

Sub Major Concrete-In Ground Anchor Fitting Instructions

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Important Requirements

Caution: The ground anchor is heavy so please handle it carefully.

Any security installation is only as strong as its weakest link:

This ground anchor must be used in conjunction with an appropriately fitted Sold Secure-approved lock and chain.

The integrity of the anchor is dependent upon the quality of the surface to which it is fitted. If you are laying fresh concrete, you should use a structural mix of concrete and not a *post-fix* mix such as is sold for fence posts. A *high strength* or *foundation mix* is fine.

If you are unsure, please contact your supplier for advice.

What Will I Need?

The ground anchor is supplied ready to install into a hole ready to be filled with fresh concrete. The items you will require for installing it are as follows:

- Tools for digging the hole and mixing the concrete (e.g. a pick axe, a spade or shovel)
- Some hardcore and ballast and a couple of bricks (or similar) to put in the bottom of the hole for drainage and support
- Concrete materials (either ballast (sand & gravel) and cement, or gravel, sand and cement, or a *foundation* ready-mix)
- A flat wooden board to mix the concrete on, e.g. 100cm x 100cm
- Buckets of water (both for the concrete and for cleaning tools afterwards)
- A straight edge such as a builder's spirit level or piece of timber, at least 600mm long
- Optionally, a part-brick or two to help stabilise the anchor in the bottom of your hole
- Optionally, a steel bar e.g. 12mm diameter and 300mm long (Rebar is fine)
- Optionally, a trowel for smoothing the surface of the concrete
- Eye protection – goggles or a visor should be worn (splashes of cement in the eye can be very painful!)
- Gloves – cement can be harmful when in prolonged contact with skin

How Long Should I Allow to fit a Sub Major Anchor?

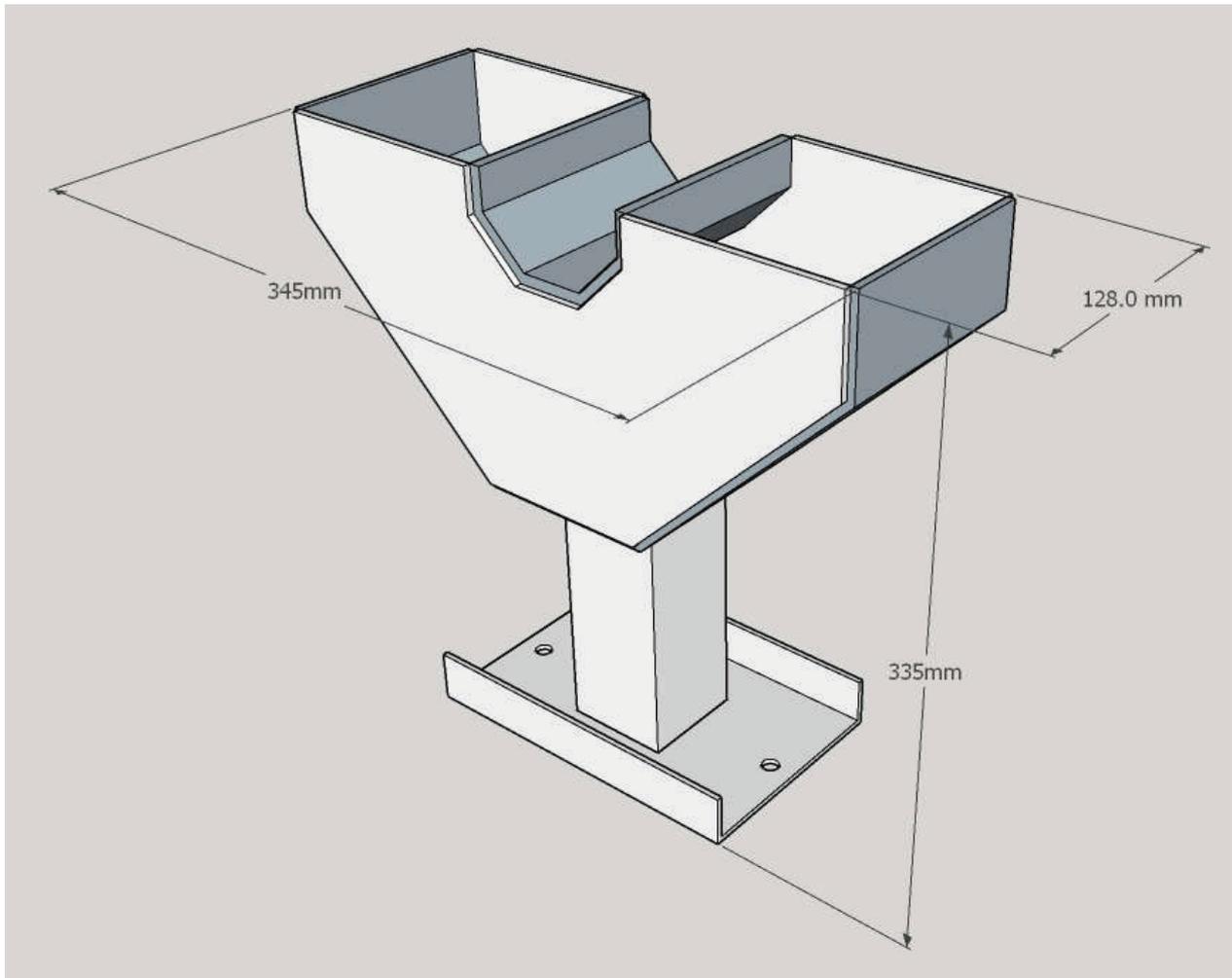
Probably 60 minutes as a guideline, if the hole is already prepared. Be careful and don't rush.

What Items Should be in the Box?

The ground anchor product includes:

- The ground anchor itself
- Square plastic plugs that can be used to cover the openings when the anchor is not being used (Quantity 2)
- These instructions

How to Fit a Sub Major Ground Anchor



This ground anchor is designed to be fitted by any competent DIY enthusiast.

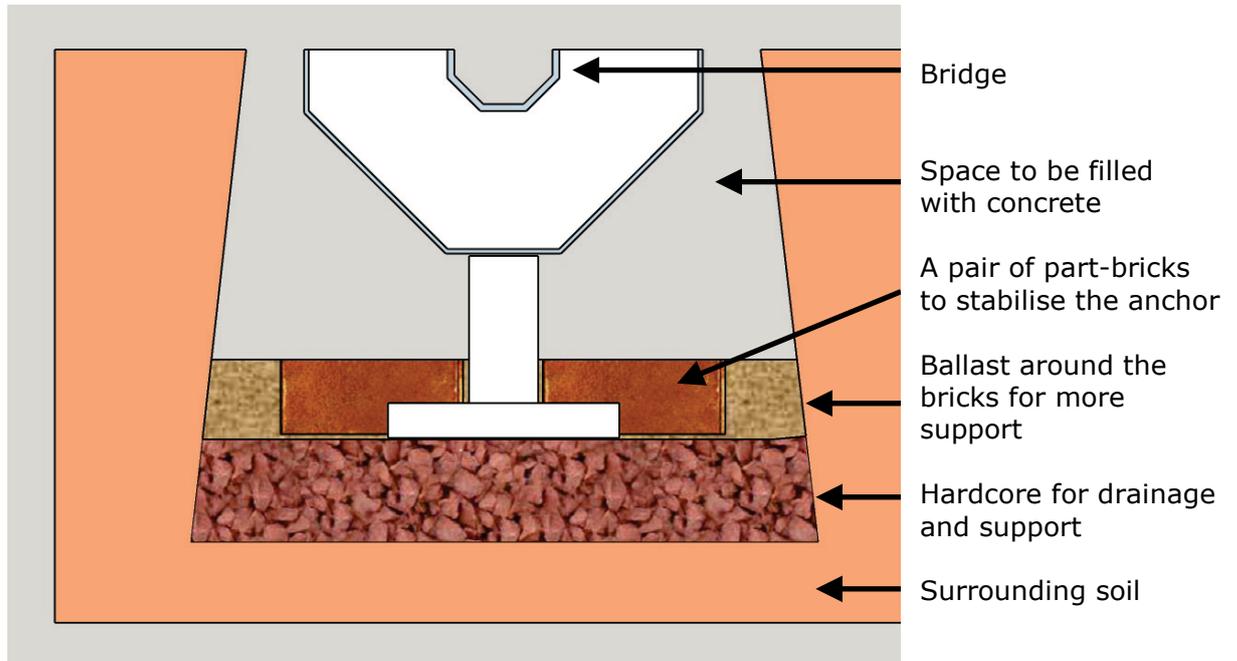
You should read through these instructions in their entirety before starting to fit an anchor. If you are not confident of your ability, you should ask an experienced person or professional builder to help.

In the following instructions, the term *bike* is used to mean any valuable item that you wish to secure with your ground anchor.

- 1. Check the contents of the box:** Ensure all items are present and that you have all required materials and tools. Contact your supplier if you need any advice.
- 2. Choose a good location:** Be careful to choose an appropriate location for fitting your anchor, clear of any underground pipes, cables etc (the use of a metal detector or other pipe/cable detector is recommended if you are unsure). The anchor is designed for permanent installation so take time to ensure the chosen position will allow you to secure your motorbike with the chain etc that you have chosen. Putting the anchor near a corner or other location such that the bike restricts access to the anchor can make it a lot harder for a criminal to attack, as can keeping chains and locks off the floor. We recommend that you place something on the floor in the intended location and check that you can get the bike into position and ensure you will be able to fit the chain & lock. Time spent now checking the intended location is

much better than realising later that you can't get the bike within the range of your chain!

- 3. Dig the hole:** The concrete should fill a space that has been excavated in advance, measuring **at least** 450 x 300 x 450mm deep. The larger the volume of concrete and the more it is *keyed-in* to the surrounding soil etc, the better. These dimensions will allow for 100mm depth of hardcore at the bottom of the hole with *approximately* 120kg of concrete covering it and surrounding the majority of the anchor. The amount of concrete can be reduced a bit if you use some ballast or more hardcore around the bricks, too. A larger hole will need more materials. See below.



If you *undercut* the edges of the hole, so that the hole is widest deeper in the ground, the more retention the anchor will have when the installation is complete, as shown in the diagram above.

Remember that any anchor is only as good as the substrate/base it is fitted to. If you only dig a small hole, the anchor will be more vulnerable than if it were fitted to concrete filling a good-sized hole.

- 4. Place a layer of hardcore at the bottom of the hole:** The anchor needs to have its footplate *below the concrete* so that water coming down the drain tube will drain freely into the hardcore and surrounding ground. Take care to get the anchor so its very top surface comes flush with the surrounding ground level. Adjust the dry in-fill at the bottom of the hole to achieve the correct position and height of the anchor, also getting the top surface to be horizontal (or matching the surrounding ground, if it is sloping at all). The long straight edge or spirit level will help with this.
- 5. Place the anchor in the hole and support it carefully:** The anchor needs to be stable and at the correct height *before you start adding any concrete*. This is easiest if it is standing on a stable layer of hardcore *and* if you hold it down with a broken brick or two, or similar, placed *on top of the footplate*. The foot plate is deliberately a channel shape that is wide enough for you to rest a brick in it, on each side. If you wish, you can also add ballast or hardcore around the bricks, so that it is all held quite firmly. Getting the anchor in the right place, and stable, will make the concrete stage much easier. Take your time on this.
- 6. Mix the concrete:** Typically, the following proportions are appropriate, either:

- a) 6 parts of Ballast (sand and gravel) to 1 part of cement, or
- b) 4 parts gravel to 2 parts sand to 1 part cement.

These above measures are all *by volume*, e.g. corresponding to shovel-fulls. Alternatively, use a *high strength* or *foundation* ready-mix, where the constituents have been pre-mixed for you. Avoid using a post-mix or any other weak concrete or mortar mixes (bricklaying mortar or rendering or plastering mixes are *not* suitable!).

If you purchase materials in 20kg bags, you are likely to need a total of around 6 bags to fill a hole with the dimensions given above, assuming you have used ballast or hardcore as described above. Check any instructions that come with the product you use.

Wearing gloves and eye protection, mix the ingredients until they have a consistent colour. Ensure that the cement is evenly distributed through the other materials – there should not be any dusty cement at this stage as it should all be mixed with the sand and gravel.

Add water, very steadily, and mix thoroughly. You want to get a slurry that will only just flow a little and that will retain some shape in a heap. It is much better to add a little water and to see that the mix is still dry so that you can add a little more water, than to add too much water and to have to add more cement & sand & gravel to get a good consistency in the mix. Adding a little water, several times, and mixing thoroughly through the whole heap is a much more reliable and quicker way of getting a good mix.

You may find that it is easier to mix the concrete in a few goes, rather than trying to mix it all at once. This will also allow you to gauge the amount required to fill the hole accurately, without having a lot of mixed concrete left over. If you do mix it in multiple batches, you should *ideally* complete all of them within a couple of hours because you need to set the ground anchor into wet concrete *and* because you want the concrete to set as a single mass, without cracks or gaps.

- 7. Put the concrete into the hole, steadily:** Add the first few shovel-fulls of concrete, *carefully*, into the bottom of the hole. Try to avoid knocking or pushing the anchor out of position. Taking care with the concrete at the bottom of the hole will help to keep the anchor in position. Gradually and evenly, continue filling the hole with concrete, surrounding all sides of the anchor. Avoid putting a lot of concrete on one side, only, as this will likely push the anchor out of position and require some scooping-out to get it back in the correct place.

Check that the anchor is remaining at the correct height and also that it stays upright as you fill the hole. It will be difficult to adjust the anchor downwards, for instance, when the hole is full of concrete! The preparation recommended above, with the bricks etc, makes a big difference, here.

Keep filling the hole with concrete until it comes near flush with the top of the anchor and the surrounding ground.

Optionally, if you wish to increase the security level even further, squidge a metal bar into the concrete across the *bridge section* at the top of the anchor, so that it also buried in concrete on both sides of the anchor. The bridge section is deliberately made out of thicker-section steel plate to resist any kind of attack, but adding some extra metal amongst the concrete will make the concrete in this zone even harder to break away, further restricting any option for attack.

You can smooth the surface of the concrete with a trowel, if available, or with the back of a spade or shovel. You should find that by *working* the concrete mix slightly, you can get the surface to smooth out.

Also, be careful not to allow any of the concrete mix to get inside the anchor itself. If any concrete does get inside then clean it out by hand and wipe it clean before the concrete sets.

Clean your tools before the concrete starts to set! Cement is harmful to the environment so take care with how you dispose of the washings from tools and any surplus mixed concrete. Avoid allowing any cement or concrete mix getting into any streams or other watercourses as it will kill fish and other organisms.

8. Leave the concrete to harden: Do not disturb the anchor while the concrete is setting. It should start to go hard after a couple of hours, and should normally be hard enough to walk on after two days.

9. The installation is complete. Well done 😊

Using a Sub Major Ground Anchor

A properly installed anchor should give you many years of trouble-free service.

Remember that you must use an appropriately fitted Sold Secure-approved lock and chain to be confident in your security provisions.

The plastic plugs can be used to blank-off the square openings at the top of the anchor if you are not using the anchor for a period of time, to reduce the rain and debris that gets into the anchor.

Install the plugs by simply pushing them, gently, into the openings. Don't push them in too firmly as they will become difficult to remove!

Removing the plugs can be done with a blunt tool such as a screwdriver, pallet knife, blunt cutlery knife or similar.

The only maintenance normally required is to clear out any leaves or other debris that might get into the anchor. Using the plastic plugs supplied to help keep debris out of the holes when the anchor is not in use should help.