



Operating instructions

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Motor unit for hinged gates Comfort 516

works with



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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.

Safety instructions



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.



ATTENTION!

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

Meaning of symbols

- Instruction requiring action
- ✓ Check
- List, itemisation
- Reference to other sections of this document
-  Reference to separate documents that must be observed
-  Factory settings

1. Safety information

WARNING!

Risk of death if the operating manual is ignored!

This manual contains important information for the safe handling of the product. Possible dangers are specifically highlighted.

- Read this manual through carefully.
- Observe the safety information in this manual.
- Store the manual in an accessible location.

1.1 Intended use

The operator system is to be used only for opening and closing gates.

This use is not permitted:

- Use in private settings.
- On revolving gates.
- With suitable controls.
- In a technically problem-free condition.
- Following correct installation.
- With adherence to the specifications in the technical data.

→ "2.2 Technical data"

Every other use qualifies as incorrect.

1.2 Target group

1.2.1 Operator

The operator is responsible for the building that the product is used in. The operator has the following tasks:

- Knowledge and safekeeping of the instruction manual.
- Instruction of all persons who use the door system.
- Ensure that the gate system is serviced and maintained regularly by qualified professionals according to the manufacturer's specifications.
- Ensure inspection and maintenance are documented in the inspection logbook.
- Safe and proper keeping of the inspection logbook.

1.2.2 Technical personnel

Qualified technical personnel are responsible for installation, commissioning, service, repairs, disassembly, and disposal.

Requirements to be met by qualified specialist staff:

- Knowledge of the general and specific safety and accident-prevention regulations.
- Knowledge of the relevant electrical regulation.
- Training in the use and care of appropriate safety equipment.
- 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").

Technical electrical work may only be completed by qualified electricians in accordance with DIN VDE 0100.

Requirements to be met by electricians:

- Knowledge of basic electrical principles.
- Knowledge of country-specific specifications and standards.
- Knowledge of the relevant safety regulations.
- Knowledge of these operating instructions.

1.2.3 User

Trained users operate and care for the product.

Requirements to be met by trained users:

- Users have been instructed on their work by the operator.
- The users must have been instructed on how to use the product safely.
- Knowledge of these operating instructions.

Special requirements apply to the following users:

- Children aged eight and above.
- Persons 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 General safety advice

Never use the gate system to help move persons or objects.

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.
- Work being carried out by unqualified personnel.
- Changes or modifications to the product.
- The use of replacement parts that have not been approved or were not manufactured by the manufacturer.

The product is manufactured in accordance with the directives and standards listed in the manufacturer's declaration and in the declaration of conformity. The product left the factory in perfect working order.

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

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

→ "3.1 Example application"

→ "4.1 Safety instructions for operation"

2. Product information

2.1 Supply package

The Comfort 516 can be supplied in the following versions, as required:

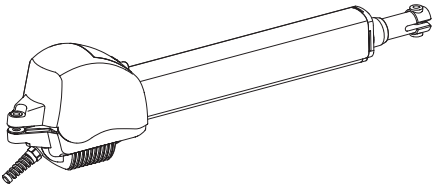
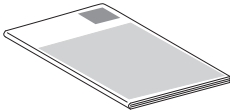
- Single wing gate system:**
- Comfort 516 – short version
1x motor unit with short cable (1.5 m)
 - Comfort 516 L – long version
1x motor unit with short cable (1.5 m)

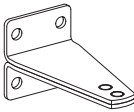
- Double wing gate system:**
- Comfort 516 – short version
1x motor unit with short cable (1.5 m)
1x motor unit with long cable (8.5 m)
 - Comfort 516 L – long version
1x motor unit with short cable (1.5 m)
1x motor unit with long cable (8.5 m)

The scope of supply is doubled in the case of double wing gate versions.

- Use the table to check the scope of delivery for your product variant.

Country-specific deviations are possible.

Item	Operator	
1		1x
2		1x

Item	Accessories	
3		1x
4		1x
5		1x
6		8x
7		4x
8		8x
9		2x
10		2x
11		1x
12		1x

2.2 Technical data

Electrical data		
Duty cycle	min.	short-term 5
Control voltage	V DC	24
Protection category of motor unit		IP 44
Protection class		II
Mechanical data		
Max. push and pull force	N	1,000
Travel speed	mm/s	15-20
Opening time, dependent on gate type	s	15-25

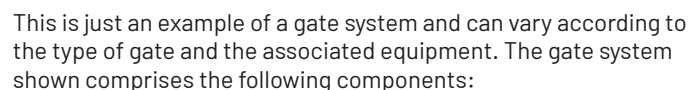
Dimensions of motor unit, Short version



Sound pressure level	dB(A)	< 70
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Temperature range

2.3 / 1



- 1 Photocell
- 2 Photocell
- 3 Signal light
- 4 Key switch post (for code button, transponder, ...)
- 5 Wrench
- 6 Main switch (mains isolator switch)
- 7 Electric lock
- 8 Floor bumper
- 9 Mains cable
- 10 Closing edge safety device (CESD/8K2)

Cable cross-sections:

- a $2 \times 0.5 \text{ mm}^2$
b $2 \times 0.75 \text{ mm}^2$
c $3 \times 1.5 \text{ mm}^2$
d $2 \times 0.75 \text{ mm}^2$

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

3. Installation

3.1 Example application

WARNING!

Danger if the operating manual is ignored!

This chapter includes important information for safe assembly of the product.

- Read this manual carefully before installation.
- Follow the safety instructions.
- Complete the assembly as described.

Assembly by qualified technical personnel only.

→ "1.2.2 Technical personnel"

Technical electrical work may only be completed by qualified electricians.

→ "1.2.2 Technical personnel"

- Prior to assembly, ensure that the voltage supply is disconnected and remains so. The voltage supply is only re-established after this is requested in the corresponding assembly step.
- Local protection regulations must be observed.
- Electrical supply cables and control cables must be laid out separately. The controls voltage is 24 v DC.
- The gate must be in good mechanical condition:
 - The gate is easy to move.
 - The gate opens and closes correctly.
- The motor unit may only be installed with the gate closed.
- All impulse transmitters and control devices (e.g. remote control buttons) must be installed within sight of the gate and at a safe distance from the moving parts of the gate. A minimum installation height of 1.5 m must be maintained.
- Only fastening material that is suitable for the respective construction surface may be used.

ATTENTION!

Material damage may result from improper care of drive!

Grease and oil can attack the plastic materials of the drive system and lead to the plastic becoming cracked and fractured. To prevent damage, the drive system must **not** be oiled or greased.

3.2 Preparing for installation

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

Supply package

- Check that all the parts are present.
- Check that all the necessary accessory parts for your installation situation are present.

Gate system

- Ensure that a suitable mains connection and a mains isolator switch are available for your gate system. The minimum cross-section of the earth cable is 3 x 1.5 mm².
- Ensure that all cables are suitable for outdoor use with respect to UV resistance and cold resistance.
- Ensure that a suitable control unit is available for your gate system.
- Ensure that your gate system has a gate stop in the CLOSE direction.
- Disassemble the gate latches or render them inoperable.
- Ensure that the gate can be easily moved by hand.
- Please note the gate requirements:
→ "2.2 Technical data"

For gate wing widths of 2 metres or more, the use of an electric lock is recommended.

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

⚠ ATTENTION!

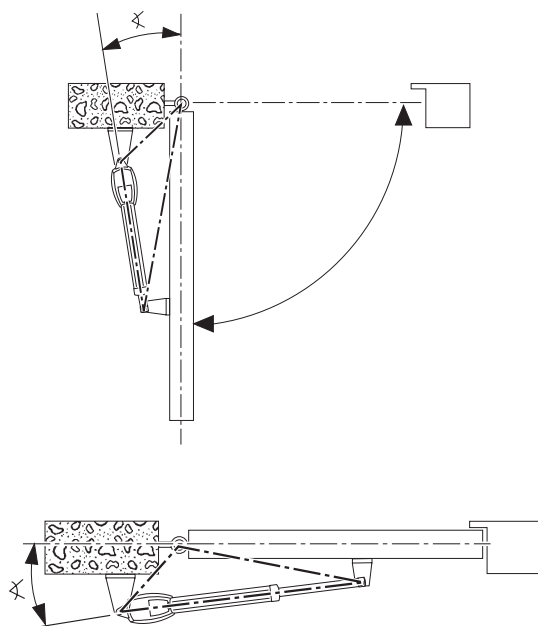
Possible motor unit malfunction due to incorrect assembly!

Failure to observe the power delta can result in malfunctions in the motor unit.

- Ensure that the following conditions are met:
 - The motor unit must be located in a triangle of forces and should not be parallel to the gate at the OPEN and CLOSED gate positions.
 - The movement stroke must be as large as possible.

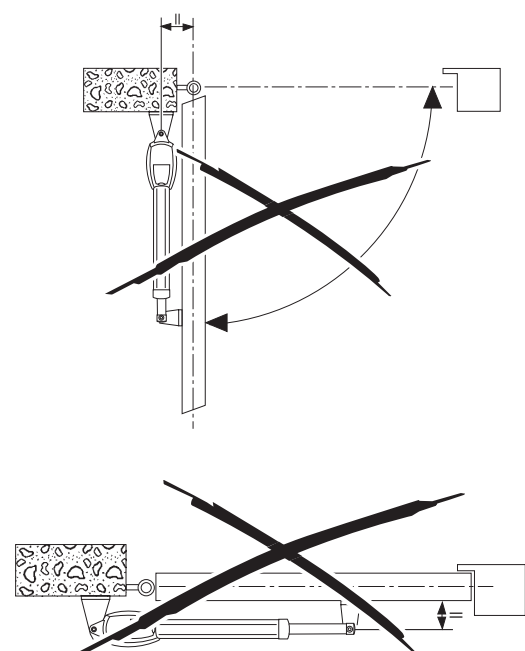
Right: Motor unit is in triangle of forces

3.2 / 1



Wrong: Motor unit is parallel to the gate

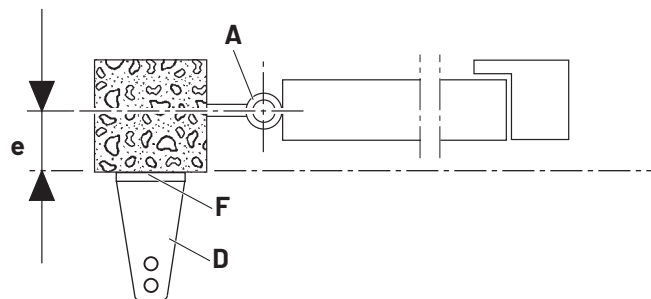
3.2 / 2



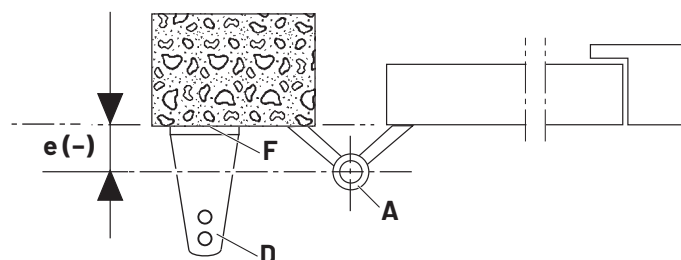
3.3 Installation dimensions

Find dimension e

3.3 / 1



3.3 / 2



The required post bracket is calculated from dimension e.

e Distance between post angle screw plate and the gate pivot.

A Gate pivot

F Screw plate of the post angle

Positive e value (Fig. "3.3 / 1")

The pivot (A) lies behind the screw plate (F) of the post bracket (D). Installation can be carried out using the components in the standard package.

Negative e value (Fig. "3.3 / 2")

The pivot (A) lies in front of the screw plate (F) of the post bracket (D).

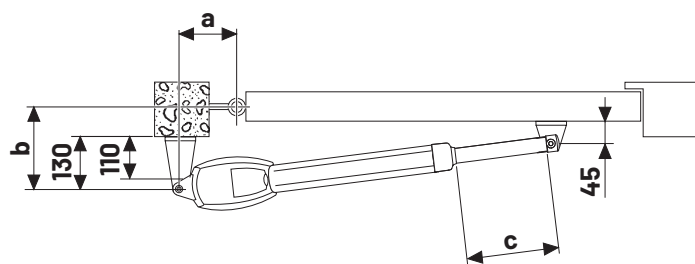
Before installing, let your specialist dealer check the on-site situation.

To ensure that the hinged gate runs smoothly, dimension (a) and dimension (b) must be as large as possible. The possible combinations are shown in the table of dimensions below.

- Measure the existing dimension (b).
- Determine the opening angle (d).
- Calculate the corresponding dimension (a) and the movement stroke (c) using the dimension table.

Gate in CLOSED position (installation position)

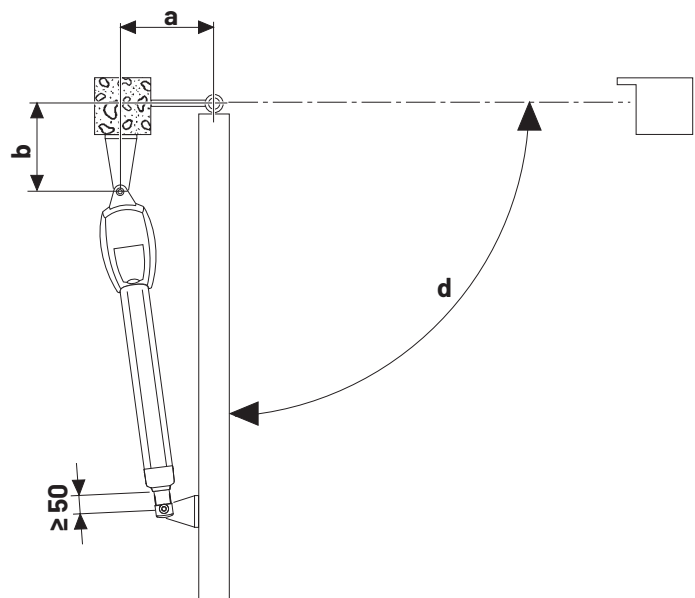
3.3 / 3



c min. 380, max. 420 (Comfort 516)
min. 580, max. 620 (Comfort 516 L)

Gate in OPEN position / opening angle

3.3 / 4



The movement stroke (c) must be at least 50 mm in the "OPEN" gate position.

Dimension table for Comfort 516					
(b)	(a)				
	80	100	140	160	200
110	d = 95°	d = 105°	d = 114°	d = 124°	d = 115°
130	d = 95°	d = 105°	d = 110°	d = 120°	d = 110°
150	d = 95°	d = 102°	d = 110°	d = 116°	d = 103°
170	d = 95°	d = 100°	d = 108°	d = 110°	d = 95°
190	d = 93°	d = 98°	d = 106°	d = 102°	d = 92°
210	d = 92°	d = 97°	d = 101°	d = 95°	d = 87°
230	d = 92°	d = 97°	d = 93°	d = 88°	
250	d = 92°	d = 95°	d = 87°		
270	d = 91°	d = 90°			

Dimension table for Comfort 516 L					
(b)	(a)				
	80	100	140	160	200
110			d = 112°	d = 123°	d = 125°
130			d = 110°	d = 120°	d = 125°
150		d = 95°	d = 105°	d = 115°	d = 120°
170	d = 90°	d = 95°	d = 102°	d = 108°	d = 115°
190	d = 90°	d = 95°	d = 100°	d = 105°	d = 110°
210	d = 90°	d = 95°	d = 100°	d = 100°	d = 105°
230	d = 90°	d = 95°	d = 100°	d = 100°	d = 102°
250	d = 90°	d = 95°	d = 97°	d = 97°	d = 97°
270	d = 90°	d = 95°	d = 97°	d = 97°	d = 97°
290	d = 90°	d = 95°	d = 95°	d = 95°	d = 95°
310	d = 90°	d = 95°	d = 95°	d = 95°	d = 95°
330	d = 90°	d = 95°	d = 95°	d = 95°	d = 95°
350	d = 90°	d = 95°	d = 95°	d = 95°	
370	d = 90°	d = 95°	d = 95°	d = 95°	
390	d = 90°	d = 95°	d = 95°		
410	d = 90°	d = 95°			
430	d = 90°	d = 93°			
450	d = 90°				

Dimension table for Comfort 516					
(b)	(a)				
	220	240	260	280	300
110	d = 108°	d = 103°	d = 97°	d = 96°	d = 90°
130	d = 104°	d = 98°	d = 93°	d = 92°	d = 87°
150	d = 98°	d = 92°	d = 90°	d = 90°	
170	d = 90°	d = 90°	d = 87°		
190	d = 88°	d = 86°			

The preferred dimensions are shaded in grey in the table (for gate wings up to 2.5 m wide and weighing up to 200 kg).

The dimension tables apply for standard hinges only.

Dimension table for Comfort 516 L					
(b)	(a)				
	220	240	260	280	300
110	d = 125°	d = 125°	d = 125°	d = 130°	d = 135°
130	d = 125°	d = 125°	d = 125°	d = 125°	d = 125°
150	d = 120°	d = 117°	d = 120°	d = 120°	d = 120°
170	d = 115°	d = 110°	d = 110°	d = 110°	d = 115°
190	d = 110°	d = 107°	d = 105°	d = 105°	d = 110°
210	d = 105°	d = 105°	d = 102°	d = 102°	d = 105°
230	d = 102°	d = 102°	d = 100°	d = 100°	d = 100°
250	d = 97°	d = 97°	d = 97°	d = 97°	
270	d = 97°	d = 97°	d = 96°		
290	d = 95°	d = 95°			
310	d = 95°				

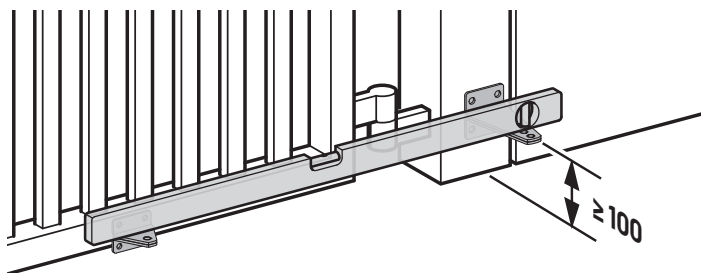
The preferred dimensions are shaded in grey in the table (for gate wings up to 3.5 m wide and weighing up to 200 kg).

The dimension tables apply for standard hinges only.

3.4 Installation of support brackets

- Release the operator.
- "4.3 Emergency operation / Release mechanism"
- Move the piston rod manually to dimension c.
- "3.3 / 3"
- Lock the operator.
- Use the dimension table to determine the position of the support brackets.

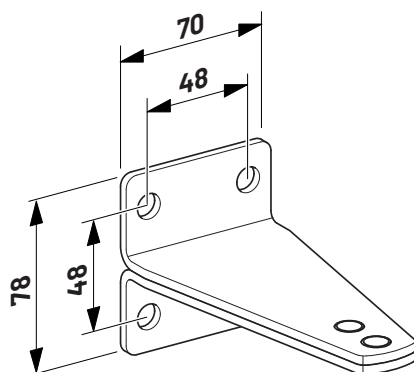
3.4 / 1



The support brackets can alternatively be fixed in place with screw clamps until a successful trial run has been completed.

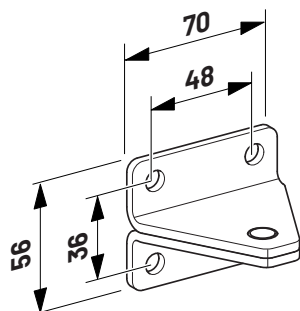
Post bracket dimensions (standard supply)

3.4 / 2



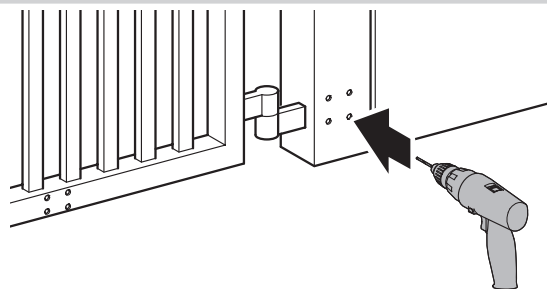
Gate bracket dimensions (standard supply)

3.4 / 3



Concrete and stone pillars

3.4 / 4



3.4 / 5



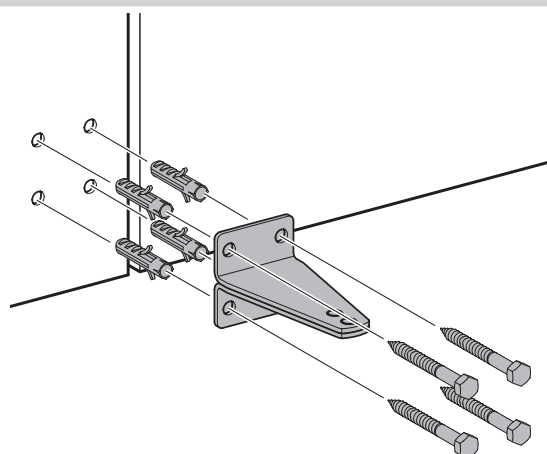
4 x Ø 10



4 x 8 x 60

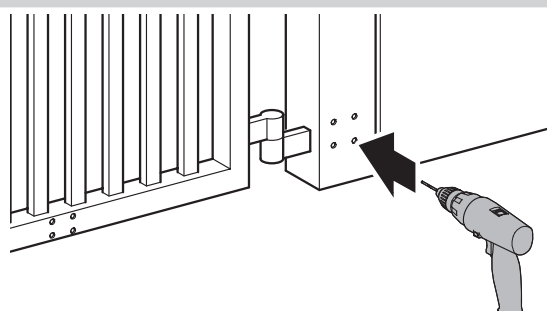


13

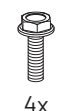


Metal pillar

3.4 / 6



3.4 / 7

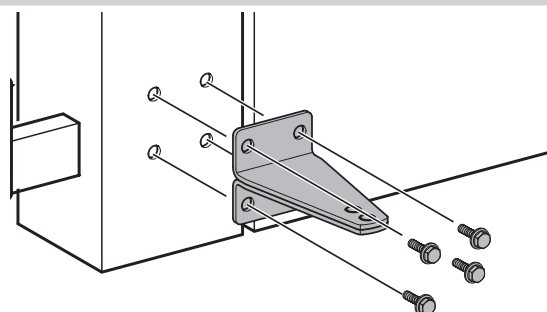


4x

M8 x 25



13

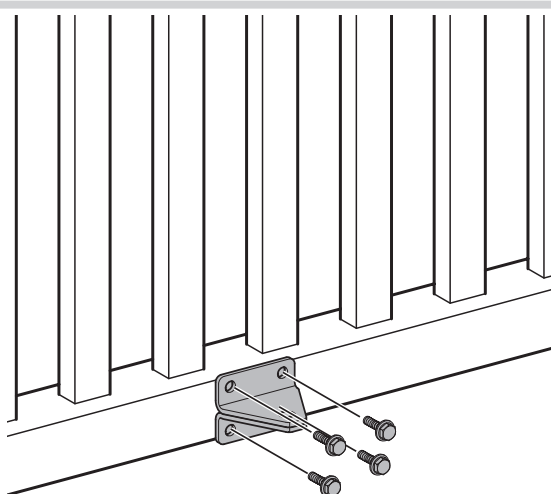


Metal gate

3.4 / 8



M8 x 25

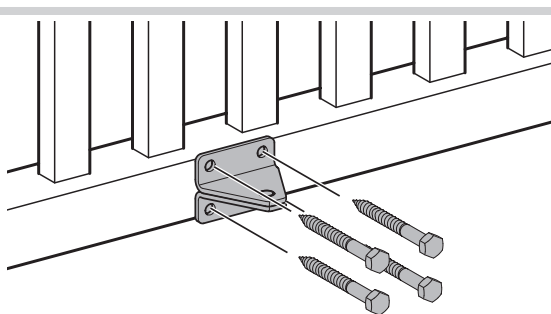


Wooden gate

3.4 / 9



4x 8 x 60



3.5 Installing the motor unit

CAUTION!

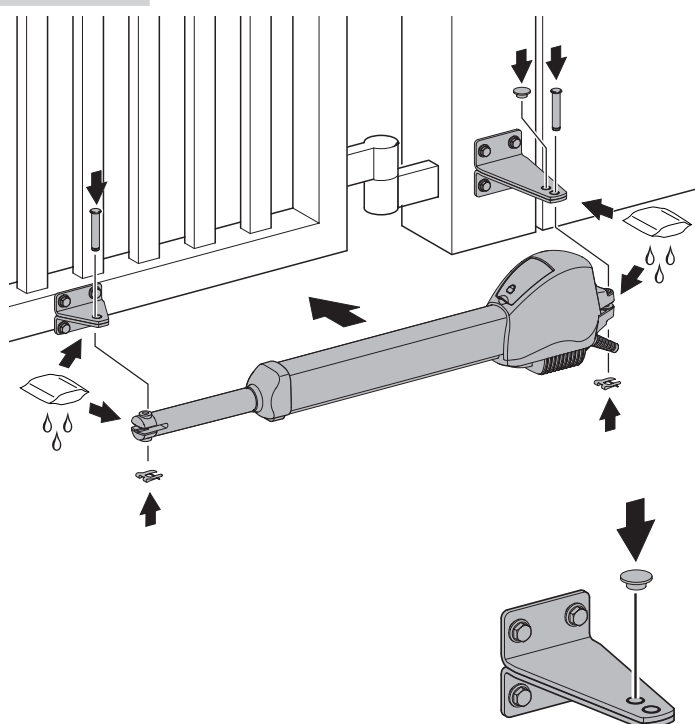
Risk of injury due to shearing forces!

Unintentionally reaching into the unneeded hole in the column bracket can result in injuries.

- The drill hole in the post angle that is not required must be fitted with the cover cap.

Before installation, the motor unit and the connecting components must be greased with the lubricating pad supplied.

3.5 / 1



To ensure that installation is correct, the following tests must be carried out:

- Release the operator.
- "4.3 Emergency operation / Release mechanism"
- ✓ Move the gate slowly by hand into the OPEN and CLOSED end positions.

3.6 Connection to the control unit

To operate the motor unit, it must be connected to a suitable control unit.

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

4. Operation

4.1 Safety instructions for operation

WARNING!

Danger if the operating manual is ignored!

This chapter includes important information for safe operation of the product.

- Read this manual carefully before operation.
- Follow the safety instructions.
- Use the product as described.

The controls or hand transmitter may only be activated if no one and no objects are present in the movement area of the gate. The controls and the hand transmitter may not be used by children or unauthorized persons. The hand transmitter may not be activated by accident (e.g. in someone's pocket).

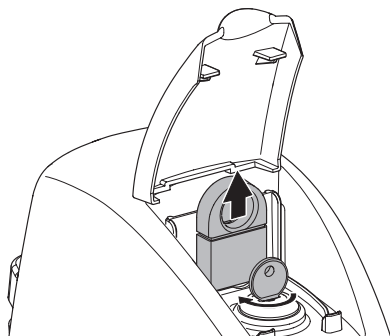
4.2 Remote controls

-  Follow the instructions in the relevant documentation when operating the hand transmitter.

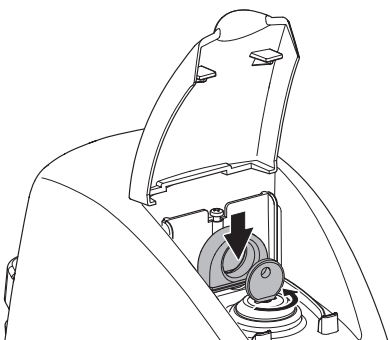
4.3 Emergency operation / Release mechanism

To ensure that it functions correctly, the operator must be locked in the same position where it has been released.

4.3 / 1



4.3 / 2



5. Care and cleaning

WARNING!

Risk of fatal injuries due to electric shocks!

Parts that conduct power may cause electrical shocks, burns, or death.

- Take measures to ensure that the power supply remains disconnected and remains so for the duration of the cleaning operation.

ATTENTION!

Material damage may result from improper care of drive!

Grease and oil can attack the plastic materials of the drive system and lead to the plastic becoming cracked and fractured. To prevent damage, the drive system must **not** be oiled or greased.

ATTENTION!

Damage resulting from incorrect operation!

When cleaning the operator system, never use: direct water jets, high pressure cleaners, acids or alkaline solutions.

- Use a soft, lint-free cloth for cleaning.

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

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

6. Maintenance

6.1 Maintenance work by the operator

Damage or wear to a gate system may only be rectified by qualified technical personnel.

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 operator system must always be disconnected from the power supply.

- Check once a month that the operator system reverses when the gate touches an obstacle. Place an obstacle in the path of the gate to check this.
- Check all the moving parts of the gate system and gate operator system.
- Check the gate system for signs of damage or wear and tear.
- Move the gate manually to check that the gate 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.

6.2 Requirements to be met by qualified technical personnel

Power-operated windows, doors and gates must be inspected by qualified personnel 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.

7. Disassembly

Disassembly by qualified technical personnel only.

→ "1.2.2 Technical personnel"

WARNING!

Risk of fatal injuries due to electric shocks!

Parts that conduct power may cause electrical shocks, burns, or death.

- Take measures to ensure that the power supply remains disconnected and remains so during disassembly.

WARNING!

Possibility of serious injury if disassembled incorrectly!

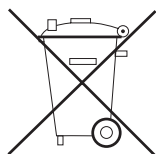
- Observe all the applicable health and safety regulations.

Disassembly must be completed by qualified technical personnel in the reverse sequence as assembly.

8. Disposal

Disposal by qualified technical personnel only.

→ "1.2.2 Technical personnel"



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 your 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.

9. Rectifying faults

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

10. Appendix

10.1 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):

Comfort 516 hinged gate operator

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,
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Fon +49 (5247) 705-0



Marienfeld, 1 February 2016

M. Hörmann
Director



Identification plate, motor unit 1

Type A

Rev(B)

Art. No. (C)

Prod. No. (GB)

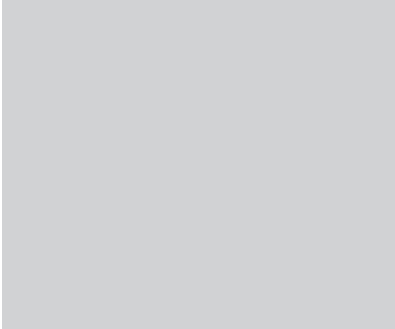
Identification plate, motor unit 2 (only double wing)

Type A

Rev(B)

Art. No. (C)

Prod. No. (GB)



A

B

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C



D



