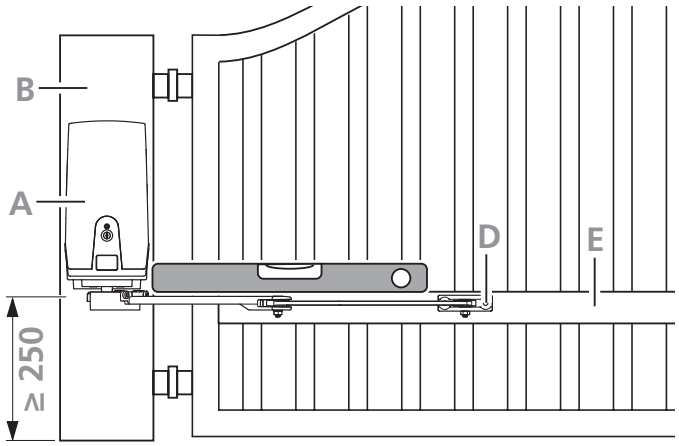
– When fixed in place on the post (B), the motor unit (A) must be vertical.
– Compensating measures must be taken if the surface of the post is inclined or uneven.

4.2 / 3



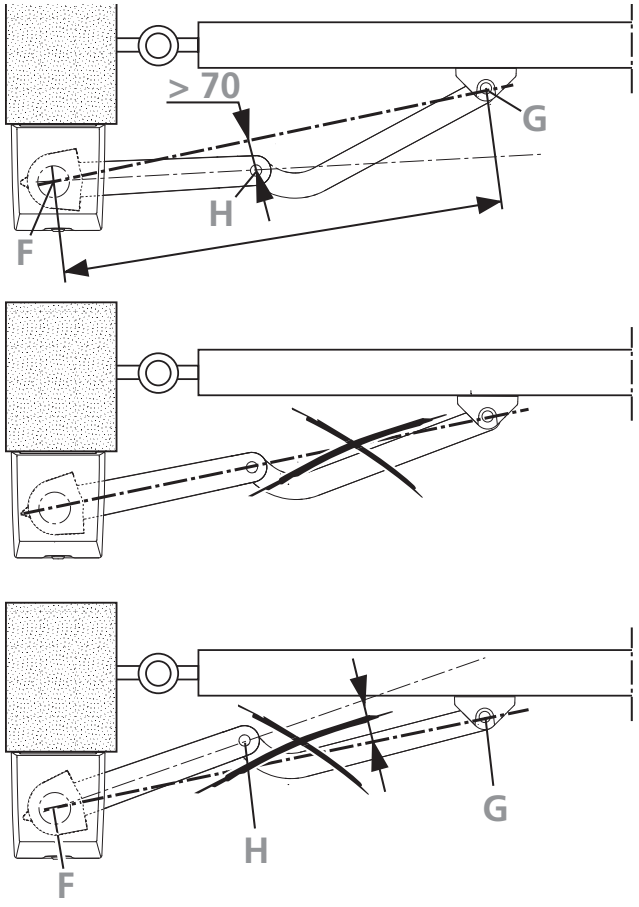
– The entire mounting surface of the motor unit (A) must be in contact with the post (B).
– If the post is too narrow, it must be widened using appropriate assembly aids (C).

4.2 / 4



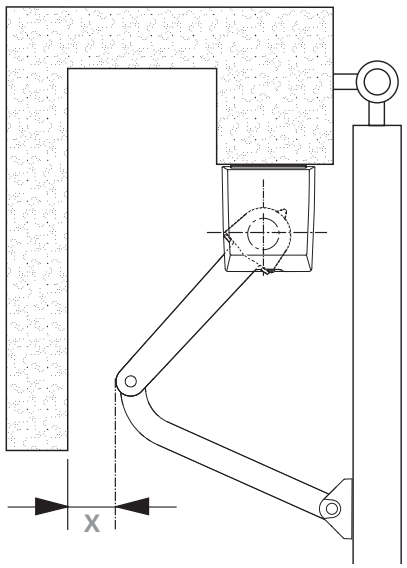
– The motor unit (A) must be horizontally aligned when fixed to the gate and the post (B).
– The motor unit (A) must be fixed at a height of at least 250 mm above the ground.
– The gate bracket (D) must be screwed securely to the gate wing. If the gate does not have a suitable surface to which the bracket can be fixed, an appropriate mounting aid (E) must first be fixed to the gate.

4.2 / 5



– The articulated arm must be fixed to the closed gate in such a way that:
  – the pivot on the articulated arm (H) is at least 70 mm from the line between the pivot at the motor unit (F) and the pivot at the mounting bracket (G),
  – the distance between the pivot at the motor unit (F) and the pivot at the mounting bracket (G) is as large as possible,
  – the distance between the pivot at the motor unit (F) and the pivot at the mounting bracket (G) is not greater than 860 mm.

4.2 / 6



– The dimension X must be at least 500 mm.

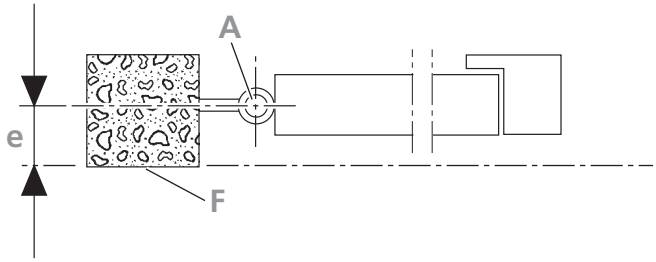
⚠ CAUTION!

Risk of injury due to crushing!
If the dimension X is less than 500 mm, then the forces must be measured in accordance with standard EN 12445. The measured forces must comply with those specified in standard EN 12453.

4.3 Installation dimensions

Determine the e value

4.3 / 1



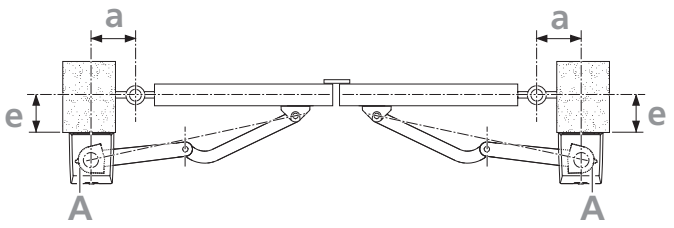
The e value is needed to determine the type of post bracket required.

e Distance between the mounting surface for the motor unit and the pivot of the gate
A Gate pivot
F Mounting surface for the motor unit

Positive e value (Fig. "4.3 / 1")
The pivot (A) lies behind the mounting surface (F) of the motor unit. The system can be installed using the standard equipment supplied.

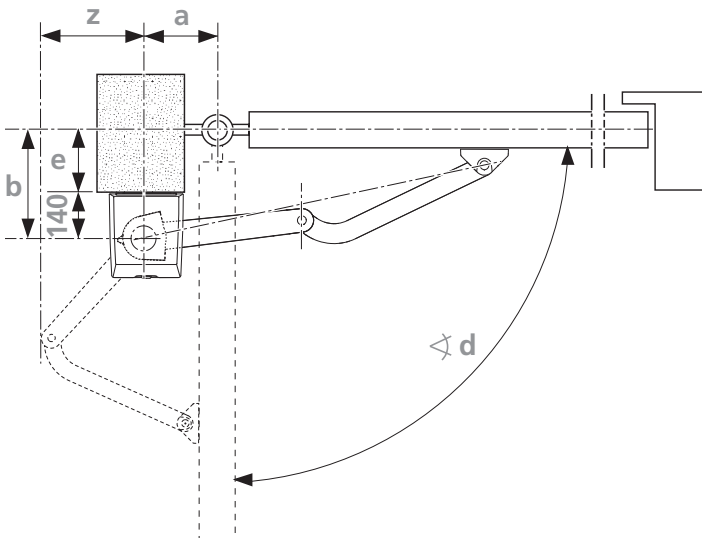
Negative e value
If the e value is negative, it is not possible to install the standard model.
The e value must be at least "0".

4.3 / 2



– If the gate has two wings, the mounting dimensions (a and e) of the two motor units (A) must be identical.

4.3 / 3



– In order to achieve the desired opening angle (d) of the gate wing, dimensions (a) and (b) must be taken into consideration.

The dimensions given here are only approximate. The exact travel limit positions are set during the end position programming sequence.

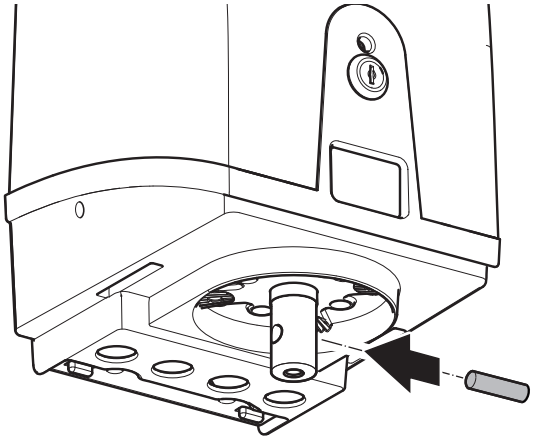
Dimensions table for Comfort 560

(b)	(a)					
	150		200		250	
	d	z	d	z	d	z
140	100°	407	110°	419	115°	427
190	95°	372	105°	415	110°	424
240	95°	390	100°	407	105°	417
290	95°	406	100°	418	105°	425
340	90°	391	100°	427	105°	430
390	90°	403	95°	412	100°	411

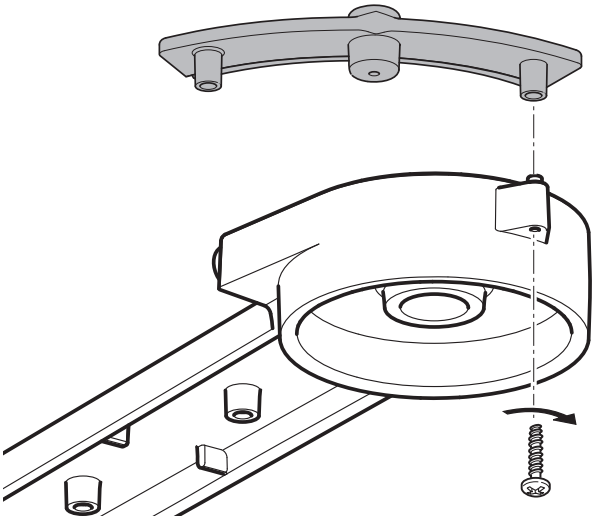
The dimensions tables apply only in the case of standard fittings.

4.4 Assembling the articulated arm

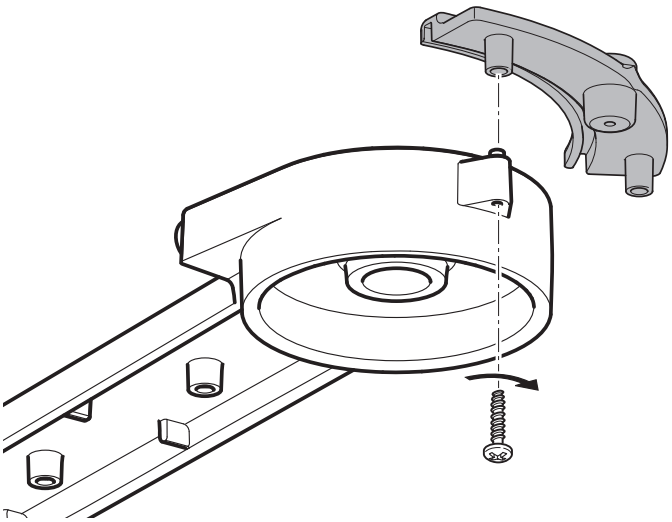
4.4 / 1



4.4 / 2 **Installing the reference point magnet on the rotating arm with the motor on the left-hand side**



4.4 / 3 **Installing the reference point magnet on the rotating arm with the motor on the right-hand side**



Before installation, all of the swivel joints (F, G and H) must be greased using the supplied lubrication pad.

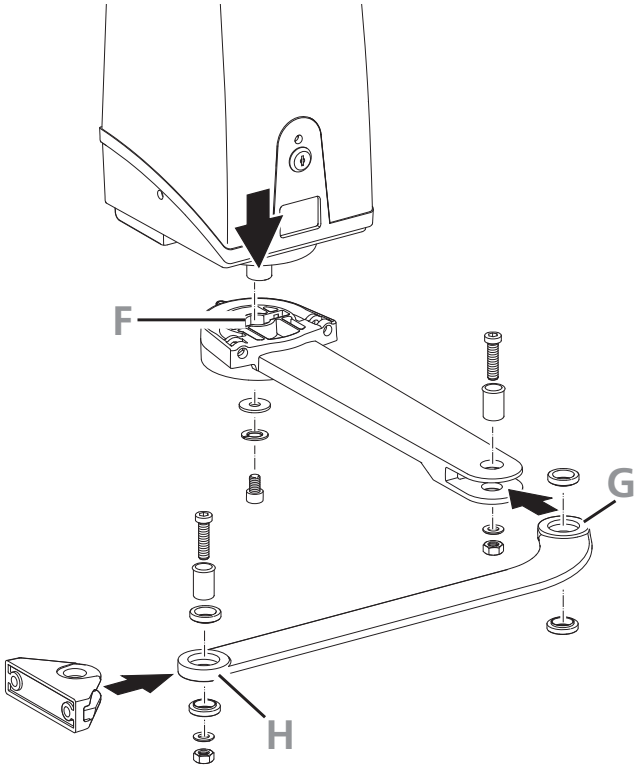
NOTICE

Material damage due to incorrect installation of the motor unit!

The sleeves must be pressed into place with force before you secure the screws.

- Take care not to bend or damage the articulated arms.

4.4 / 4



4.5 Fixing to the gate

NOTICE

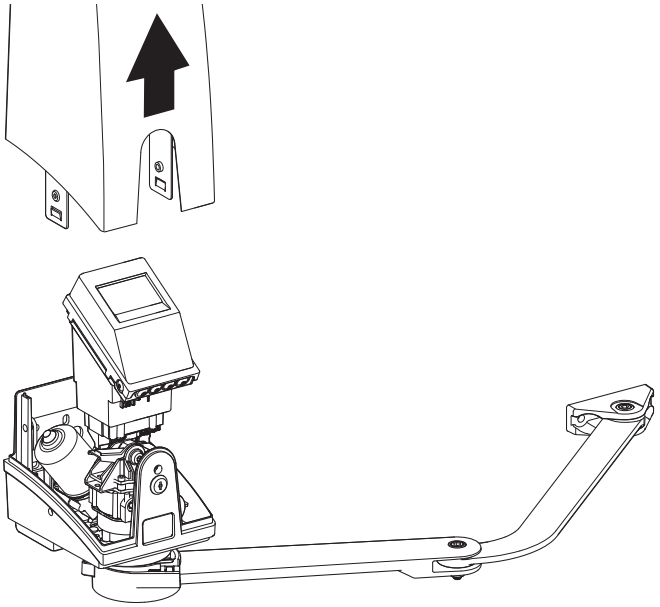
Material damage due to incorrect installation of the motor unit!

Screw fixing the motor unit too tightly can break the motor unit or cause it to malfunction.

Both of the articulated joints should still have a small amount of play after fixing. Too much play in the articulated joints will result in start-up noise/knocking and will increase wear of the motor unit.

- Ensure that the fixing screws that connect the bracket and motor unit are fitted properly.

4.5 / 1



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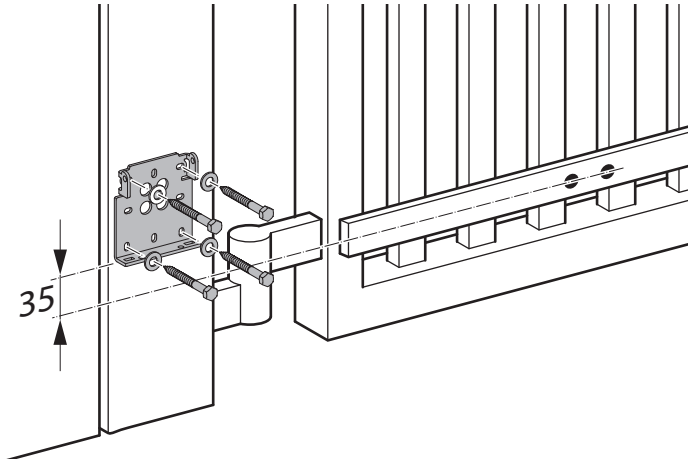

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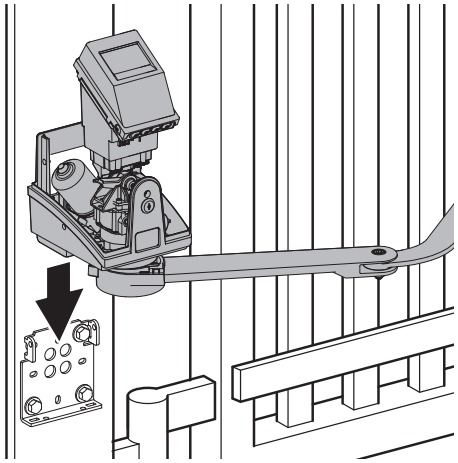

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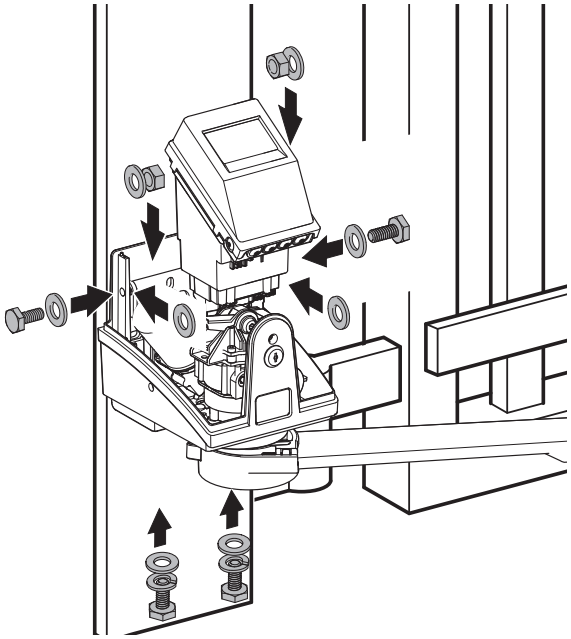

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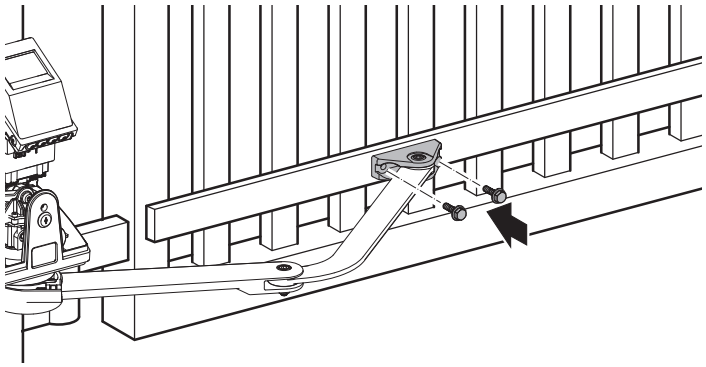

✓ CHECK

The following checks must be carried out in order to ensure correct installation:

- Release the gate opener.

➔ "5.2 Emergency operation"

- Move the gate manually to the OPEN and CLOSED end positions.

4.6 Connecting to the control unit

Connecting the articulated arm drive

4.6 / 1

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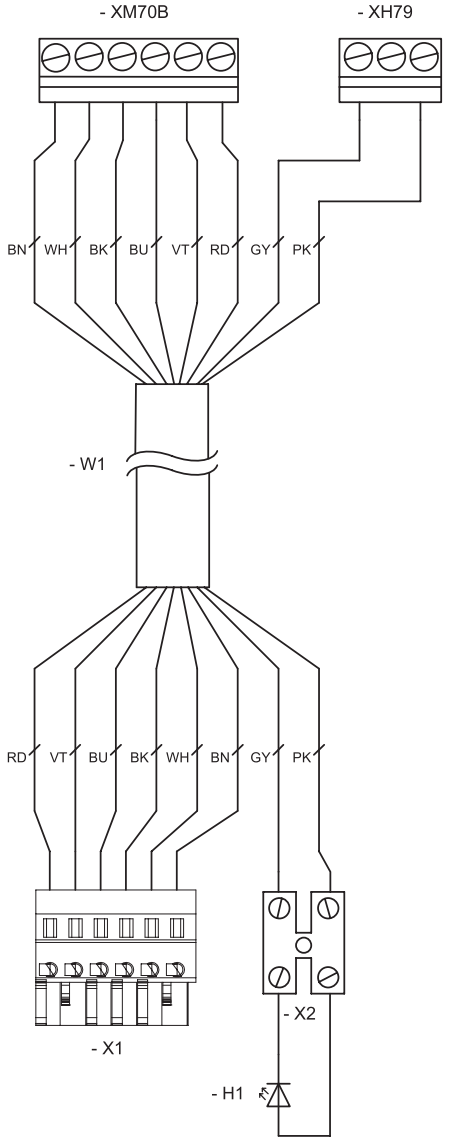


BU	Blue
BN	Brown
GY	Grey
PK	Pink
RD	Red
BK	Black
VT	Purple
WH	White

H1	LED lighting module (slave)
X1	Motor connection slave / Unit
X2	2-pole luster terminal
XH79	Signal light connection
XM70B	Motor connection slave / Control unit

To change the rotational direction of the motor, connections A1 and A2 on terminal -XM70B(A) in the control unit must be swapped.

REFERENCE

Follow the instructions in the relevant documentation when connecting to the control unit.

5. Operation

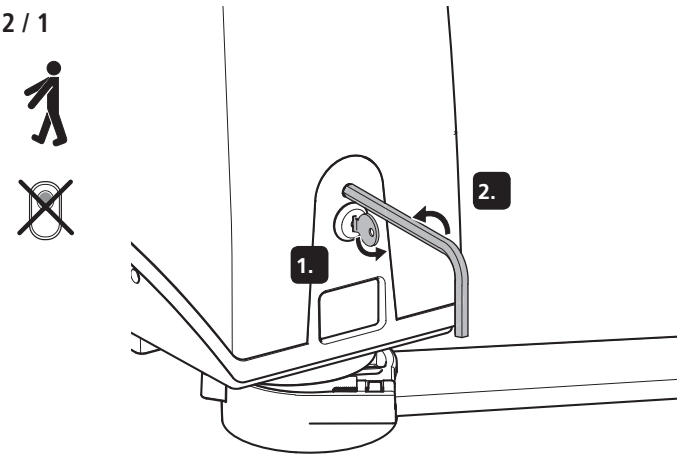
5.1 Hand transmitter

REFERENCE

Follow the instructions in the relevant documentation when using a hand transmitter to operate the system.

5.2 Emergency operation

5.2 / 1



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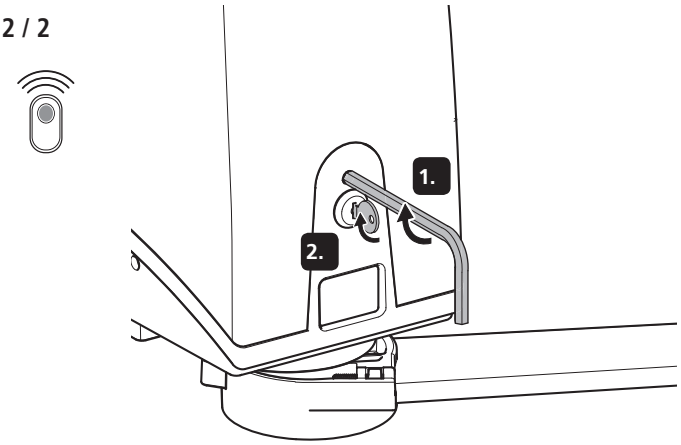


6. Care and cleaning

DANGER!

Life-threatening danger due to electric shock!

- It is vital that you disconnect the gate opener system from the power supply before cleaning. Take measures to ensure that the power supply remains disconnected for the duration of the cleaning operation.

NOTICE

Damage resulting from incorrect handling!
When cleaning the gate opener system, never use:
direct water jets, high pressure cleaners, acids or alkaline solutions.

- Clean the outside of the housing using a damp cloth.

If particularly dirty, the housing can be cleaned using a mild detergent.

7. Maintenance

7.1 Maintenance work by the operator

Damage or wear to a door system must only be rectified by qualified and trained professionals.
To ensure fault-free operation, the gate system must be inspected regularly and, if necessary, be repaired. Before starting work on the gate system, the opener system must always be disconnected from the power supply.

- Check once a month that the opener system reverses when the gate touches an obstacle. To check this, place an obstacle in the path of the gate.
- Check all the moving parts of the gate system and the opener system.
- Check the gate system for signs of damage or wear and tear.
- Move the gate manually to check that the it travels easily and smoothly.
- Check that the photocell functions properly.
- Check that the closing edge safety device functions properly.
- Check the power supply cable for signs of damage.
  For safety reasons, if the power supply cable is damaged it must be replaced by the manufacturer or his customer service department, or by a similarly qualified person.

7.2 Maintenance work by qualified and trained professionals

Power-operated windows, doors and gates must be inspected by qualified and trained professionals whenever necessary, but at least once a year (written inspection records must be kept).

- Test the driving power with a force tester designed for this purpose.
- Replace any damaged or worn parts.

8. Disassembly

DANGER!

Life-threatening danger due to electric shock!

- It is vital that you disconnect the gate opener system from the power supply before disassembly. Take measures to ensure that the power supply remains disconnected during disassembly.

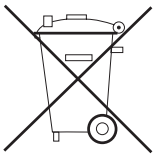
WARNING!

Possibility of serious injury if disassembled incorrectly!

- Observe all the applicable health and safety regulations.

The system must be dismantled by qualified and trained professionals, following the installation instructions in reverse order.

9. Disposal



Do not dispose of old equipment or batteries with the normal household waste!

- Dispose of old devices at a waste collection centre for electronic waste or via a specialist dealer.
- Dispose of old batteries in a battery recycling container or via a specialist dealer.
- Dispose of the packaging material in the special waste collection containers for paper, cardboard and plastic.

10. Rectifying faults

REFERENCE

To rectify faults, follow the instructions in the control unit documentation.

11. Appendix

11.1 Technical data

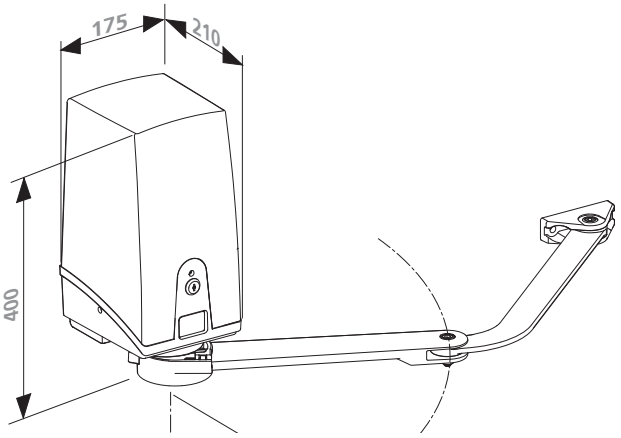
Electrical data		
Rated voltage, regional deviations are possible	V	230 / 260
Rated frequency	Hz	50 / 60
Current input	A	3.2 / 1.7 / 1.5
Power consumption during operation*	kW	0.4
Power consumption in stand-by*	W	Approx. 3.2
Short-term duty cycle	min	5
Control voltage	V DC	24
Motor unit protection category		IP 44
Protection class		I

* without any additional equipment connected

Mechanical data		
Torque	Nm	120
Operating speed	rpm	2.3
Opening time, varies with gate type	s	15-25

Physical data

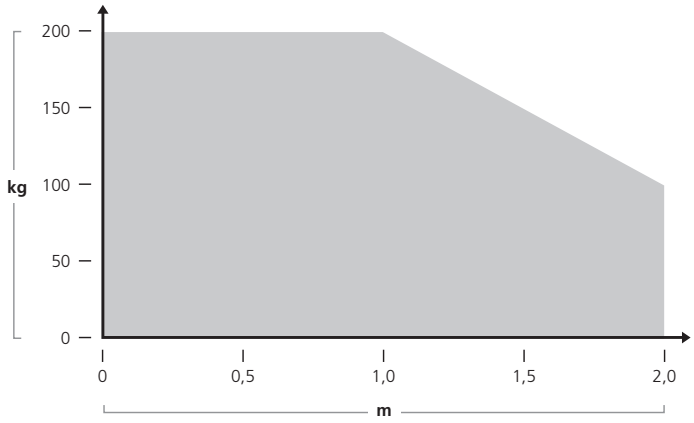
Dimensions of motor unit



Weight (single-wing gate system)	kg	7.00
Weight (double-wing gate system)	kg	15.00
Sound pressure level	dB(A)	< 70
Temperature range	°C	-20
	°C	+60

Areas of application		Comfort 560
Hinged gates		
– Max. width of gate leaf	mm	2,000
– Max. gate height	mm	2,000
– Max. weight of gate leaf		
for gate widths up to 1.5 m	kg	200
for gate widths up to 2.0 m	kg	150
Gate incline	% max.	0

Force diagram



11.2 Declaration for the incorporation of a partly completed machine

(Declaration of Incorporation in line with EC Machinery Directive 2006/42/EC in accordance with Annex II, Part 1 B)

Manufacturer:
Marantec Antriebs und Steuerungstechnik GmbH & Co. KG
Remser Brook 11, 33428 Marienfeld, Germany

The partly completed machine (product):
Hinged-gate opener Comfort 560
Revision status: R01

has been developed, designed and manufactured in accordance with the:
- EU Machinery Directive 2006/42/EC
- EU RoHS Directive 2011/65/EU
- EU Low Voltage Directive 2014/35/EU
- EU Electromagnetic Compatibility Directive 2014/30/EU
- Radio Equipment Directive (RED) 2014/53/EU

Applied and referenced standards and specifications:
- EN ISO 13849-1, PL "c", Cat. 2
  Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design
- EN 60335-2-103
  Household and similar electrical appliances – Safety – Part 2-103: Particular requirements for drives for gates, doors and windows.
- EN 61000-6-3/2
  Electromagnetic compatibility – Emitted interference and immunity

The following requirements of EC Directive 2006/42/EC were complied with:
General principles, No. 1.1.2, 1.1.3, 1.1.5, 1.1.6, 1.2.1, 1.2.2, 1.2.3, 1.2.6, 1.3.1, 1.3.4, 1.3.7, 1.3.8, 1.3.9, 1.4.1, 1.4.3, 1.5.1, 1.5.4, 1.5.6, 1.5.8, 1.5.14, 1.7
Furthermore, we declare that the special technical documentation for this partly completed machine was prepared in accordance with Annex VII Part B and we undertake to supply these documents, in electronic form, to the national authorities in response to a duly reasoned request.

This partly completed machine is intended only for installation in a door system, in order to create a complete machine pursuant to Machinery Directive 2006/42/EC. The door system may not be set in operation until it has been ascertained that the complete system complies with the requirements of the above-mentioned EC directives.

This declaration shall no longer be valid if changes are made to the product without our authorisation.

Authorised agent for the preparation of the technical documentation:
Marantec Antriebs- und Steuerungstechnik GmbH & Co. KG,
Remser Brook 11 · 33428 Marienfeld · Germany
Fon +49 (5247) 705-0

Marienfeld, 1 February 2016 — M. Hörmann, Director

CE EAC

Identification plate, motor unit 1

Type A _____

Rev (B) _____

Art. No. (C) _____

Prod. No. (GB) _____

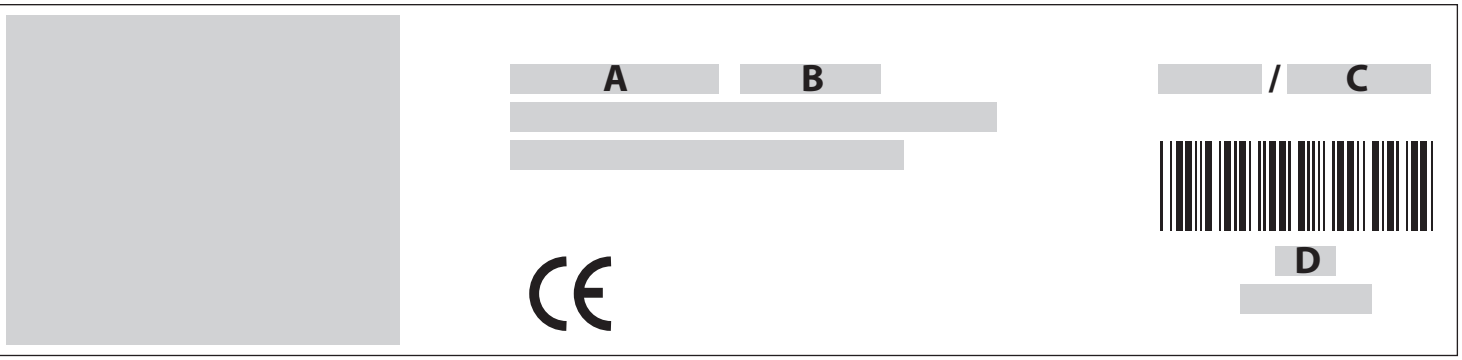
Identification plate, motor unit 2 (only double wing)

Type A _____

Rev (B) _____

Art. No. (C) _____

Prod. No. (GB) _____



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