

D5 SMART POCKET MECHANICAL INSTALLATION GUIDE



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Please note, this product's primary function is to provide an automated solution for your gate. It is strongly advisable that a locking mechanism is installed at the gate for maximum security!

1. Introduction

This guide is designed specifically for installers who are familiar with the installation of standard sliding gate motors, but do not know the specifics of the D5 SMART.

Always ensure that all the safety instructions described in the installation manual are adhered to during and after the installation process is completed.

2. Important safety instructions

Safety FIRST
Please do not proceed with the installation until you have read and fully understand the safety instructions included in your product packaging. The safety instructions are also available on www.centsys.com, and may also be obtained by contacting Centurion Systems on +27 861 003 123 (SA only).

3. Icons used in this guide

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

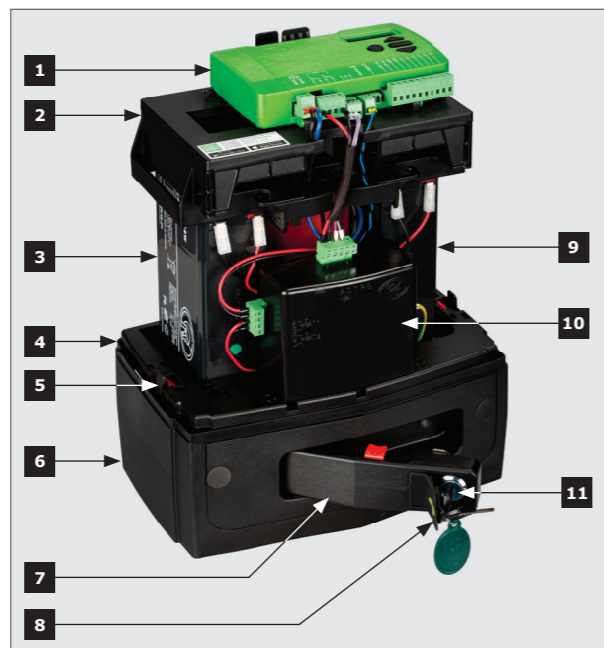
4. General description

The D5 SMART is a domestic and light-industrial operator designed to open and close sliding gates weighing up to 500kg. A custom-designed gearbox moulded from robust engineering polymers, coupled to a powerful 24V DC motor, provides fast and reliable automation for entrances to homes and small housing estates.

The system operates off two 12V batteries housed inside the operator using a switch-mode charger to maintain the battery in a fully-charged state. The batteries provide critical power failure protection.

A non-contact Hall Effect Sensor was selected to ensure reliability and positional accuracy. The Hall Effect Sensor is highly resistant to dust, oil, dirt or insect ingress, therefore ensuring that the D5 SMART opens and closes your gate reliably and accurately.

5. Product identification



- | | |
|---------------------------------|---------------------------------|
| 1. D5-SMART Control Card | 7. Release Handle |
| 2. Control Card Platform | 8. Camlock Cover |
| 3. 12V 6Ah Battery ¹ | 9. 12V 6Ah Battery ¹ |
| 4. Lower Battery Tray | 10. Switch-mode 1.3A Charger |
| 5. Lower Battery Tray Tab | 11. Camlock |
| 6. Gearbox | |

1. Batteries are not supplied with the D5 SMART. The D5 SMART supports both 6Ah and 7.2Ah variants.

6. Technical specifications

Gate mass - maximum	500kg
Motor push force - starting	30kgf
Motor push force - rated	17kgf
Gate speed (varies with load) ¹	30m/min @ 17kgf
Gate length - Maximum	100m
Packed unit mass (kit excl. battery)	9.1g

1. Gate opening and closing speeds can be configured to run slower depending on the requirements of individual installations

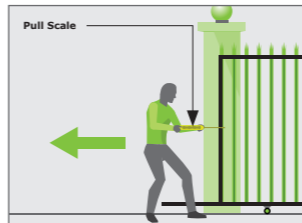
7. Preparation of site

General considerations for the installation

For comprehensive information, please refer to the full installation manual available for download on www.centsys.com

Install the gate operator only if:

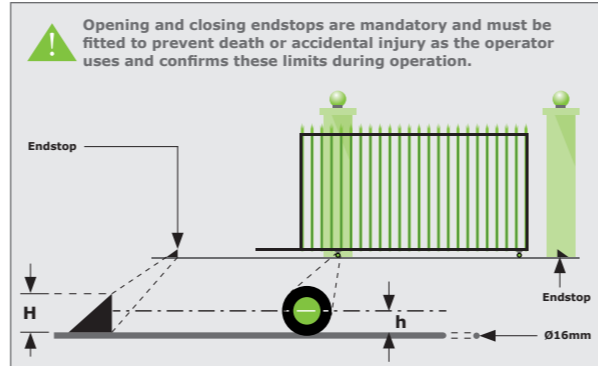
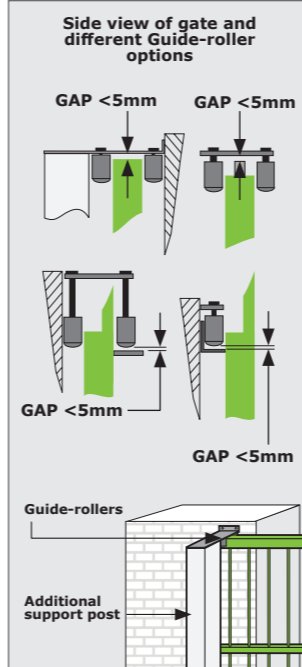
- It will not pose a hazard to the public
- There is sufficient clearance to a roadway and/or public thoroughfares
- The installation will meet all municipal and/or local authority requirements once completed
- The gate mass, length and application is within the operator specifications
- The gate is in good working order, meaning:
 - That it moves freely
 - Does not move on its own if left in any position
- 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 of the operator



Typical anti-lift arrangements

Guide-rollers must ensure that the gate is held vertically through the entire length of the gate travel. For improved safety, fit additional support posts to prevent gate from falling over if guide-rollers fail.

Ensure that the gate cannot be lifted off the motor pinion with the anti-lift bracket fitted



Opening and closing endstops are mandatory and must be fitted to prevent death or accidental injury as the operator uses and confirms these limits during operation.

8. Lubrication

The internal gearset of the D5 SMART is lubricated by means of an oil bath.

The D5 SMART is supplied with oil in its gearbox.

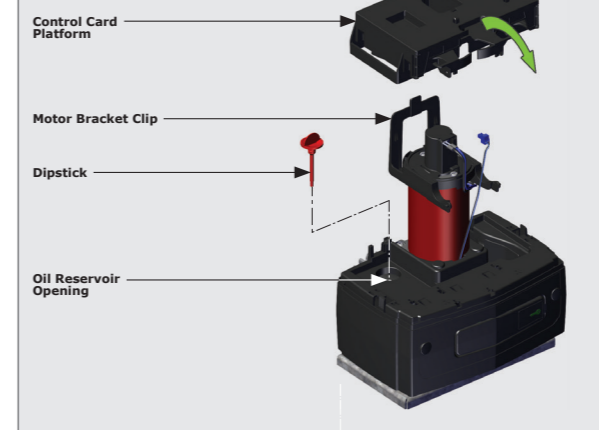
The D5 SMART does not require routine oil changes. However, in the event of the unit losing oil due to stripping down or mechanical damage, the correct replacement oil is Castrol SAF X0 75W-90 synthetic final drive lubricant.

If the gearbox is bolted down in the horizontal position during filling, the correct level is reached when the oil level is in the flat section of the dipstick.

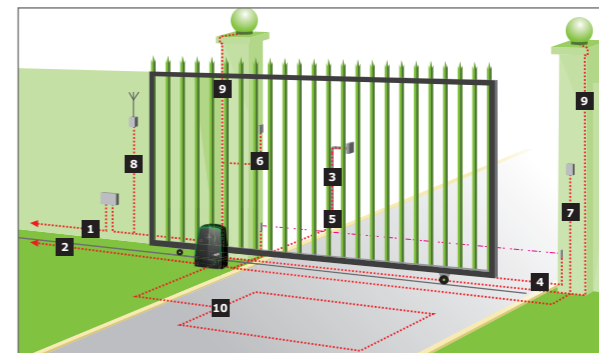
40ml of oil is sufficient for lubrication purposes

Oil filling procedure

- Lift the cover of the operator
- Release and tilt the Control Card Platform forward to gain access to the batteries (See "Section 8.1 - Fitting the Batteries in the installation manual")
- Remove the left battery to gain access to the red dipstick
- Remove the dipstick by pulling on the finger tab
- Pour 40ml of oil into the gearbox
- Refit the dipstick



9. Cabling requirements



Legend

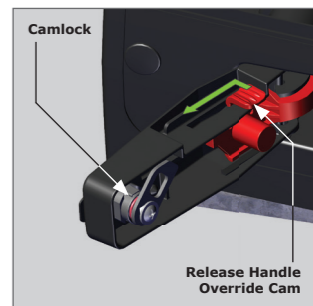
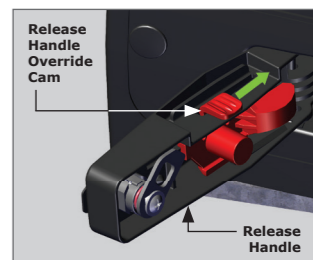
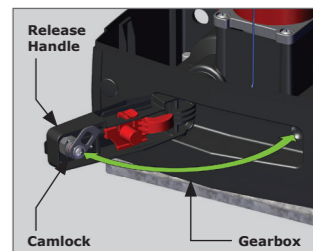
1. MAINS SUPPLY CABLE: 90V - 240V AC mains cable via double-pole mains isolator-switch (3 core L.N.E. 1.5mm² SWA)^{1,2}
2. Optional intercom cable from motor to dwelling (n1 + 6 core³ 0.22mm² multi-strand shielded cable)
3. Optional intercom cable from motor to entry panel (n2 0.22mm² multi-strand shielded cable)
4. Optional but recommended infrared safety beams (3 core 0.22mm² multi-stranded)⁴
5. Optional access control device (3 core 0.22mm² multi-stranded)
6. Optional pedestrian key-switch (2 core 0.22mm² multi-stranded) or
7. Optional keypad (3 core 0.22mm² multi-stranded)⁴
8. Optional external radio receiver (3 core 0.22mm² multi-stranded)⁵
9. Optional pillar lights (3 core LNE SWA, size according to power requirements)⁶
10. Optional ground loop for free-exit (1 core 0.5mm² multi-stranded - silicone coated)⁷

n1 means the number of cores required by an intercom
n2 means the number of cores required by an intercom
1. Possibly increase cable thickness if pillar lights are installed.
2. Type of cable must adhere to municipal bylaws but typically SWA (steel wire armoured) cable is recommended.
3. The armouring provides excellent screening, which gives better protection against lightning - earth one end of the screening).
4. Allows for all features such as pedestrian opening, status LED, etc., to be operated from the intercom handset inside the dwelling. Number of cores and type of cable could vary depending on brand of access control system being used.
5. Wireless accessories are available. Please refer to www.centsys.com for further information.
6. For optimum range, an external receiver can be mounted on the wall.
7. Requires option expansion module.
8. Consult manufacturer of loop detector for specific details.

10. Manual override

Before mounting the rack to the gate, ensure that the D5 SMART is in Manual Override. Follow the instructions below.

To disengage the motor, ensure that the Camlock is in the "unlocked" position, and pull the release handle as far left as it will go. The Motor will then be placed in a temporary state of disengagement.



Manual Override Latching

In the event of a power failure, it may be required to lock the cover in place whilst "latching" the manual release (i.e. manual release permanently enabled). This helps prevent theft of the unit, or its components, and provides full protection from the elements.

With the release handle in the open position, slide the override cam switch located on the inside of the handle towards the gearbox, and a "click" can be heard once it has located correctly. Return the handle to the closed, or locked, position. This allows continued manual operation of the gate while ensuring that the cover remains securely locked in place.

To re-engage the D5 SMART (i.e. take the operator out of latched manual override), push the Release Handle Override Cam to the left and then slide it towards the camlock.

11. Installation preparation

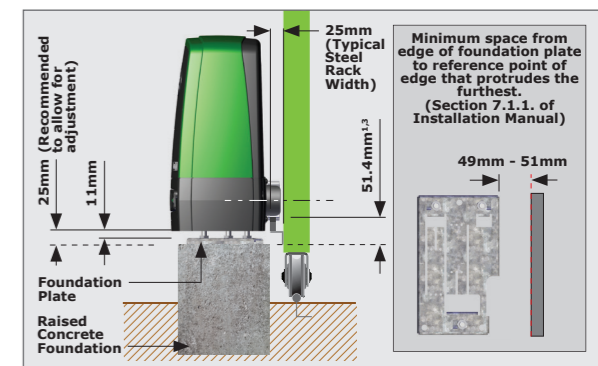
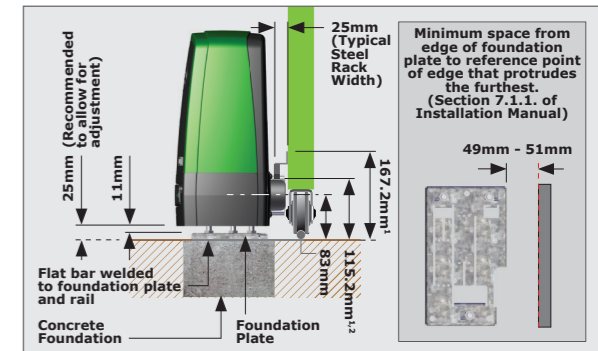
To ensure that the operator does not protrude into the driveway, install the base plate at least flush with the driveway entrance.

It is typical to mount the rack above or underneath the pinion as shown in illustrations below for each type of rack considered.

The measurements given below are based on the three different racks supplied by Centurion Systems (Pty) Ltd, and are to be used as guidelines only.

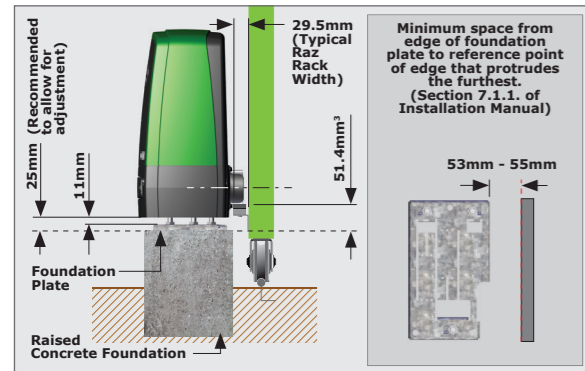
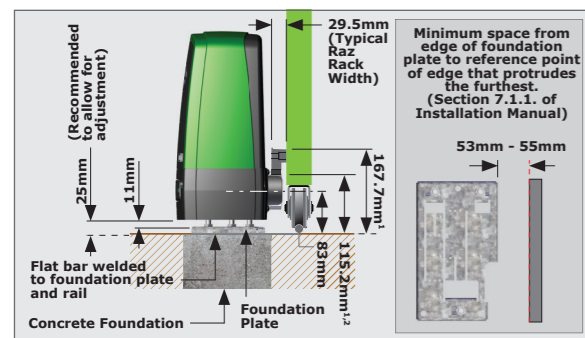
Ensure that all the standard considerations for a quality gate installation are adhered to as detailed in our detailed installation manual

Steel Rack



1. Includes 3mm clearance required between rack and pinion
2. Distance between bottom of the Foundation Plate and bottom edge of the Rack Tooth
3. Distance between bottom of the Foundation Plate and top edge of the Rack Tooth

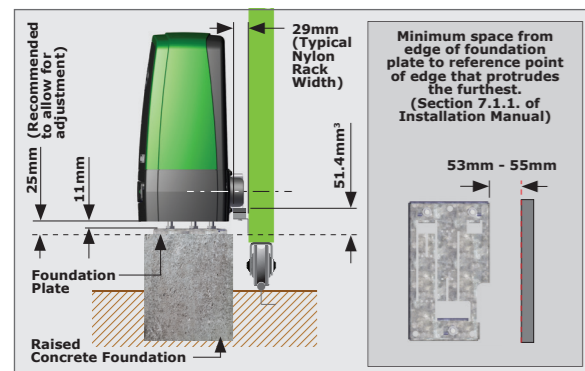
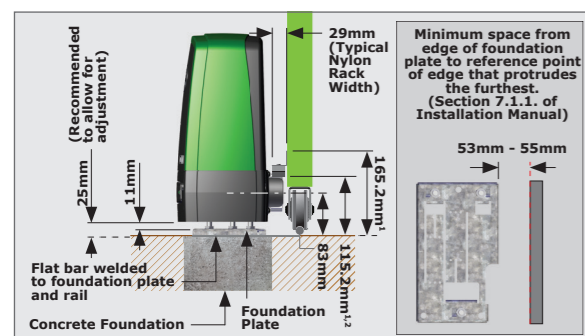
Raz Rack



1. Includes 3mm clearance required between rack and pinion
2. Distance between bottom of the Foundation Plate and bottom edge of the Rack Tooth
3. Distance between bottom of the Foundation Plate and top edge of the Rack Tooth

Nylon Angle Rack

If using nylon angle rack, please ensure that the weight and pull force of the gate do not exceed the strength limit of the rack.



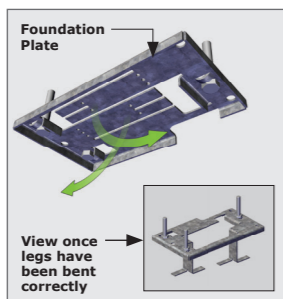
1. Includes 3mm clearance required between rack and pinion
2. Distance between bottom of the Foundation Plate and bottom edge of the Rack Tooth
3. Distance between bottom of the Foundation Plate and top edge of the Rack Tooth

Foundation plate installation

The foundation plate can either be set into a concrete foundation or bolted down onto an existing or new concrete plinth

Ensure that the mounting bolts are properly tightened.

- Using a pair of pliers, gently bend the two tabs of the foundation plate down to a 90° angle.
- Again, using a pair of pliers, gently bend the two legs on each tab to an angle of 90° in opposite directions.



Be careful not to deform the Foundation Plate while bending the tabs.

Lay the cabling conduit so that it routes the cables to the back of the Foundation Plate. Ensure that 30mm of conduit protrudes above the concrete.

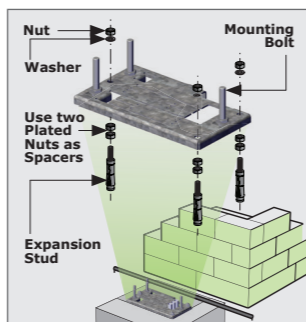
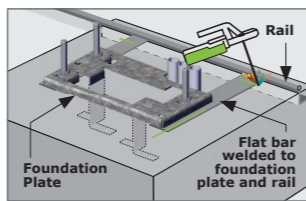
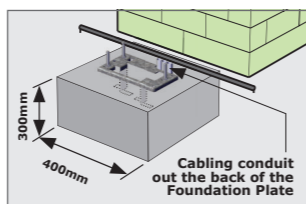
- Using medium-strength concrete (25Mpa), cast the plinth according to the dimensions.
- When using a concrete foundation, it is recommended that the foundation plate is welded to the rail/track of the gate using a short length of flat bar. This makes it possible to complete the whole mechanical and electrical installation without having to wait for the concrete to set. After completing the installation, the concrete can be poured and the operator left in manual mode until the concrete has set.

Existing Concrete Plinth

- If bolting onto an existing concrete plinth, place the foundation plate down in the correct position and use the plate as a template for marking the rawl bolt holes.

Ensure that the mounting bolts are properly tightened.

Rerouting of existing cables may be necessary.



Conduit and Cable Length

Use the allocated slot for existing conduit from previous D3, D5, and D5-Evo installations

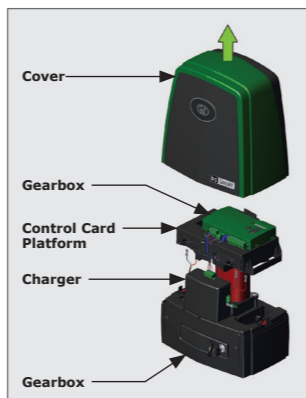
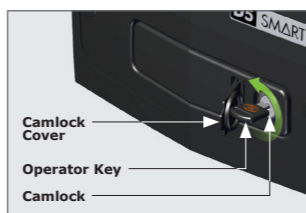
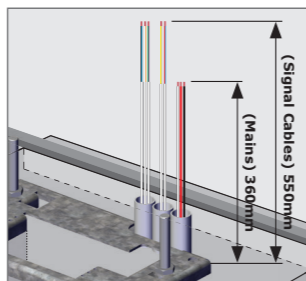
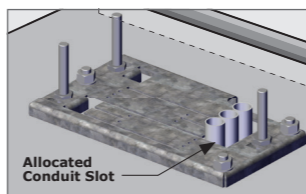
Route the cables as determined in Section 5.5, Cabling Requirements in the full manual

Make sure that the conduits protrude above the concrete foundation. The mains cables should protrude 360mm above the concrete foundation, and all signal cables (i.e. beams, etc.) 550mm above the concrete foundation.

Preparing the D5 SMART for installation

- Open the Camlock Cover, and insert the Operator key into the Camlock. Unlock it by turning the key anti-clockwise.

There is no need to open the Release Handle to remove the cover of the D5 SMART.



- Remove the cover of the D5 SMART to expose the internal components, and place it one side in a safe location.

- Disconnect the Charger from the D5 SMART Control Card at either Point "A" or Point "B".

If the disconnection is made at Point "A", note that there are two connector blocks that need to be disconnected from the Control Card.

- Disconnect the Earth from the Charger at Point "C".

- Remove the Charger from the lower battery tray by gently pushing the Charger slightly down whilst pulling it towards the front of the D5 SMART. It should slide forward and off with ease.

- To remove the lower battery tray, firstly ensure that the Camlock is in the "unlocked" position (marked as "A"). Open the release handle until the Camlock Cam is visible.

- Using a flat screwdriver, lever the Left and Right Tabs inward, and lift the lower battery tray up, and then out towards the front of the D5 SMART. Remove the loose Earth Harness and store it in a safe place.

- The D5 SMART is now ready to be mounted onto the foundation plate.

To remove the Control Card, refer to Section 7.4.3. in the full Installation Manual

Mounting the gearbox

- For a new site installation, place a Half-nut and a Bottom Height Adjuster onto each Mounting Bolt.

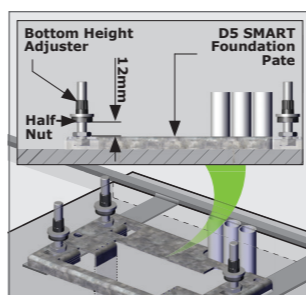
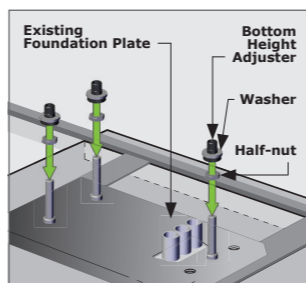
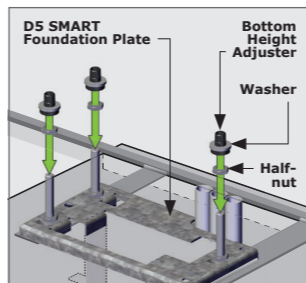
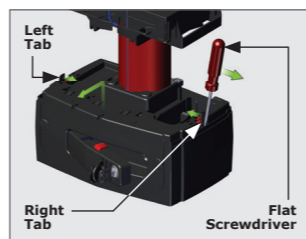
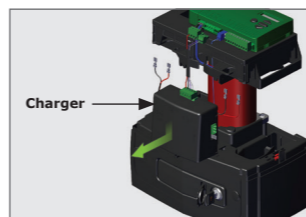
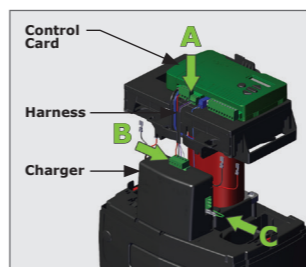
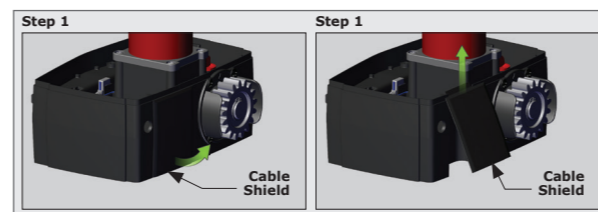
Note the orientation of the Bottom Height Adjusters.

- For a retro-fit installation, remove the original washers and height adjustment nuts from the existing foundation plate and then place a Half-nut and a Bottom Height Adjuster onto each existing Mounting Bolt.

Note the orientation of the Bottom Height Adjusters.

- Adjust the Half-nuts to be 5mm clear from the Foundation Plate.

- The Cable Shield needs to be removed before mounting the D5 SMART onto its Foundation Plate. This is done by levering the bottom end of the cable shield away from the motor until it unclips from the gearbox, and then slide it up.



- The Cable Shield needs to be removed before mounting the D5 SMART onto its Foundation Plate. This is done by levering the bottom end of the cable shield away from the motor until it unclips from the Gearbox, and then slide it up.

- Once the Gearbox is resting on top of the Bottom Height Adjusters, slide the D5 SMART as far as possible towards the gate to allow for later adjustment.

Routing the Cables

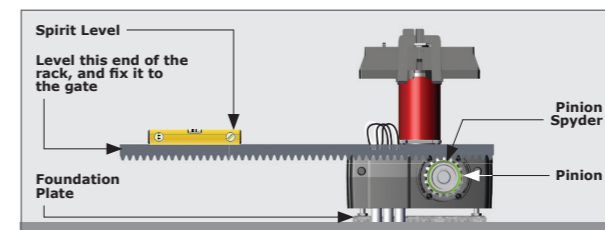
- Route cables as determined in the main manual, Cabling Requirements.
- POINT A is the exit point for cables with the conduit installed at the back of the unit for new installations.
- Although POINT B is the exit point for cables with the conduit from existing D3, D5 and D5-Evo installations, it is recommended to route the cable under the Gearbox and out the back through Point A as shown.

Mounting the rack

The rack must be securely mounted to the side of the gate. It must be parallel with the gate rail and there must be a 2-3mm gap between the rack teeth and the teeth of the pinion.

The D5 SMART is supplied with the Pinion Spyder, which greatly enhances the accuracy and speed of achieving the 2-3mm gap between the pinion and the gate's rack.

- Ensure that the D5 SMART Gearbox is in Manual Override.
- Start with the gate either fully open or fully closed.
- Slide the D5 SMART back towards the gate to where the Pinion will sit just under where the rack will be fixed to the gate.
- Rest the rack directly onto the Pinion Spyder while welding / bolting the rack into position.
- Level the other end and fix that end to the side of the gate.



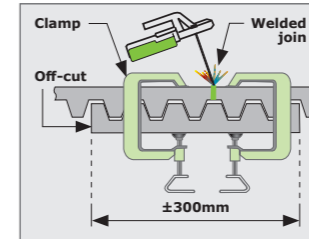
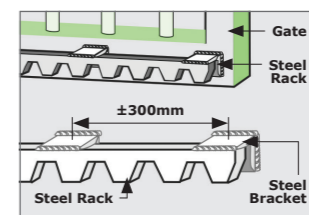
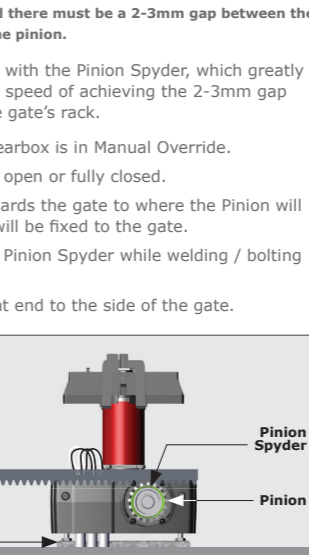
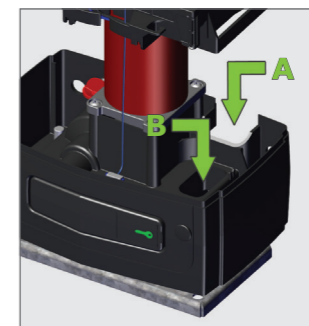
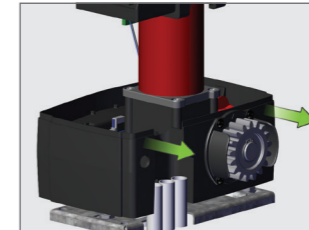
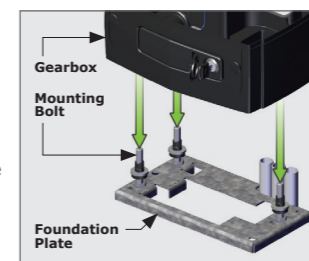
Before fully fixing each section of rack, slide the gate backwards and forwards along the section, checking that the rack is only resting on the Pinion Spyder, and not pressing down onto it.

Steel Rack

- Fix the Steel Rack with the steel angle brackets provided. The brackets must be spaced no more than 300mm apart.

- When joining different lengths of steel rack, a simple way of ensuring that the correct pitch spacing is achieved, is to clamp a small off-cut between the two pieces.

Do not weld the off-cut to the gate or the join.



Raz Rack

- Fix the RAZ Rack to the side of the gate using the TEK screws provided. Use the vertical slots in order to allow for adjustment.

When fitting the RAZ Rack, it is easier to start on the right and work towards the left.

The RAZ Rack sections simply interlock together.

Fit an additional fixing screw through the horizontal slots to secure the rack to the gate directly above the Pinion when the gate is in the closed, pedestrian and open positions

Nylon Angle Rack

- Fix the Rack to the side of the gate using TEK screws.

Ensure that all the mounting holes provided in the angle section are used.

- When joining two lengths together, simply butt each section firmly to ensure that the correct pitch is achieved.

