

Application of Conbextra Epoxy Grouts

Installing Conbextra Grouts

The following information is provided as a guide to typical grouting of machine bases. If any doubt exists on site regarding the product or process being used it is important that consultation with all parties involved takes place and then proceed with an agreed plan.

Preparation of the foundation

The concrete foundation or plinth on to which we are grouting our machine or similar will generally have been cast weeks before the grouting is to take place. A minimum 28 days (4 weeks) curing should be allowed unless special concrete mixes are being used.

Remove the laitance layer from the surface of the cured concrete. This is a weak layer which could affect the bond strength to the foundation. It is critical that the laitance layer is removed without damaging the concrete below. The end result should be a surface showing around 50% clean aggregate with no dust or loose material evident.

Scabblers and Chipping guns are very effective methods of preparation. When using the correct multi-point heads, these machines produce a sufficiently low impact force which will not disrupt the aggregate in the concrete but easily removes the cement matrix. Small hand units are available and larger units for larger areas.

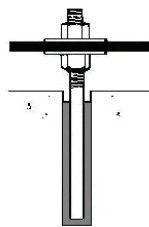
Captive Blast machines are very effective for preparing large areas. These machines are adjustable to meet most concrete strength and depth of removal required.

Machine / Baseplate Installation

The baseplate will first be positioned and levelled to the required height leaving a gap to be grouted. Following are several leveling methods commonly used on site.

Threaded bolt with 2 nuts - this is a common way to level small baseplates in non-critical applications. The lower nut under the baseplate can be adjusted up or down to suit and the top nut is tightened to “sandwich” the baseplate into position. This method is **NOT** recommended as after grouting, the weight of the machine is still resting mostly on the lower nut and the threaded bolt; post-tensioning is impossible (tightening the top nut just squashes the baseplate without tensioning it down)

Double nuts



Metal shim plates - a common process used to level large equipment. The machine is lifted and thin metal shims are placed under the baseplate on to the concrete foundation and the machine lowered on to the shims however unless the shims are removed after grouting, they will (like the bolt and 2 nuts) bear most of the weight; post tensioning is not possible unless the shims are removed.

Levelling Screws (Bolts) - the best method. Threaded holes are made through the baseplate; bolts are threaded into these holes from the top and the tip of the bolt rests on metal pads positioned on the foundation. The bolts are turned up or down to achieve the correct level of the machine; the grout installed and when hard enough the bolts can be backed out of the threaded holes leaving only the grout to support the weight of the machine. One of the things to make this process a success is to isolate the thread of the leveling bolts from adhering to the grout (especially resin grouts) - this can be achieved with petrolatum tape or rubber tubing around the bolt.



Typical levelling screw arrangement

Anchor Bolts

It is common practice for anchor bolt / holding down bolts to be grouted into preformed pockets as part of the grouting process. Epoxy resin based grouts or specialist anchoring products are best for this as they have greater bond strength and tensile strength than typical cement based grouts.

It is important that the filling of the anchor pockets is done as a separate process to the general grout application to ensure the anchor pockets are filled without entrapping air.

If cement based grouts are being used for anchoring then the anchor pocket must be pre-soaked with water for at least 2 hours (preferably 24 hours) and the water vacuumed out just prior to the grout being placed. The anchor holes must also be undercut (tapered) or rough sided to provide mechanical resistance to pulling out. This is also the case when using polyester resin based anchoring systems which have limited bond strength and are prone to shrinkage.

Depending on the particular application and engineering requirements, there may be a requirement for the anchor bolts to be isolated from the grout and even from part length of the anchor material to allow for free stretch in the bolt when tensioned at the end of the installation. This can be achieved using foam pipe insulation or petrolatum wrapping tape or similar. Refer to the relevant design requirement on site.

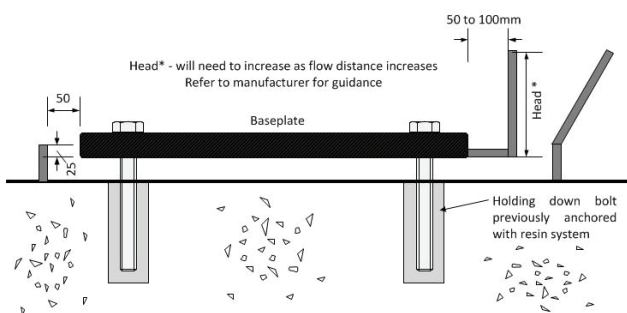
Formwork

Epoxy resin based grouts are installed as fluid or flowable consistencies. The grout should be flowed in a single pass from one side of the baseplate to the other – ideally across the smaller dimension. The most common arrangement is a header box on one side into which the grout will be poured, lateral formwork against the baseplate to direct the flow and maintain the head of pressure and the exit form which allows the progress of the grout to be monitored. For large pours it may be necessary to construct a moveable header box which can be moved along the length of the pour or have several header boxes and simultaneously pour the grout in. NEVER attempt to pour grout from more than one side unless the pour has been well planned with air relief holes positioned in the baseplate.

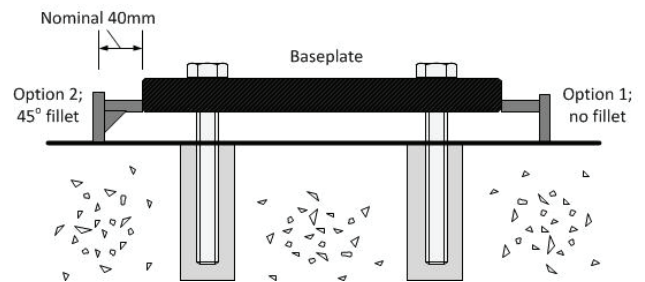
Formwork materials – it is important that once the installed grout has set that any formwork can be easily removed without damaging the grout. Good quality new form-ply can generally be used for based grouts however to minimise the grout from sticking to the formwork a thin application of a wax compound should be used. A suitable product for this is wax floor paste which is rubbed on to the formwork taking care not to contaminate the foundation or baseplate. Liquid wax compounds should not be used as they may run and contaminate the concrete.

When it does come time to remove the formwork use a gentle tapping action to protect the fresh grout which may still be relatively weak.

The following drawings are examples of formwork set ups when installing flowable / fluid grouts. There may be variations of these required on site depending on the actual configuration and shape of the situation but the basic principle remains, which is, to flow the grout via a header box on one side, under the baseplate in one flow to the opposite side.



Typical grout formwork set up



Typical lateral formwork arrangement

Pre-soaking The Substrate

This only applies to cement based grouts – do NOT pre-soak when using resin based grouts.

Mixing

Correct mixing of the grout is critical to the success of the total job. Sufficient man power and suitable equipment is essential.

Temperature considerations - All grouts should be stored at suitable temperatures – typically above 10°C and below 30°C; ideal conditions are at 23°C. This not only protects the shelf life of the product but also improves the mixing and placement properties of the products.

Conbextra Epoxy Grouts are supplied in convenient size kits of base component and hardener component. Full kits must always be mixed as supplied - DO NOT attempt to mix part kits. The mix ratio is critical to the performance of the cured grout.

Make sure the drum is secure before the mixing process begins. With suitable equipment begin mixing the base component first to help re-incorporate any settlement; slowly add all the hardener component while continuing to mix; at the lowest setting possible once all the hardener is poured in continue to mix for a further 3 minutes taking care to mix product from around the sides and bottom of the containers. Scraping down the mixer and sides of the container half way through the mixing is a good idea. Ensure the paddle is fully immersed in the grout whilst mixing. Do not pull the paddle up and down whilst mixing. By following these two points will help minimise the entrapment of air

Mixing should be monitored with a stopwatch / clock to ensure sufficient mixing time is achieved.

Mixing equipment - When mixing one kit at a time, use the Ransom 140 x 600 M14 Helical mixing paddle (product code: N4020892-UNIT) fitted to a heavy-duty 1600W mixer, such as Ransom 1602 E (product code: NP7EV160-UNIT) or equivalent.

For large pours a purpose made grout pump can be used such as a diaphragm or rotor/stator pump. Check with the pump manufacturer regarding suitability of the pump with epoxy grout.

Placement

Baseplates should be grouted by forming up the area and pouring or pumping the grout into place. When flowing a grout under a baseplate it should be done in one continuous pour action, from one side only, until the grout emerges from under the baseplate on the opposite side. This helps ensure any air is expelled and there should be complete contact of the grout and the entire underside of the baseplate. During this process it is acceptable to gently “rod” the grout or use flexible strapping to help the flow however using the correct consistency epoxy grout will minimise the need for this. Vibrators should never be used.

Pumping grouts through injection ports in a baseplate is possible providing it is well planned to ensure air pockets are not created. Pumping grout under baseplates horizontally is also acceptable; the hose should be inserted to the farthest point under the baseplate and slowly withdrawn as the grout is pumped in. This can also be a useful procedure to complete a failed grout pour where the initial grout pour has failed to reach to opposite side for some reason.

Curing and Protection

The baseplate along with the grout should also be protected as much as possible from extremes in weather – both hot and cold. Large volume pour of epoxy based grouts can generate significant heat from exothermic reaction – insulation from sudden cold temperature should be considered.

Important notice

Safety Data Sheets (SDS) and Technical Data Sheets (TDS) are available from the Fosroc website. Read the SDS and TDS carefully prior to use as application or performance data may change from time to time. In emergency, contact any Poisons Information Centre (phone 13 11 26 within Australia) or a doctor for advice.

Product disclaimer

This Application Guide summarises our best knowledge of the product, including how to use and apply the product based on the information available at the time. You should read all literature carefully and consider the information in the context of how the product will be used, including in conjunction with any other product and the type of surfaces to, and the manner in which, the product will be applied. Our responsibility for products sold is subject to our standard terms and conditions of sale. Parchem does not accept any liability either directly or indirectly for any losses suffered in connection with the use or application of the product whether or not in accordance with any advice, specification, recommendation or information given by it.

