

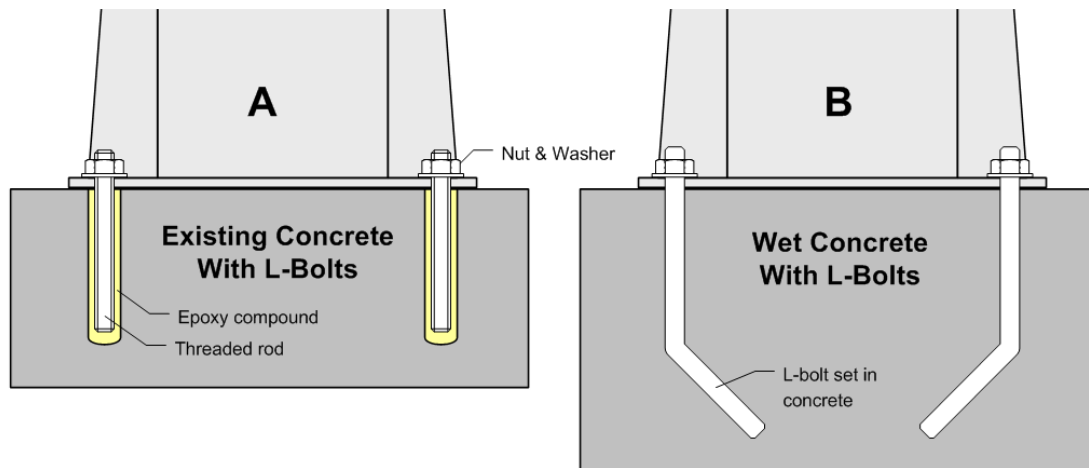
Altair-SkyShed 8” steel pier, installation guide:

The Altair-SkyShed telescope pier is a unique design made in the UK by Altair Astro Limited. This pier system is unique because it can be adjusted in levelling and rotation after it's installed and bolted down, so you don't need to be an expert to install it. There are many ways to install your pier and these instructions provide general guidance but you may decide to follow a different path.

Overview of contents: In **Section 1**, we outline the most common installation methods. In **Section 2**, we explain how to install the pier-top and mount-adapter. In **Section 3** we provide tips on decking installation, and caring for your pier.

Section 1: The two most common ways to install your pier:

Method A: Installation on an existing hard masonry or concrete surface with the straight bolt option, and a glue compound to anchor the pier. **Method B:** Pouring your own concrete base, and using the L-Bolt option, setting the bolts in the concrete:



Method A: Installing your Altair Pier on existing masonry or concrete surfaces:

- 1) You will have 4x M12 nuts, 4x M12 bolts, and 4x M12 threaded rods with this option.
- 2) Make sure that the concrete or masonry surface is at least 6” thick. The thicker the better.
- 3) Place the pier on the surface, and mark the surface through the 4x base-holes clearly.
- 4) Drill the holes with a 12mm masonry drill bit. Check the depth. You may need to cut down the M12 metal studding provided, and you should leave about 60mm protruding from the base of the pier to hold the nut and washer. We suggest the cut side is pointing downwards so you have a good thread on the top side.
- 5) Pour a “builder’s epoxy” formula or other construction glue compound into the holes, and place the straight bolts provided into the holes. Ensure they are 90 degrees to the surface.
- 6) When the epoxy has set, and before tightening the pier down with the 4x nuts and 4x washers provided, use a little anti-seize compound or grease on the threads to make removal easier in the future.
- 7) Place the pier-top on the pier, rotate into position and tighten it down.

Method B: Installing your Altair-SkyShed Pier by pouring a concrete block:

- 1) You will have 4x M12 nuts, 8x M12 bolts, and 4x M12 threaded rods with this option.
- 2) Dig a hole about 60-90cm deep by 45x45cm.
- 3) 60cm for small light telescopes such as a 4" refractor, 90cm for larger telescopes (the best option).
- 4) You can screw a wooden template to wooden "formers" for a neat level base protruding from the ground, or you can use paving slabs to contain the concrete level with the ground.
- 5) Calculate the volume of concrete you require, so you know how many bags to order i.e. width x depth = volume in cubic cm. We recommended with 3-4x parts aggregate (consisting of small stones & builder's sand) to 1x part concrete. Better still, simply buy pre-mixed concrete. If pre-mixed, **we recommend a "slow setting" concrete**, to give you time to position your plywood pier template.
- 6) We recommend making a wooden template measuring a minimum of 40x40cm or larger, depending on the pier base size you're planning. This can be made from any scrap wood such as decking or plywood. Place the pier on the template, and mark the base-holes with a marker pen, then drill them out with a hand drill. Use a 12mm "wood" drill bit. Once the holes are drilled, fasten the L-Bolts in place using the 4x included M12 washers and 8x included M12 L-bolts in the "L-bolt" pack. (The "straight bolt pack" includes 4x M12 nuts and 4x washers). The washers go on top of the template. Save the washers to use later between the pier base bolts and the pier base. **Make sure the bolts are positioned correctly before pouring the concrete so you have less to do.**
- 7) We recommend doing a test-fit of the pier template beforehand, and checking fit and levelling with a spirit level. We recommend screwing the template to the formers, or putting a heavy weight on top to allow the concrete to set without moving the template. **Tip:** The pier base has a hole through which you can introduce cables. If desired, before pouring the concrete, place a soft plastic pipe through the hole and out of the side of the concrete, through which you can pull the cables.
- 8) Add some hardcore rubble such as broken brickwork or roof tiles and such (but no organic matter) to the hole, and tamp it down hard to form a base layer, then fill the hole with concrete mix in 2 or 3 stages, tamping the wet concrete down to get rid of air-bubbles between each stage. If using quick-set concrete, do not leave too much time between the stages, or the concrete will start to set in layers. We recommend slow-setting "normal" concrete. **Quick-setting concrete is not recommended.**



- 9) Flip the wooden pier template over, and slowly push it into the wet concrete until some excess concrete comes out the sides. Screw it down or weigh it down. You will be surprised how much weight you need! Once the pier template is settled down nicely, you can scrape any excess concrete off from the sides with a trowel. Leave it for a day or so, to reach maximum strength.
- 10) When the concrete has set, unscrew the top bolts from the plywood template. The lower bolts will be embedded in the concrete, and should be level with the base of the pier. You can leave them where they are. Some customers paint or coat the concrete at this stage so that it doesn't soak up moisture, and to make it look neater. Use a good quality masonry paint or concrete floor sealer.
- 11) When you are satisfied with the concrete mounting surface, place the pier in position. (Please be careful not to hurt your back - the base weighs approx. 30kg and non-slip gloves are recommended). Before tightening the pier down with the nuts and washers provided, and use a little anti-seize compound or just normal grease on the threads, to make removal easier in the future. **You do not need to over-tighten the pier bolts, it doesn't increase the strength or stability and you can inadvertently strip the threads.** A balanced telescope will not place much strain on the base-bolts in any case. **Tip:** Do not install rubberised compounds or any soft material between the pier and the concrete base. It's best for the base to be in contact with a hard surface.

Section 2: Installing the pier-top and mount-adapter:

- 12) Install the mount-adapter. Some light-duty mounts require a centre bolt (usually M10) to come up through the pier adapter and pier top-plate to fasten them down. Holes are provided in the pier top and pier-adapter for this purpose. If you do not want to use the existing bolt from your tripod, you can use any M10 bolt to fix these mounts down. Remember to line up the azimuth stop bolt (if you need one) with the crescent-shape cut out in the side of the pier top-plate for easier access to your polar scope. For heavier duty mounts which are fastened down from the top, you can minimise the distance between the two pier top plates.



- 13) When fastening the pier-top to the pier base, there is no need to over-tighten the side bolts to the point where they distort the pier top. If your telescope is properly balanced on its mount, then it doesn't put much strain on the pier-top anyway. We recommend using your judgement. Remember to rotate the pier into rough North-South alignment before tightening it down. Fine adjustments can be made later with the Azimuth rotation controls on your mount.

- 14) You can level the pier top with or without the pier adapter attached. If the adapter is attached, check the position of the azimuth stop bolts and rotate the pier top so that when the mount is installed, it's pointing roughly along the North/South axis. You can orientate things by observing the hole pattern on the pier adapter depending on your



mount. Meade classic fork-mounted scopes and some Astro physics scopes don't need a pier adapter. Final adjustments can be made using the fine Azimuth adjustment on our mount which usually push against the sides AZ stop bolt. The pier top can be levelled by adjusting the 4x heavy duty bolts at each corner, or rotated by loosening the side-bolts. A builder's spirit level is usually better than the bubble level built into most mounts. Once the mount is installed and pointing in the right direction, you can adjust the large levelling bolts to bring the upper and lower plates closer together. **Please note:** There's no need to over-tighten the bolts, because it will just make adjustment more difficult later. All you need to do now is polar align your mount and enjoy a drastically reduced setup time for observing and imaging.

Caring for your pier: Your Altair SkyShed pier is very corrosion-resistant. It's blasted with steel grit to remove any surface rust, then flame-sprayed with zinc before being powder-coated and baked in an oven. This is a marine-grade anti-corrosion process, and because no paints are used, the chances of corrosion are very low even if the powder coat is chipped off by heavy impact. To keep your pier looking clean and new, just wipe it down with a car detailing product and a micro-fibre cloth. The bolts are good quality steel with a corrosion-resistant zinc coating. They may dull slightly over time like any coated metals, however a quick spray and wipe with WD40 or bike/auto-detailing compound will stabilise the finish for longer.



Decking installation: Many customers install our piers with decking around them. The pier protrudes through the decking, and it doesn't actually touch the decking surface. This way no vibration is transmitted to the telescope. Decking provides a nice stable, level surface around the pier. What's more, it's very forgiving should you drop something delicate. Ice doesn't form as easily on decking compared to hard masonry surfaces like concrete (decking is best installed with a slight tilt so water runs off down the grooves). Whilst you don't need an observatory to enjoy the benefits of a pier, many customers install the pier first, with plans to put an observatory on the decking later on. That gives you time to plan your observatory, whilst still enjoying the benefits of a perfectly aligned, rigid telescope setup. If you're considering a SkyShed POD XL-3 observatory dome, we suggest 3.6x3.6 metre decking for easy installation when your POD arrives.

