VECTOR2
Mechanical Installation Manual

Centurion Systems (Pty) Ltd

www.CentSys.com

Company Profile

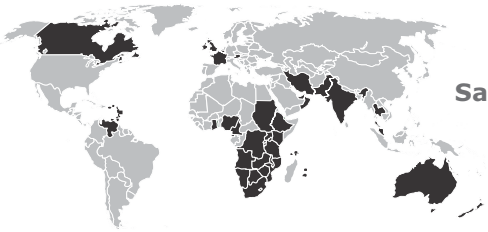
1986 1990 1995 1999 Centurion Systems (Pty) Ltd Today

In-house R & D development team

Manufacture to international quality standard ISO 9001:2008

100% testing of products

After-sales technical support from 07h00 - 18h00 Monday to Friday



Sales and technical support to over 50 countries worldwide

Contents

Mechanical Setup

These quick steps are for the experienced installer who needs a checklist to get a standard installation up and running in the minimum of time.

Detailed installation features and functions are referred to later in this manual.

IMPORTANT
Safety Instructions

ATTENTION

To ensure the safety of people, it is important that you read all the following instructions.
Incorrect installation or incorrect use of the product could cause serious harm to people.

The installer, being either professional or DIY, is the last person on the site who can ensure that the operator is safely installed, and that the whole system can be operated safely.

Warnings for the installer

CAREFULLY READ AND FOLLOW ALL INSTRUCTIONS before beginning to install the product.

- All installation, repair, and service work to this product must be carried out by a suitably qualified person
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety
- Do not activate your gate unless you can see it and can determine that its area of travel is clear of people, pets, or other obstructions
- **NO ONE MAY CROSS THE PATH OF A MOVING GATE.** Always keep people and objects away from the gate and its area of travel
- **NEVER LET CHILDREN OPERATE OR PLAY WITH THE GATE CONTROLS**
- Secure all easily-accessed gate opener controls in order to prevent unauthorised use of the gate
- Do not in any way modify the components of the automated system
- Do not install the equipment in an explosive atmosphere: the presence of flammable gasses or fumes is a serious danger to safety
- Before attempting any work on the system, cut electrical power to the operator and disconnect the batteries
- The mains power supply of the automated system must be fitted with an all-pole switch with contact opening distance of 3mm or greater. Use of a 5A thermal breaker with all-pole circuit break is recommended

- Make sure that an earth leakage circuit breaker with a threshold of 30mA is fitted upstream of the system
- Never short-circuit the battery and do not try to recharge the batteries with power supply units other than that supplied with the product, or by Centurion Systems (Pty) Ltd
- Make sure that the earthing system is correctly constructed, and that all metal parts of the system are suitably earthed
- Safety devices must be fitted to the installation to guard against mechanical movement risks such as crushing, dragging and shearing
- It is recommended that at least one warning indicator light be fitted to every system
- Always fit the warning signs visibly to the inside and outside of the gate
- The installer must explain and demonstrate the manual operation of the gate in case of an emergency, and must hand the User Guide/Warnings over to the user
- Explain these safety instructions to all persons authorised to use this gate, and be sure that they understand the hazards associated with automated gates
- Do not leave packing materials (plastic, polystyrene, etc.) within reach of children as such materials are potential sources of danger
- Dispose of all waste products like packaging materials, worn-out batteries, etc., according to local regulations
- Always check the obstruction detection system, and safety devices for correct operation
- Centurion Systems (Pty) Ltd does not accept any liability caused by improper use of the product, or for use other than that for which the automated system was intended
- This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the service life/operation of the product and/or be a source of danger
- Everything not expressly specified in these instructions is not permitted

1. Declaration of Conformity

Manufacturer

Centurion Systems (Pty) Ltd
Unit 13 Production Park
Intersection of Newmarket Road and Epsom Avenue
North Riding
Gauteng
South Africa

Declares that the product

Product name: **VECTOR2** Swing gate operator
Product options: All variants

Conforms with the following specifications

Safety: SANS 60335-1:2007
IEC 60335-1:2006

Emissions: CISPR 22 CLASS B: Radiated emissions – 30MHz to 1000MHz
CISPR 22 CLASS B: Conducted emissions – 150 KHz to 30MHz

Immunity: IEC 61000-4-2 – Electrostatic discharge
IEC 61000-4-3 – Radiated immunity – 80MHz to 1000MHz
IEC 61000-4-4 – Electrical fast transients/burst
IEC 61000-4-5 – Surge immunity test
IEC 61000-4-6 – Conducted immunity – 150KHz to 80MHz
IEC 61000-4-8 – Power frequency magnetic field
IEC 61000-4-11– Voltage dips and interruption

Standard to which conformity is declared

IEC 60335-1:2006	Safety
IEC 61000-6-3	Emissions
IEC 61000-6-1	Immunity

Signed at North Riding, South Africa on June 21, 2010

IAN Rozowsky

Ian Rozowsky
Research & Development Director

2. General Description

The **VECTOR2** operator has been designed to safely and cost-effectively automate a wide variety of swing gates, from single light-domestic swing gates to heavy industrial double swing gates.

The fail-safe and fully redundant Position and Collision Detection system has been designed and tested to set the standard in safety of operation and to provide an unparalleled level of reliability and durability in operation.

The gate Travel Limits are managed by a sealed double-redundant opto-electronic system that has been designed not only to ensure ultra-reliable operation, but also to ensure precise position and trajectory control. This enables very accurate and reliable collision detection to ensure safe operation even under trying conditions.

The **VECTOR2** control card has been designed to be easy and intuitive to use, with helpful instructions on the status of the operation being given both during and after the installation. It also has a built-in diagnostic procedure that can verify every aspect of the control card onsite.

Some of the advanced features offered by the **VECTOR2** controller are:

- Fully automated single-button Limit Setup for single and double swing gates
- Full graphics LCD display provides an intuitive user interface with built-in diagnostics to speed up and simplify the installation process
- Separate safety inputs for infrared beams/photocells on both the closing and opening directions of the gate
- Advanced closed-loop speed control to maintain safe and reliable operation on inclined gates under windy conditions
- Fully configurable gate Run Profiles
- Selectable and adjustable Autoclose with pushbutton override
- Pedestrian (Partial) opening with automatic closure
- Free-exit input
- Positive Close Mode
- Multiple Modes of Operation
- Solenoid lock drive output up to 2A
- Holiday Lockout
- A status LED output to indicate the gate status remotely
- Pillar Light control
- Leaf delay is selectable for either gate leaf
- Onboard NOVA receiver with selective adding and deleting of remotes

Lightning Protection

The **VECTOR2** electronic controller utilises the same proven surge protection philosophy that is used in all Centurion Systems (Pty) Ltd products. While this does not guarantee that the unit will not be damaged in the event of a lightning strike or power surge, it greatly reduces the likelihood of such damage occurring. The earth return for the surge protection is provided via the mains power supply earth. In order to ensure that the surge protection is effective, it is essential that the unit is properly earthed.

3. Icons Used in this Manual

This icon indicates tips and other information that could be useful during the installation.

This icon denotes variations and other aspects that should be considered during installation.

This icon indicates warning, caution or attention! Please take special note of critical aspects that MUST be adhered to in order to prevent injury.

4. Specifications

Physical Dimensions

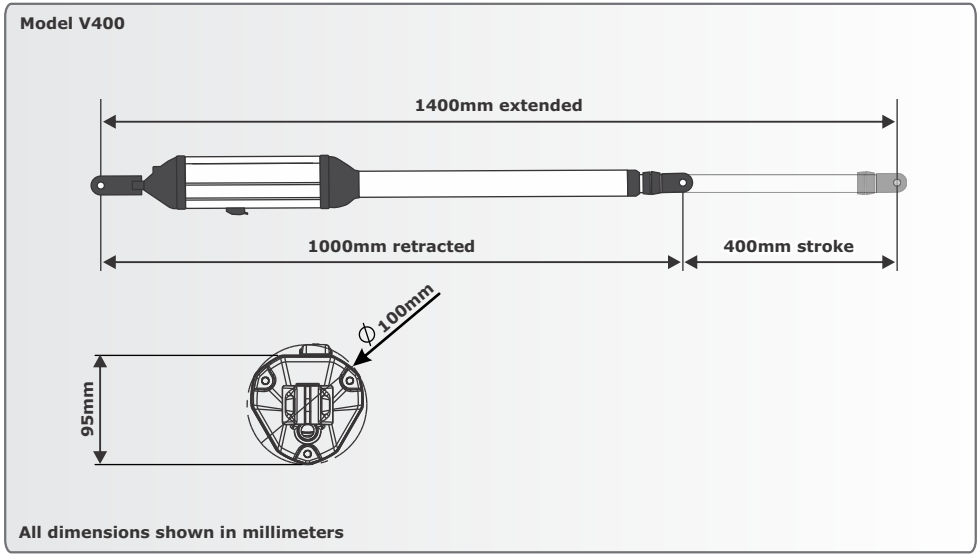


FIGURE 1. V400 OVERALL DIMENSIONS

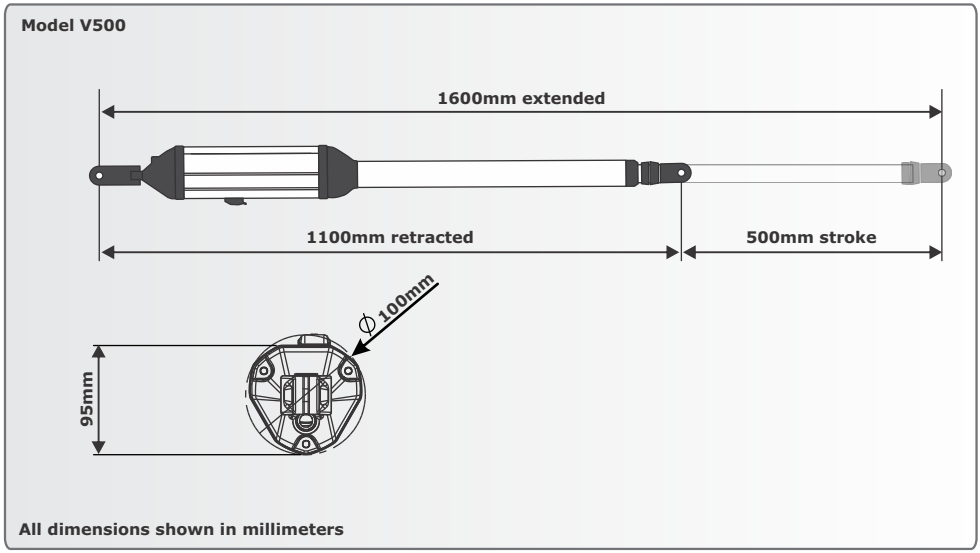


FIGURE 2. V500 OVERALL DIMENSIONS

Technical Specifications

	VECTOR2 400	VECTOR2 500
Input voltage	90V✻/ 220V - 240V AC ± 10%, 50Hz	
Motor voltage	12V DC	
Motor power supply	Battery-driven (standard capacity - 7Ah)✢	
Battery charger★		
Domestic Ⓓ	CP84E - 800mA @ 13.8V	
Light-industrial Ⓘ	CP84SM - 2A @13.8V	
Current consumption (mains)	60mA Ⓓ / 170mA Ⓘ	
Current consumption (motor at rated load)	15A - maximum	
Operator push force - maximum	250kgf	
Operator stroke	400mm	500mm
Piston extension/retraction speed	27mm/sec	
Typical gate opening time✣	<14 sec	<17 sec
Manual override	Key release	
Maximum number of operations per day	100 Ⓓ/250 Ⓘ	
Duty cycle - mains present✺✱	25% Ⓓ/50% Ⓘ	
Operations in standby with 7Ah battery✧		
Half day	70	
Full day	58	
Collision sensing	Electronic	
Controller solenoid output rating	2A DC	
Operating temperature range	-15°C to +50°C	
Onboard receiver type	NOVA code-hopping multichannel	
Receiver code storage capacity	64 transmitter buttons	
Receiver frequency	433MHz	
Mass of unit packed (excluding battery)		
Single kit	8.5kg	9kg
Double kit	14kg	15kg
Degree of protection	IP54	

✻ Applies to CP84SM light-industrial unit only
✢ Can increase battery capacity for longer standby times
★ Can operate off a solar supply, consult Centurion Systems (Pty) Ltd for assistance
Ⓓ Domestic
Ⓘ Light-industrial
✣ Assumes full stroke of operator is used
✺ Based on 25°C ambient temperature and unit not in direct sunlight
✱ Based on an operator push force of less than 50% of rated
✧ Based on double kit excluding Infrared Safety Beams/Photocells
✲ Assumes a 90° opening gate and optimum mounting position

Control Card

Maximum motor current per channel	15A (fused)
Maximum input voltage	14.4V DC
Standby current draw	48mA
Maximum solenoid current draw	2A DC
Maximum auxillary output current	3A (PTC)
Collision detection	Current sense and redundant optical
Position and trajectory	Redundant optical
Temperature range	-20°C to +60°C

Power Supply

	7Ah, 12V, CP84E (Domestic)	7Ah, 12V, CP84SM2A (Light-industrial)
Nominal input voltage	220V-240V AC ±10% @ 50Hz	90V-240V AC ±10% @ 50Hz
AC current draw (maximum)	60mA	170mA
Temperature range	-20°C to +60°C	-20°C to +60°C
Battery charger amperage output (dependant on PSU input voltage)	0.8A @ 13.8V	90V AC Input: 1.2A @ 13.8V 240V AC Input: 2.2A @ 13.8V

Power Supply, Control Box and Control Card Assembly

	7Ah, 12V, CP84E (Domestic)	7Ah, 12V, CP84SM 2A (Light-industrial)
Boxed shipping weight (excluding batteries):	2.7kg	2.6kg
Degree of protection	IP55	IP55

Allowable Gate Mass

Maximum allowable gate mass for the V400 operator:

Gate swing angle	Up to 1.5 metres	Up to 2 metres	Up to 2.5 metres	Up to 3 metres (#1)	Up to 3.5 metres (#1)	Up to 4 metres (#1)
90°	500kg	500kg	500kg	360kg	260kg	200kg
100°	500kg	500kg	388kg	160kg	190kg	150kg
110°	500kg	306kg	198kg	130kg	Not recommended	
120°	180kg	100kg	65kg	Not recommended		

#1 - An electric lock must be fitted to secure gate in closed position

Maximum allowable gate mass for the V500 operator:

Gate swing angle	Up to 1.5 metres	Up to 2 metres	Up to 2.5 metres	Up to 3 metres (#1)	Up to 3.5 metres (#1)	Up to 4 metres (#1)
90°	750kg	750kg	750kg	550kg	410kg	310kg
100°	750kg	750kg	600kg	420kg	310kg	230kg
110°	750kg	500kg	320kg	220kg	Not recommended	
120°	310kg	170kg	110kg	Not recommended		

#1 - An electric lock must be fitted to secure gate in closed position

5. Product Identification

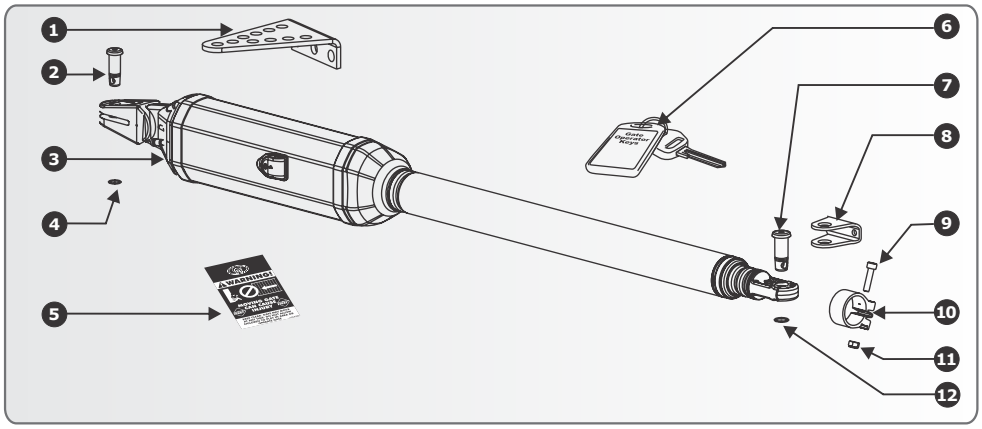


FIGURE 3A. PRODUCT IDENTIFICATION

1. Wall bracket (standard)
2. Wall bracket pin
3. **VECTOR2** gate operator (complete assembly)
4. 12mm snap ring
5. Gate warning decal
6. Gate operator keys✣
7. Gate bracket pin
8. Gate bracket
9. Stainless steel cap screw M6 x 25
10. Origin body
11. Stainless steel M6 nut
12. 14mm snap ring

✣ Keys are specific to each operator - key number must be recorded

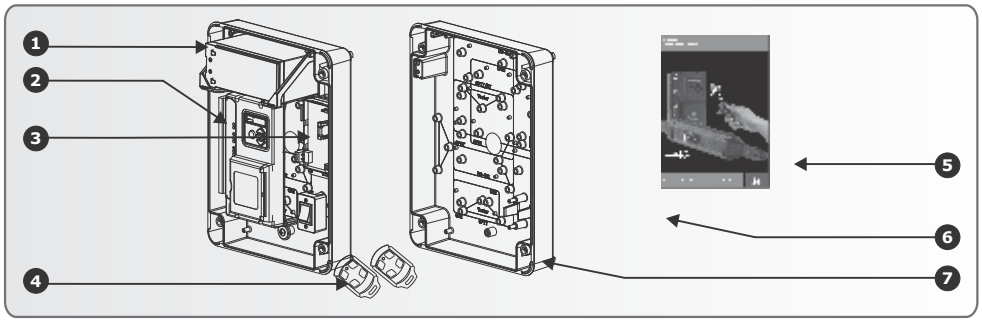


FIGURE 3B. CONTROL BOX INCLUDING CHARGER AND CONTROLLER

1. 12V 7.2Ah Battery (user supplied - not part of kit)
2. **VECTOR2** controller with built-in receiver
3. Charger
4. NOVA remote controls
5. Electrical setup guide
6. Installation Manual
7. Control Box

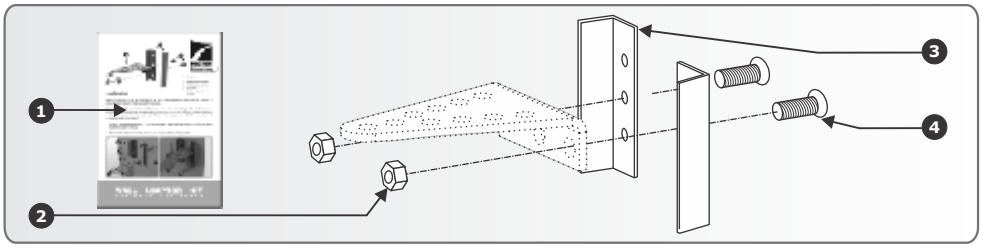


FIGURE 3C. WALL ADAPTOR KIT

1. **VECTOR2** Wall Adaptor Kit packing leaflet
2. M10 hexagon nuts
3. Wall adaptor plate
4. M10 x 20 countersunk screw

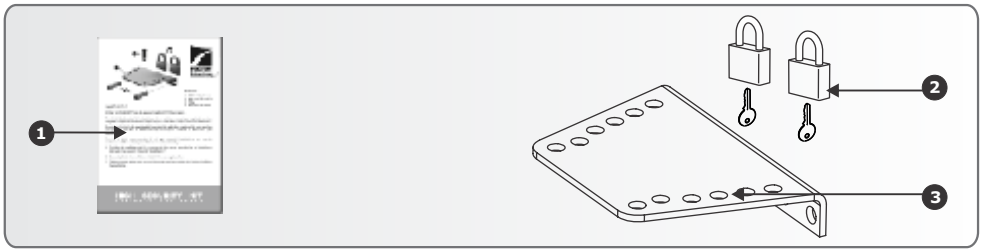


FIGURE 3D. HIGH-SECURITY KIT

1. **VECTOR2** High-security Kit packing leaflet
2. Padlocks
3. Wall bracket (high-security)

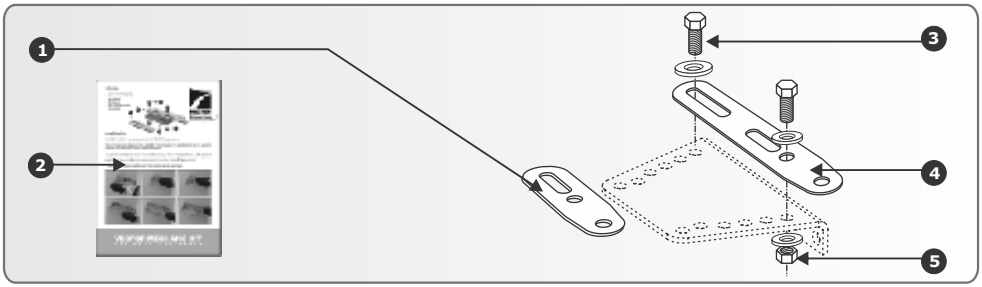


FIGURE 3E. MECHANO KIT

1. **VECTOR2** securing plate (short)
2. **VECTOR2** Mechano Kit packing leaflet
3. M10 x 35 bolt
4. **VECTOR2** securing plate (long)
5. M10 nut

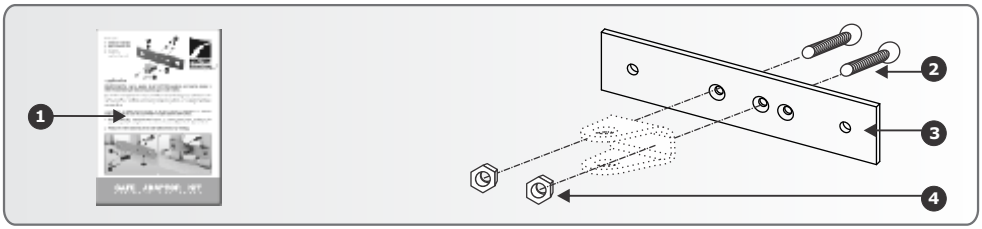


FIGURE 3F. GATE ADAPTOR KIT

1. **VECTOR2** Gate Adaptor Kit packing leaflet
2. M6 x 16 countersunk cap screw
3. Gate bracket spreader plate
4. M6 hexagon nuts

6. Required Tools and Equipment

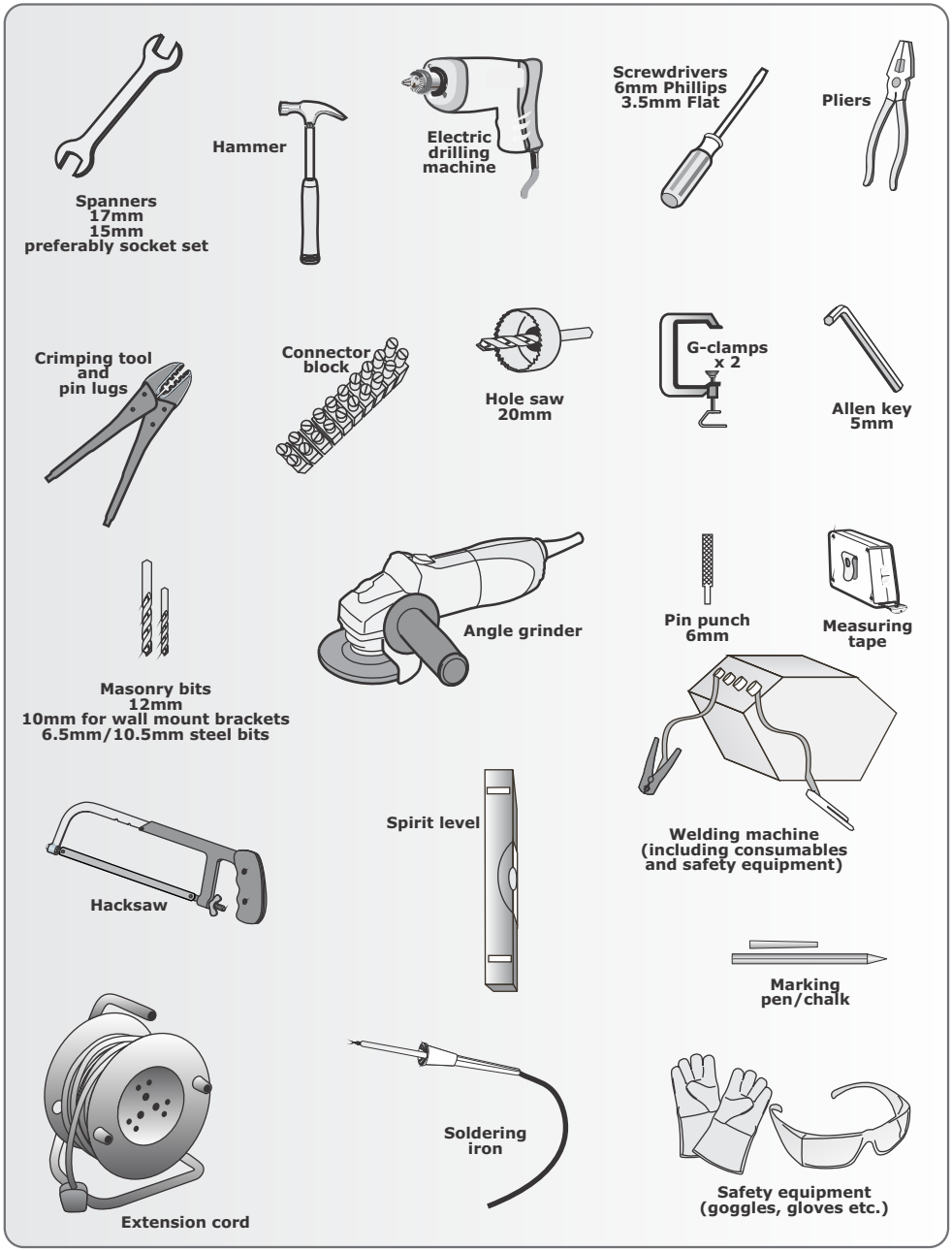


FIGURE 4

7. Allowable Wind Load

Wind speeds for which operator will still operate the gate (for V400 or V500 operators)

For a 25% covered gate: (palisades, etc.) x 1.8 metre high						
Value of A or B dimension once installed ❊	**Gate lengths:**					
	Up to 1.5 metres	**Up to 2 metres**	**Up to 2.5 metres**	**Up to 3 metres☆**	**Up to 3.5 metres☆**	**Up to 4 metres☆**
100mm	94km/h	66km/h	48km/h	44km/h	41km/h	37km/h
140mm	119km/h	85km/h	65km/h	57km/h	51km/h	46km/h
180mm	138km/h	101km/h	78km/h	67km/h	60km/h	53km/h
220mm	156km/h	114km/h	89km/h	76km/h	67km/h	60km/h
260mm	171km/h	126km/h	99km/h	84km/h	74km/h	65km/h
300mm	186km/h	137km/h	108km/h	91km/h	80km/h	71km/h
340mm	199km/h	147km/h	116km/h	98km/h	86km/h	76km/h

❊ See page 24 or 25 for installation details
☆ An electric lock must be fitted

Wind speeds for which operator will still operate the gate (for V400 or V500 operators)

For a 100% covered gate: (Fully clad gates, etc.) x 1.8 metre high						
Value of A or B dimension once installed ❊	**Gate lengths:**					
	Up to 1.5 metres	**Up to 2 metres**	**Up to 2.5 metres**	**Up to 3 metres☆**	**Up to 1.5 metres☆**	**Up to 4 metres☆**
100mm	47km/h	33km/h	24km/h	22km/h	47km/h	19km/h
140mm	59km/h	43km/h	32km/h	28km/h	59km/h	23km/h
180mm	69km/h	50km/h	39km/h	34km/h	69km/h	27km/h
220mm	78km/h	57km/h	44km/h	38km/h	78km/h	30km/h
260mm	86km/h	63km/h	49km/h	42km/h	86km/h	33km/h
300mm	93km/h	68km/h	54km/h	46km/h	93km/h	35km/h
340mm	100km/h	74km/h	58km/h	49km/h	100km/h	38km/h

❊ See page 24 or 25 for installation details
☆ An electric lock must be fitted

8. Preparation of Site

General Considerations for the Installation

- Always recommend the fitment of additional safety equipment such as safety edges and Safety Beams/photocells, for additional protection against entrapment or other mechanical risks
- Check that no pipes or electrical cables are in the way of the intended installation
- Check that enough space is available for the gate operator with the gate in the required open position (see Figures 4 and 5)
- Check the strength of the mounting pillar and fit a Wall Adaptor Kit where needed
- If the swing gate leaf is longer than 2.5 metres, ensure that a lock can be fitted
- Never fit the operator on the outside of the gate, where the public has access to it (follow the instructions for an outward opening swing gate, if required)
- For greater security consider fitting the optional High-security Kit

Install the gate operator only if:

- It will not pose a hazard to the public
- There is sufficient clearance to a roadway and/or public thoroughfares
- The installation will meet all municipal and/or local authority requirements once completed
- The gate mass, leaf width, allowable wind loading and application is within the operator specifications (refer to the specification tables)
- The gate is in good working order, meaning:
  - that it swings freely;
  - does not move on its own if left in any position;
  - each gate leaf is strong and rigid
  - it can be installed to have sufficient clearance between moving parts when opening and closing to reduce the risk of personal injury and entrapment
  - pushbuttons or keyswitches, when required, can be positioned so that the gate is in line of sight

Determine Gate Swing Angle

Use this procedure to accurately determine the gate opening angle:

Step 1

1. Close the gate and measure a distance of one metre from the centreline of the gate hinge.
2. Make a mark on the ground.

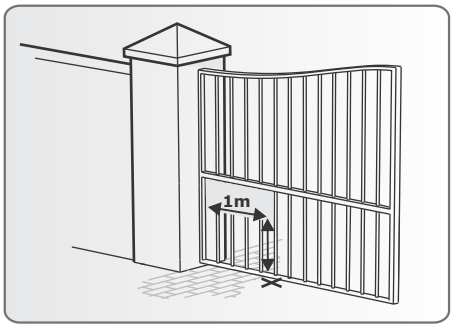


FIGURE 57

Step 2

3. Open the gate and measure along the gate a distance of one metre from the centreline of the gate hinge.
4. Make a mark on the ground.
5. Measure the distance on the ground between the two marks (Z).
6. Using this Z value, read off the gate opening angle from the table below.

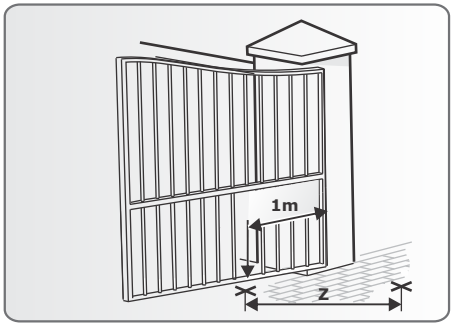


FIGURE 58

Step 3

Gate opening angle

Value Z from	To	Use gate swing angle of
1 000mm	1 075mm	60°
1 075mm	1 218mm	70°
1 218mm	1 351mm	80°
1 351mm	1 475mm	90°
1 474mm	1 587mm	100°
1 587mm	1 687mm	110°
1 687mm	1 732mm	120°

Side Wall Limitations

Gate opening 90° or less

Operator	Wall (minimum)❊	Pillar (maximum)☆
V400	150mm	250mm
V500	150mm	335mm

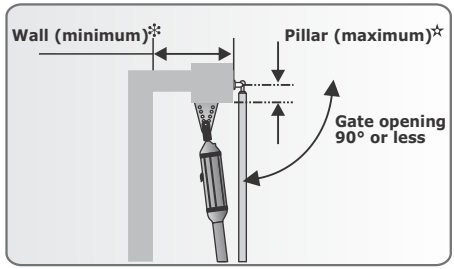


FIGURE 5

Gate opening 110°

Operator	Wall (minimum)❊	Pillar (maximum)☆
V400	150mm	145mm
V500	150mm	210mm

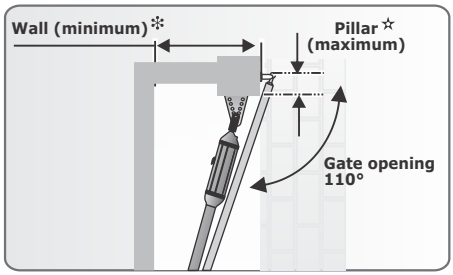


FIGURE 6

Tables are based on gates shorter than 2.5 metres

- For gates 2.5 metres to 3.0 metres long, reduce the maximum pillar thickness by 20mm
- For gates 3.0 metres to 3.5 metres long, reduce the maximum pillar thickness by 40mm
- For gates 3.5 metres to 4.0 metres long, reduce the maximum pillar thickness by 60mm

❊ The typical minimum wall clearance required to fit the operator
☆ The maximum allowable pillar thickness on which to fit the operator

Strength of the Pillar

For reliable operation it is important to ensure that the way the operator is secured to the wall takes into account the strength of the pillar, the size of the gate, and how frequently the gate will be used:

High-security Kit together with a Wall Adaptor Kit

This mounting is highly recommended for all light-industrial gates, or for heavy gates of any length.

Alternatively it should be considered for use on pillars of low or unknown strength.

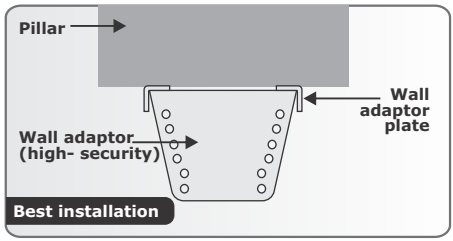


FIGURE 7

High-security Kit

This mounting works well for heavy gates shorter than about two metres in single household domestic applications.

Alternatively it should be considered for use on pillars of low or unknown strength.

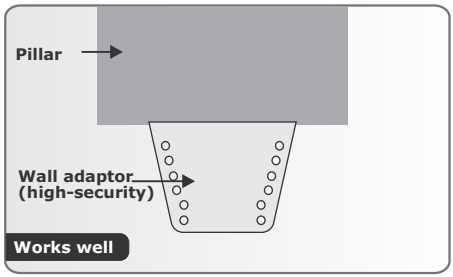


FIGURE 8

Standard bracket

This mounting method is typically used on light- to medium-weight domestic gates that are about 1.5 metres long, and that are mounted on pillars of average strength.

The means used to secure the bracket to the pillar is as important as the bracket itself.

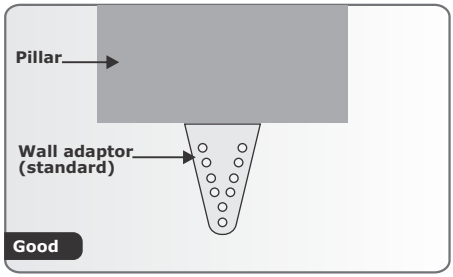


FIGURE 9

Through wall

Applications:

- Pre-fabricated walling
- For heavy gates operating frequently

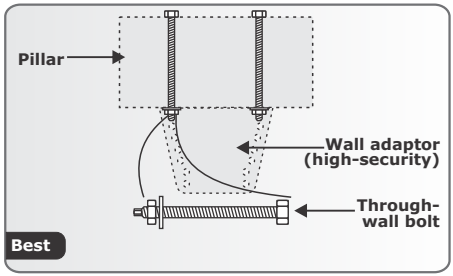


FIGURE 10

Chemical anchors

Applications:

- Masonry pillars
- Frequent use

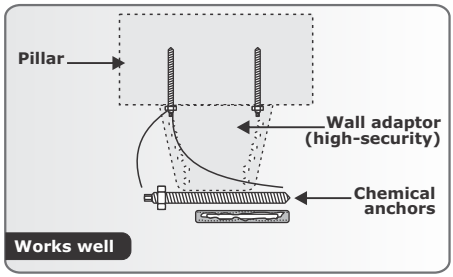


FIGURE 11

Welding

Applications:

- Lighter gates
- Domestic

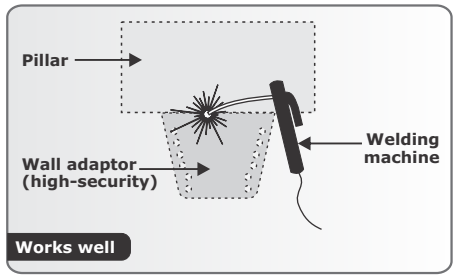


FIGURE 12

Sleeve anchors

Applications:

- Lighter gates
- Domestic

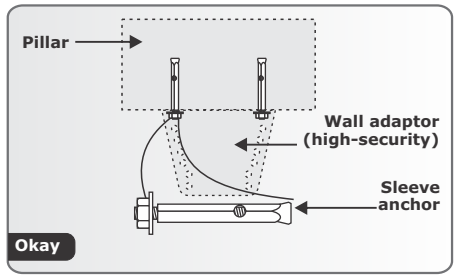


FIGURE 13

RAWL bolts

Applications:

- Very light
- Domestic

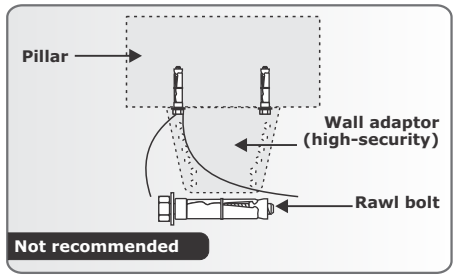


FIGURE 14

Strength of the Gate and Gate Bracket

The Gate Adaptor Kit both strengthens the connection to the gate, and also allows for more flexibility when mounting the bracket to the gate:

Welding Gate Adaptor Kit

Applications:

- Light-industrial
- Heavy gates
- Frequent use

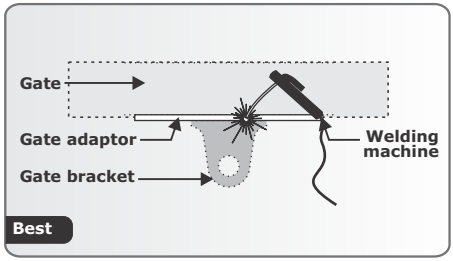


FIGURE 15

Through-bolts Gate Adaptor Kit

Applications:

- Light-industrial
- Heavy gates
- Frequent use

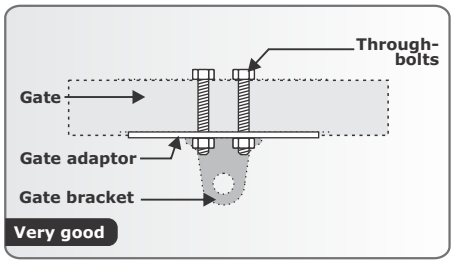


FIGURE 16

Welding

Applications:

- Domestic
- Medium gates
- Frequent use

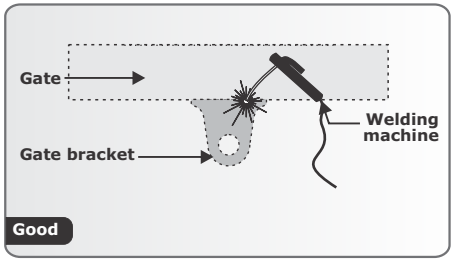


FIGURE 17

Through-bolts (high-tensile)

Applications:

- Domestic
- Light gates
- Infrequent use

TEK screws and mild steel bolts are not recommended.

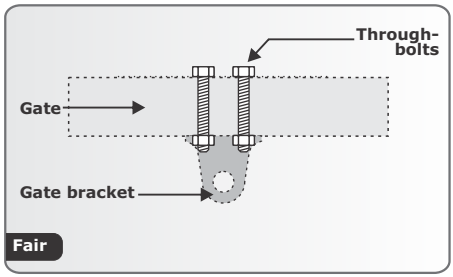


FIGURE 18

Mechano Kit Installation Options

This kit is useful when fitting **VECTOR2** to existing installations, and also makes adjustments easier when doing new installations.

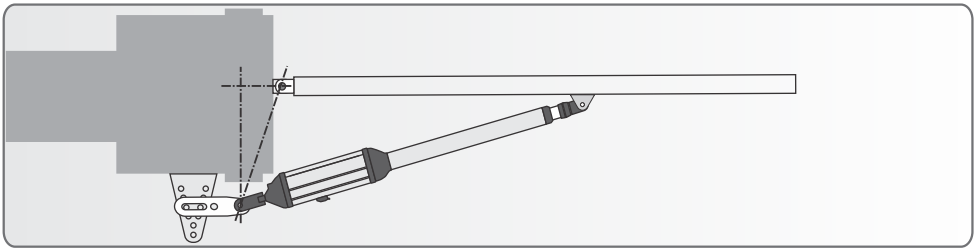


FIGURE 19. INSTALLATION WHEN THE PILLAR IS WIDE

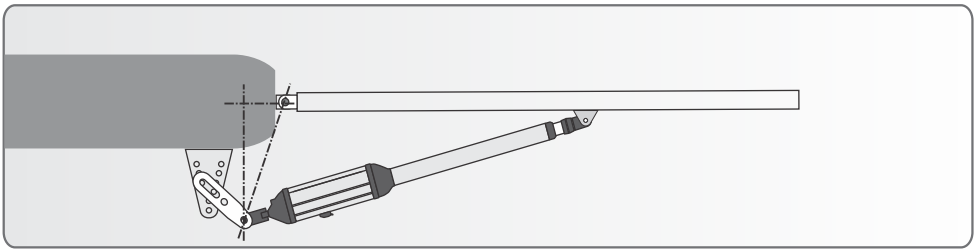


FIGURE 20. INSTALLATION WHEN THE PILLAR IS ON AN IRREGULAR SURFACE

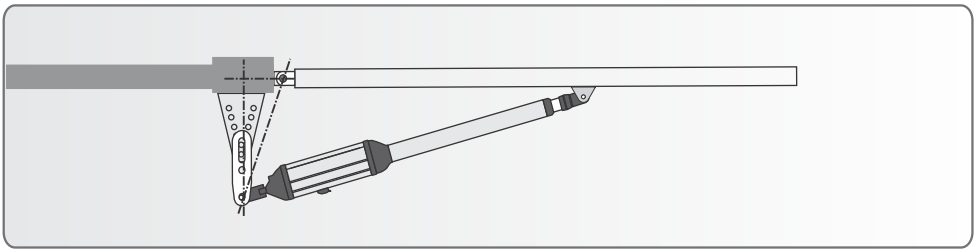


FIGURE 21. INSTALLATION ON A PALISADE FENCE

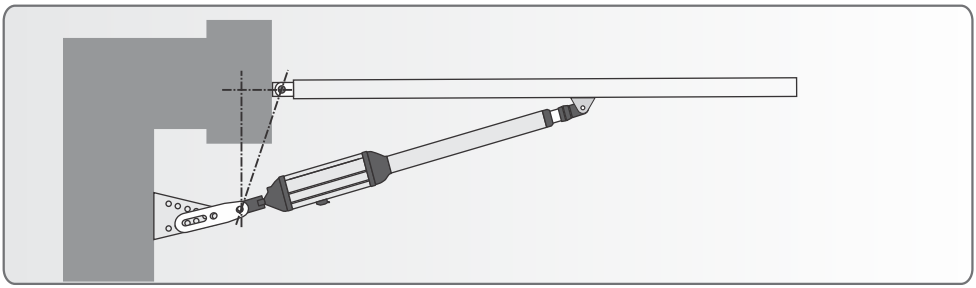


FIGURE 22. INSTALLATION ON AN ANGLED WALL

High-Security Kit Installation Options

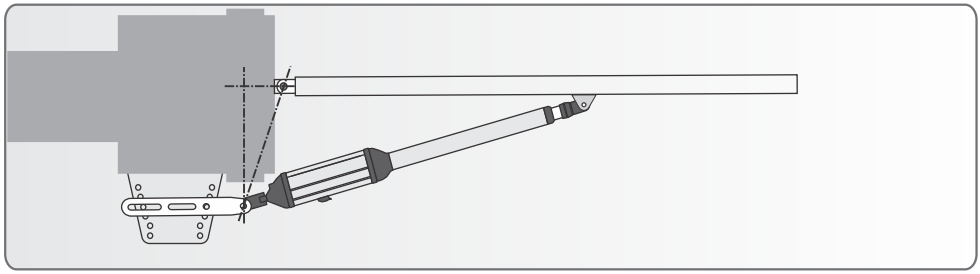


FIGURE 23. INSTALLATION WHEN THE PILLAR IS WIDE

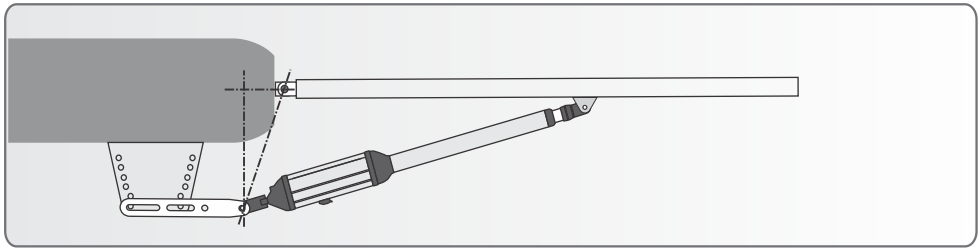


FIGURE 24. INSTALLATION WHEN THE PILLAR IS ON AN IRREGULAR SURFACE

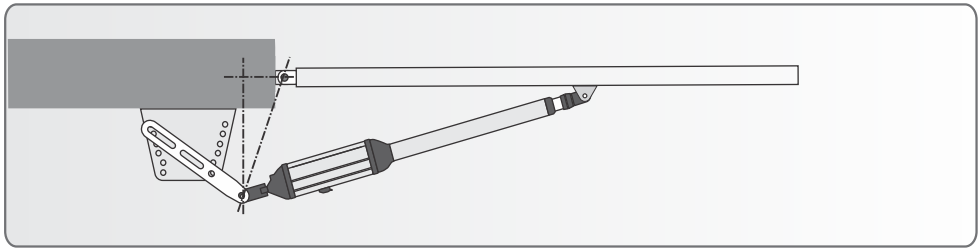


FIGURE 25. INSTALLATION ON A PALISADE FENCE

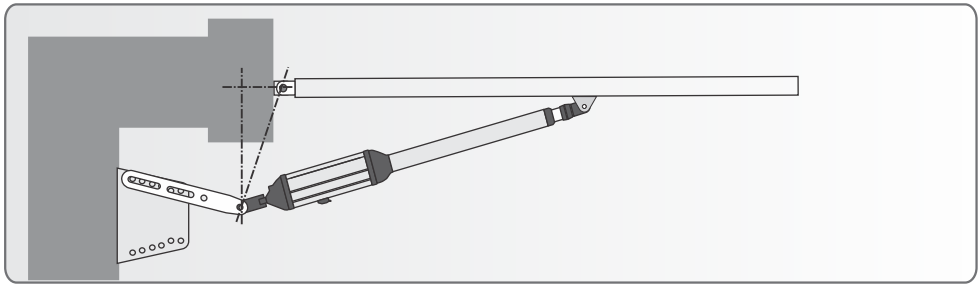


FIGURE 26. INSTALLATION ON AN ANGLED WALL

9. Cabling Requirements

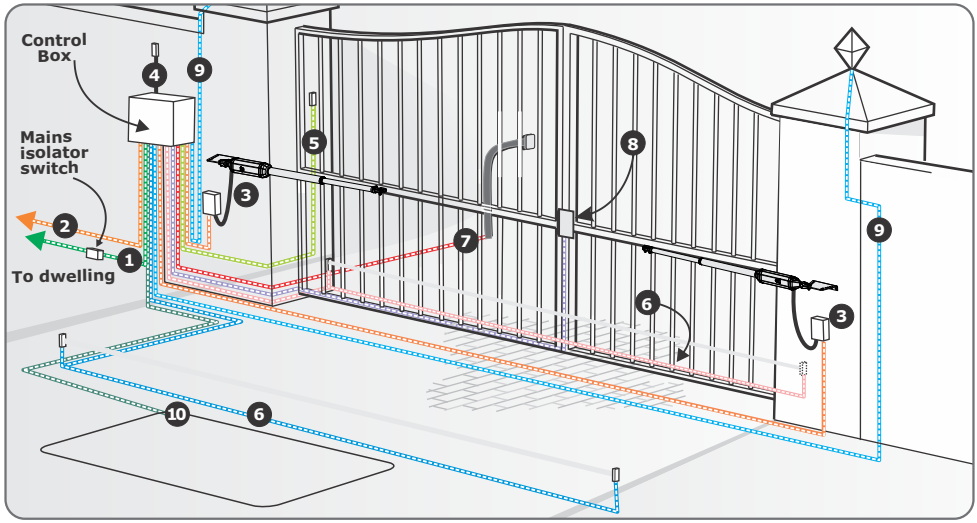


FIGURE 27. CABLING REQUIREMENTS

Legend

1. 90V❊/220V - 240V AC mains cable✠ via mains isolator★ switch (3 core LNE 0,5mm²)☆ or low-voltage 16V AC battery charger supply✤ (2 core 1,5mm²).
2. Intercom cable (n1 + 6 core) to house.
3. Master motor (MTR M) or Slave motor (MTR S) cable (minimum, 2 core 2mm² + 4 core 0,5mm² multi-stranded) see note✣.
4. Optional radio receiver cable (3 core 0,5mm² multi-stranded, optional)✺ .
5. Optional Pedestrian Keyswitch (2 core 0,5mm² multi-stranded) or optional keypad (3 core 0,5mm² multi-stranded).
6. Optional infrared Safety Beams/photocells (3 core 0,5mm² multi-stranded or 4 core 0.5mm² for CE compliance.)
7. Optional intercom cable (n2+2 core 0,5mm² multi-stranded) to gate station.
8. Optional electric lock (2 core 0.5mm²).
9. Optional Pillar Light cable (3 core, size according to power regulations).
10. Optional ground loop for free-exit (1 core 0.5mm² multi-stranded - silicone-coated).

❊ Applicable to CP84SM charger only
★ Mains isolator must be fitted less than 1 metre from controller
☆ Increase cable thickness if Pillar Lights are to be installed
✠ Screened cable is always recommended to provide better protection against lightning - earth one end of screening
✤ Domestic charger only
✺ For optimum range an external receiver can be mounted on the wall
✣ Centurion Systems (Pty) Ltd has custom **VECTOR2** cable available. Order reference: CABLEVEC68. Consult manufacturer of loop detector for specific details

- **All cables must be routed in conduit unless underground cable is being used**
- **Mains isolator must be less than one metre from the operator**
- **Safety Beams/photocells are always recommended**

10. Critical Installation Checklist

The following is a list of critical requirements that must be adhered to in order to ensure reliable operation of your **VECTOR2** operators:

- Ensure that the wall bracket is securely anchored
- Make sure that the actuator's maximum stroke is being utilised
- Only use **VECTOR** cable for the installation
- Leave a 350mm loop in the cable (refer to page 37)
- Fit an electromechanical or an electromagnetic gate lock if the leaf width is greater than three metres
- Ensure that the opening and closing angles conform to the installation guidelines
- Ensure that your gate and operators are equipped to deal with wind loading (refer to the table on page 36)
- Ensure that fixed mechanical endstops are fitted in the fully open position for outward swinging gates

11. Operator Installation

1. Determine the gate opening angle and direction of operator (inward or outward).

Alternatively the swing angle can be determined more accurately with the process detailed on page 35.

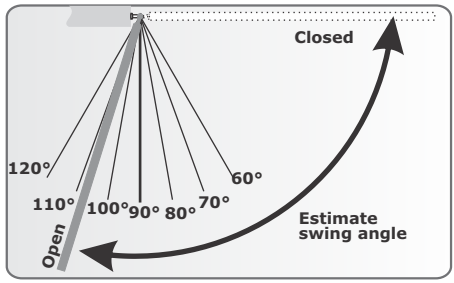


FIGURE 28. ESTIMATE SWING ANGLE

2. Determine a suitable height for the wall bracket.

The gate bracket must fit to a sturdy point on the gate.

Consider using the optional Gate Adaptor Kit.

Take care to make sure the operator is mounted level.

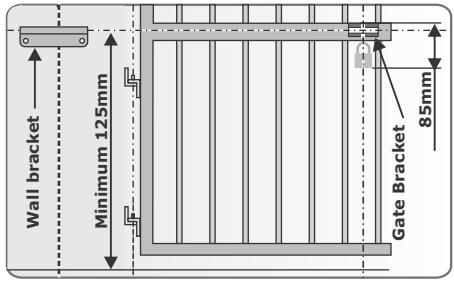


FIGURE 29. GATE HEIGHT

3. Determine where to put the bracket according to A and B values in the tables on pages 30, 31, 33 and 34.

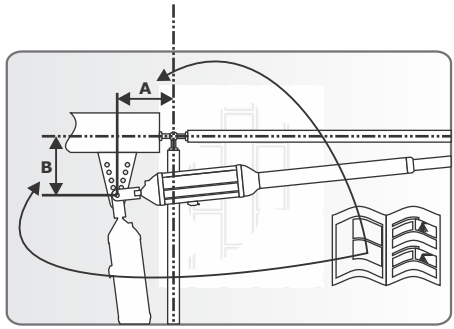


FIGURE 30. BRACKET POSITION

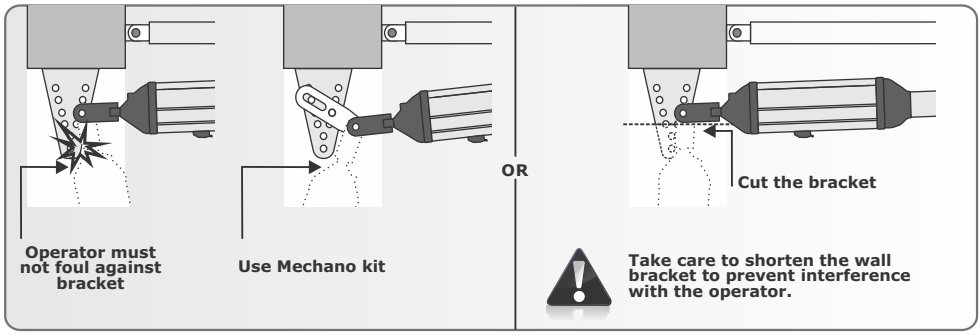


FIGURE 31. BRACKET POSITION

4. Secure the bracket to the wall with the most appropriate means.

It is critical that the wall bracket is securely mounted.

See page 15 for site considerations.

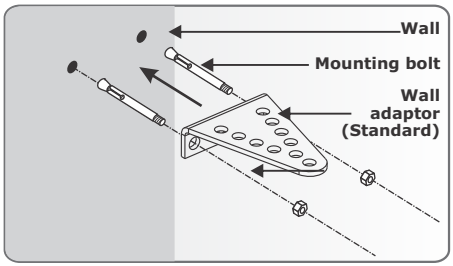


FIGURE 32

Determine the Gate Bracket Position

Start with the operator fully retracted.

Turn out the actuator tube one or two turns.

5. Fit the gate bracket to the operator.

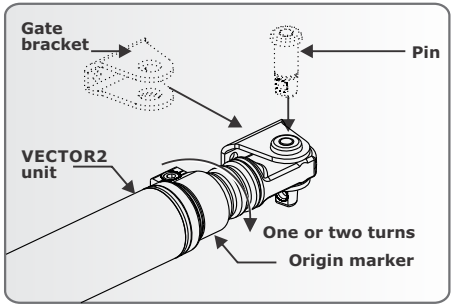


FIGURE 33

6. Fit the motor end of the operator to the wall bracket.

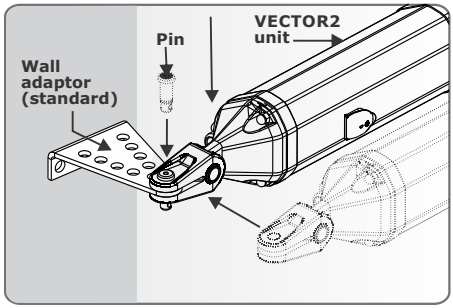


FIGURE 34

7. Open the gate fully and temporarily clamp the gate bracket to the gate.

The gate bracket must fit to a sturdy point on the gate.

Consider using the optional Gate Adaptor Kit. See page 13.

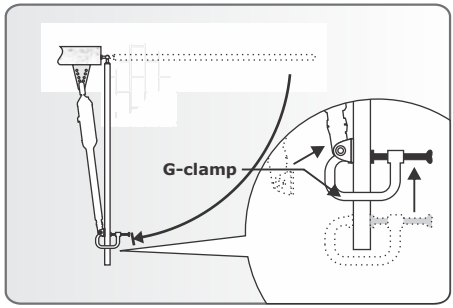


FIGURE 35

8. Unlock the operator and swing the gate into the closed position.
9. Remove the pin and the operator from the bracket, check that there is at least one or two turns of the actuator before it is fully extended.

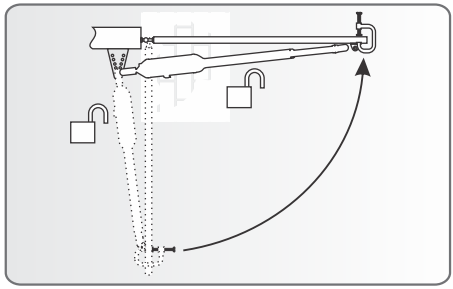


FIGURE 36

If it becomes obvious that the operator does not have enough stroke, reduce either the A or B distances by moving the wall bracket. A and B are illustrated in Figure 30 in page 24.

Be sure not to make the A and B values less than allowed for in the installation tables on page 30 and 31.

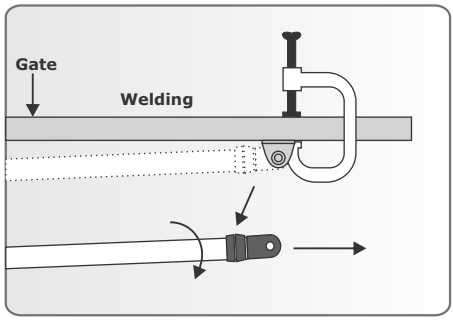


FIGURE 37

In general:

- Large B distances give good security and good closing push force
- Small A and small B will increase the speed

Fasten Gate Bracket to Gate

10. Secure the gate bracket using the most appropriate means.

It is critical that the gate bracket is securely mounted.

See page 16 for site considerations.

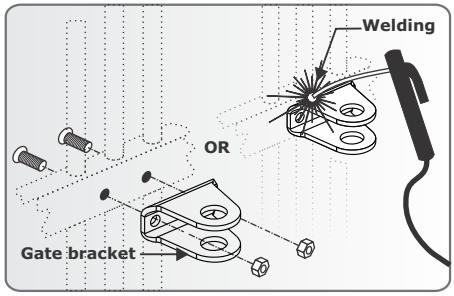


FIGURE 38

11. Fit the operator, wall bracket pins and snap rings.

As an additional security item, add a padlock, as well as the snap ring.

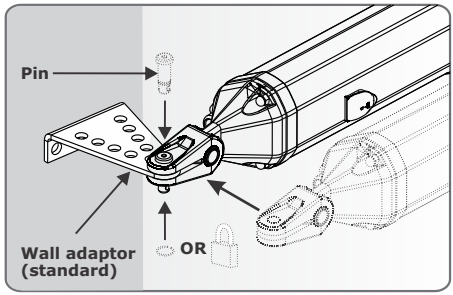


FIGURE 39

12. Fit the operator, additional security gate bracket pins and snap rings.

As additional security to the snap ring, fit a padlock and the optional padlock shield.

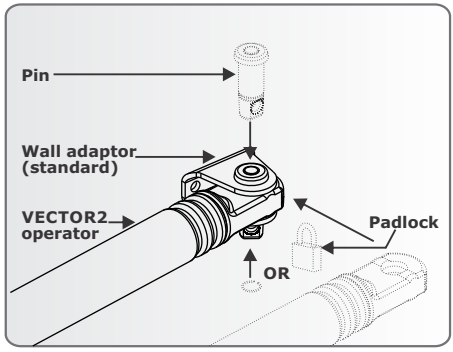


FIGURE 40

Adjust Origin Clamp

13. Unlock the operator and open the gate to the desired fully open position.
14. Slide the origin clamp along the actuator tube, right up to the operator. Secure in place with an Allen key and tighten properly.

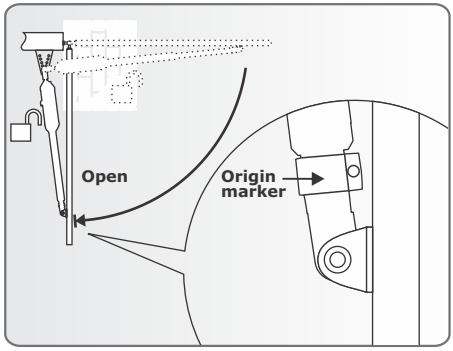


FIGURE 41

15. Attach warning decals to the gate as shown.

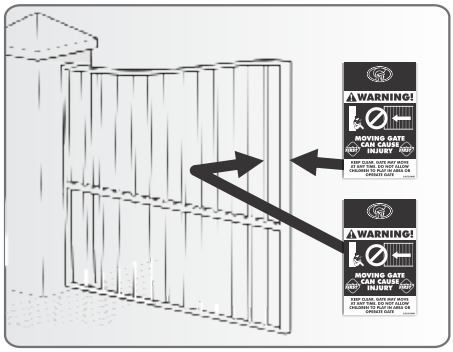


FIGURE 42

Inward Swing Gate Setup

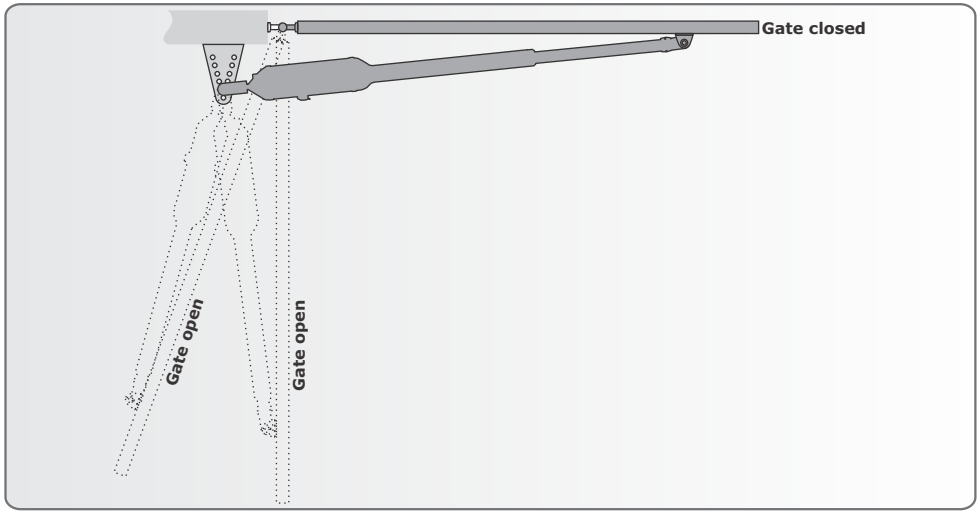


FIGURE 43

For gates opening 90° or less as A and B are shown.

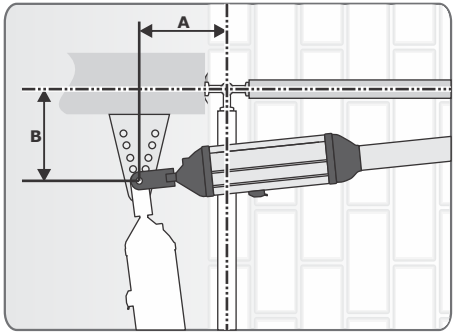


FIGURE 44. OPENING 90° OR LESS

For best security (but slower operation) install with large B value.

For fast operation (but less security) install with small A and small B values.

Ensure that the gate does not exceed the gate mass specifications on page 11.

For gates opening more than 90° as A and B are shown.

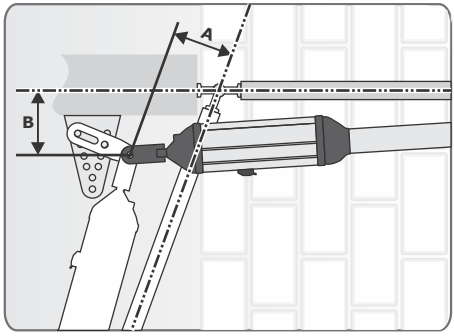


FIGURE 45. OPENING MORE THAN 90°

For V400 (400mm operator)

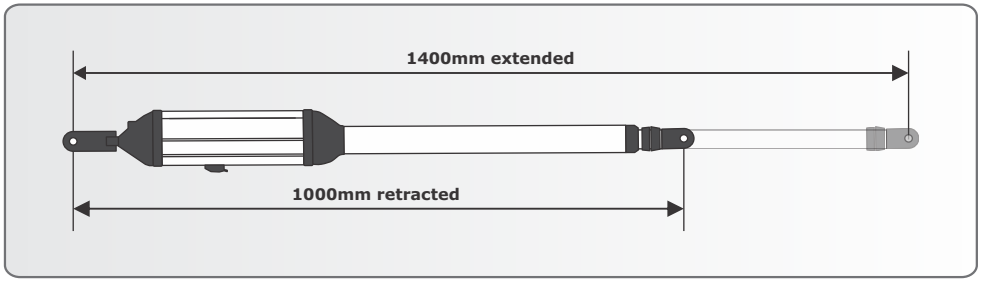


FIGURE 46

Recommended positions

(Only for a 2.5 metre gate or shorter)

Gate swing angle	A Value	B Value
90° or less	160	200
100°	120	180
110°	120	130
120°	110	110

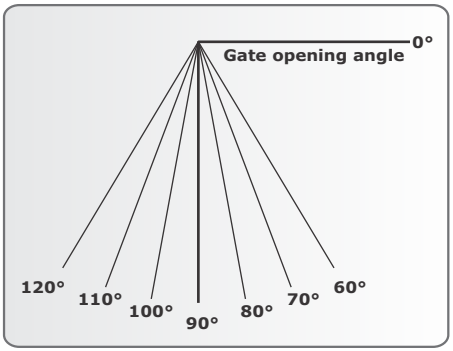


FIGURE 47

Alternative positions

Gate swing angle	A+B should not exceed	A and B must each be greater					
		Up to 1.5 metres	Up to 2 metres	Up to 2.5 metres	Up to 3 metres	Up to 3.5 metres	Up to 4 metres
60° - 90° or less	380mm	110mm	110mm	110mm	120mm	140mm	160mm
100°	310mm	110mm	110mm	110mm	120mm	140mm	160mm
110°	265mm	110mm	110mm	110mm	Not recommended		
120°	220mm	Not recommended					

110mm for A or B would ensure a 10mm clearance between the operator and gate if the gate is 50mm thick.

For V500 (500mm operator)

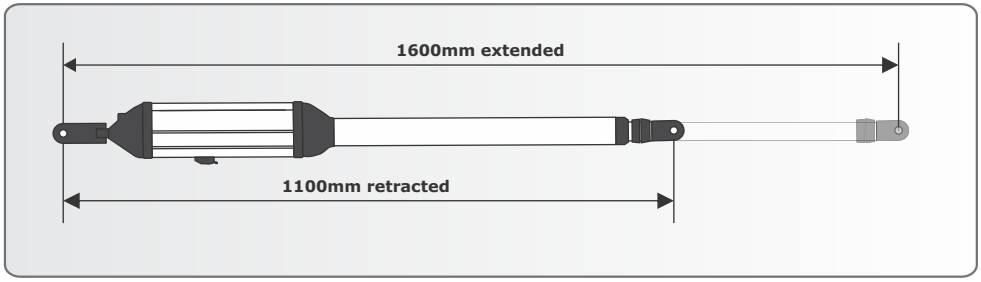


FIGURE 48

Recommended positions

(Only for a 2.5 metre gate or shorter)

Gate swing angle	A Value	B Value
90° or less	205	250
100°	165	215
110°	144	180
120°	115	150

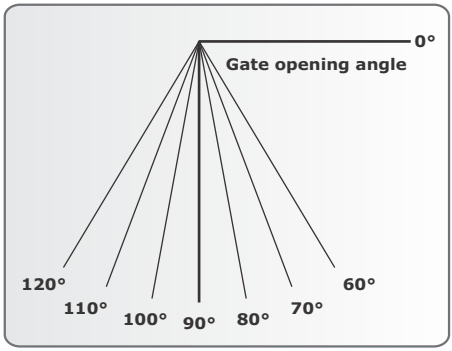


FIGURE 49

Alternative positions

Gate swing angle	A+B should not exceed	A and B must each be greater					
		Up to 1.5 metres	Up to 2 metres	Up to 2.5 metres	Up to 3 metres	Up to 3.5 metres	Up to 4 metres
60° - 90° or less	460mm	110mm	110mm	110mm	120mm	140mm	160mm
100°	400mm	110mm	110mm	110mm	120mm	140mm	160mm
110°	340mm	110mm	110mm	110mm	Not recommended		
120°	285mm	Not recommended					

110mm for A or B would ensure a 10mm clearance between the operator and gate if the gate is 50mm thick.

Outward Swing Gate Setup

For gates opening 90° or less as A and B are as shown.

For best security (but slower operation) install with large B value.

For fast operation (but less security) install with small A and small B values.

Ensure that the gate does not exceed the gate mass specifications on page 11.

For gates opening more than 90° as A and B are shown.

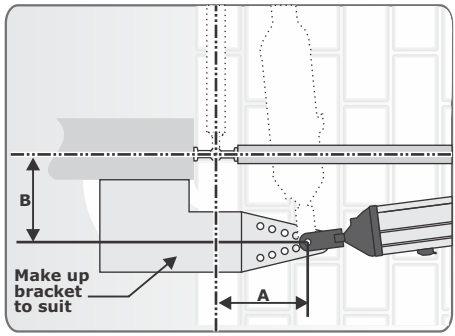


FIGURE 50. OPENING 90° OR LESS

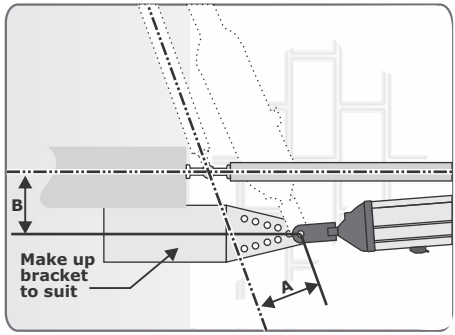


FIGURE 51

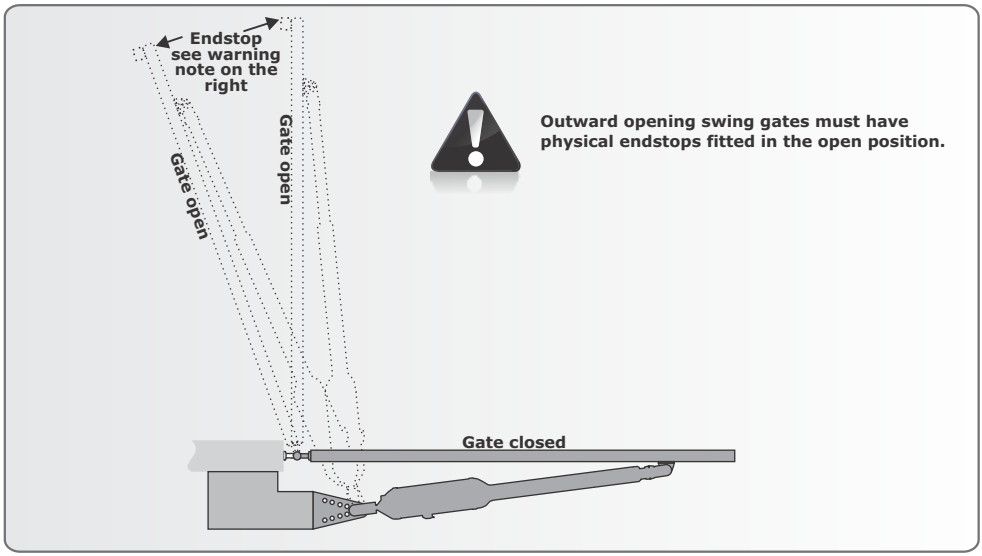


FIGURE 52.OPENING MORE THAN 90°

For V400 (400mm operator) outward

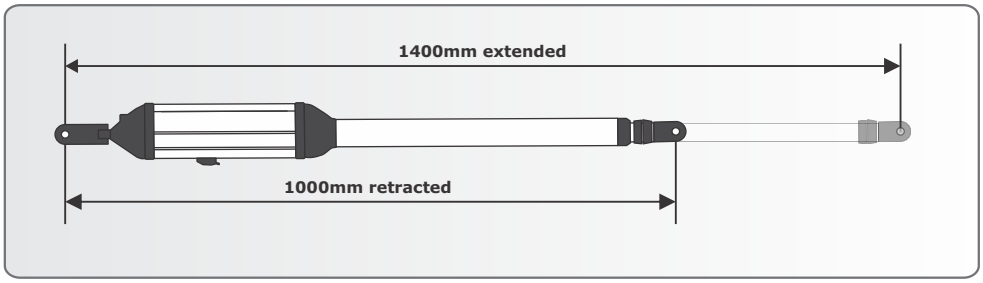


FIGURE 53

Recommended positions

(Only for a 2.5 metre gate or shorter)

Gate swing angle	A Value	B Value
90° or less	173	191
100°	145	160
110°	120	130
120°	106	114

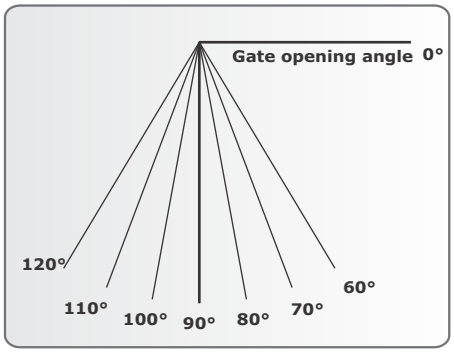


FIGURE 54

Alternative positions

Gate swing angle	A+B should not exceed	A and B must each be greater					
		Up to 1.5 metres	Up to 2 metres	Up to 2.5 metres	Up to 3 metres	Up to 3.5 metres	Up to 4 metres
60° - 90° or less	365mm	110mm	110mm	110mm	120mm	140mm	160mm
100°	310mm	110mm	110mm	110mm	120mm	140mm	160mm
110°	265mm	110mm	110mm	110mm	Not recommended		
120°	220mm	Not recommended					

110mm for A or B would ensure a 10mm clearance between the operator and gate if the gate is 50mm thick.

For V500 (500mm operator) outward

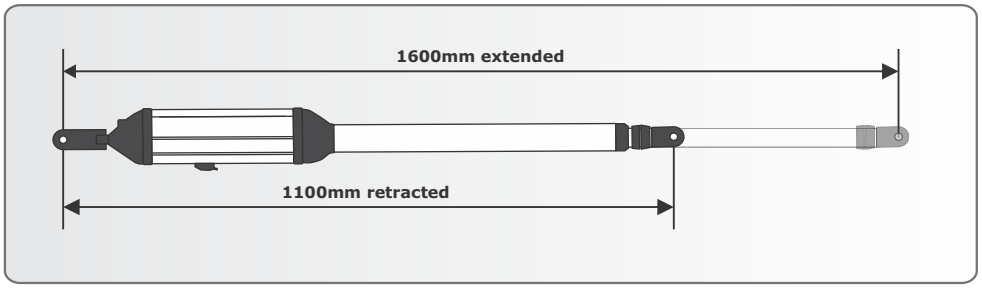


FIGURE 55

Recommended positions

(Only for a 2.5 metre gate or shorter)

Gate swing angle	A Value	B Value
90° or less	222	246
100°	185	205
110°	155	170
120°	128	139

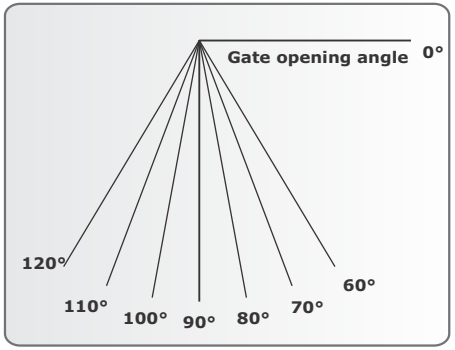


FIGURE 56

Alternative positions

Gate swing angle	A+B should not exceed	A and B must each be greater					
		Up to 1.5 metres	Up to 2 metres	Up to 2.5 metres	Up to 3 metres	Up to 3.5 metres	Up to 4 metres
60° - 90° or less	455mm	110mm	110mm	110mm	120mm	140mm	160mm
100°	390mm	110mm	110mm	110mm	120mm	140mm	160mm
110°	330mm	110mm	110mm	110mm	Not recommended		
120°	275mm	Not recommended					

110mm for A or B would ensure a 10mm clearance between the operator and gate if the gate is 50mm thick.

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