

Using HeliBond Grout with Manual Pointing Guns



Description

HeliBond is a high performance, non-gassing, cementitious grout. It is suitable for bonding metal components into most common masonry-type substrates, including brick, stone, pre-cast concrete and blocks. It is injected using a manual pointing gun into slots or holes formed in the substrate. HeliBond has a low liquid to powder ratio providing a thixotropic grout which completely fills all voids into which it is injected and which develops its compressive strength steadily, reaching 45N/mm² after 28 days.

HeliBond is the main bonding agent used in the Helibeam System and is supplied packed in a pail containing two-packs of dry powder and two packs of liquid ready for mixing as a "set". The formulation includes an expansion agent, to compensate for normal cement hydration shrinkage, to maintain a tight bond in its hardened state.

Directions for Use

1. Preparation

Drill the hole or cut the slot into which the HeliBar, anchor, rebar etc. is to be bonded, ensuring the appropriate clearance is allowed, together with an adequate depth for good fixing. After cutting or drilling, the slot/hole should be cleaned of all loose material and flushed out with water for maximum bond strength. HeliPrimer WB may be applied to minimize liquid absorption.

It is important to make the correct size of slot/hole to ensure a good bond. For Helifix bars and ties the following will generally apply.

Product Diameter	Slot Width		Hole Diameter	
(mm)	(mm)	(Inches)	(mm)	(Inches)
4.5	6-8	3/16 - 5/16	n/a	n/a
6	10	3/8	n/a	n/a
8	12	1/2	14-18	9/16 - 3/4
10	14	9/16	16-18	5/8 - 3/4

Call Helifix Toll Free: 888-992-9989 for more details.



2. Tooling

Helifix Manual Pointing Guns are available in two models:

1. For injection into slots and light duty applications: Helifix Pointing Gun Kit - CS (Orange)
2. For injection into holes and heavy duty applications: Helifix Pointing Gun kit - HD (Black)

Before loading the cartridge **check the piston is adjusted to fit snugly in the barrel**. New guns are shipped with the piston loosely in place as the piston material has a tendency to swell. (see 7 overleaf)

3. Mixing

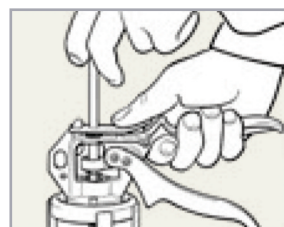
Mix the contents of a "Pack Set" (1 Powder and 1 Liquid pack) of HeliBond by adding the powder to the liquid in the pail provided. Stir thoroughly using a powered paddle mixer. Do not attempt to mix by hand as this is likely to lead to erratic results.

THE ENTIRE CONTENTS OF EACH PACK SET MUST BE USED – NO PARTIAL MIXING AND NO EXTRA WATER TO BE ADDED.

4. Filling the Gun

Push in the release plate at the back of the gun and pull the "T" handle back until the piston is out of the barrel. Remove the barrel. Check the piston fits correctly and adjust as necessary (see 7 overleaf). If the piston sticks because it is dry, lubricate with fresh clean water.

Always re-stir the HeliBond just prior to loading. Load the barrel and replace it in the gun. Operate the trigger until the piston contacts the material. The gun is now ready for use. **Do not overfill**. If the gun is not going to be used for a while, pump the contents back into the pail and re-agitate before re-loading.

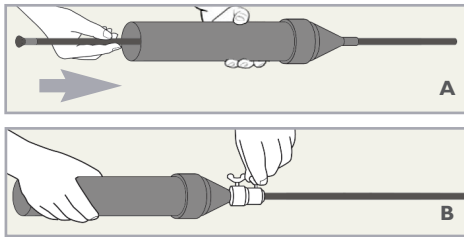


5. Attach the appropriate nozzle

Bed joints: Helifix stainless steel mortar nozzles are available 9.5 or 4.0mm thick. These are fitted directly to the end of the cone nozzle and either the CS or HD gun may be used.

CemTie pinning nozzles are available in 12.7mm and 15.0mm diameters and the length is made to suit the CemTie.

Note: The 12.7mm pinning nozzle fits the cone nozzle. The cone must be drilled out to accept the 15mm pinning nozzle.

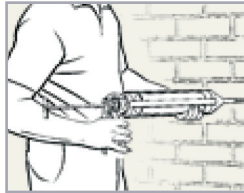


Fitting the CemTie pinning nozzle

1. Loosen the locking screws device and slide off the far end of the pinning nozzle.
2. Insert the pinning nozzle tube through the cone (as in A above) and secure the flared end into position at the bottom of the cone.
3. Replace the locking screws device and secure to both the pinning nozzle tube and the cone (as in B above).

6. Applying HeliBond

Inject HeliBond into the slot or hole in a continuous operation. Typical working life of the mixture in the pail is up to two hours, dependent on ambient temperature, with re-agitation just before loading into the cartridge. The cartridge should be emptied within 5 minutes. If the injection process is interrupted for any reason, empty any contents back into the pail and re-stir. Pointing may be carried out immediately after injection.

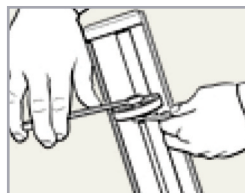


The Pointing Gun works like a mastic gun. Apply steady pressure via the trigger. The mechanism is powerful and does not require much force.

If the HeliBond does not flow properly, ensure that it is correctly mixed and free-flowing. If the gun blocks do not force or overload it. First check the nozzle is clear. When using CemTies, remove the barrel and empty. Check that the CemTies are straight.

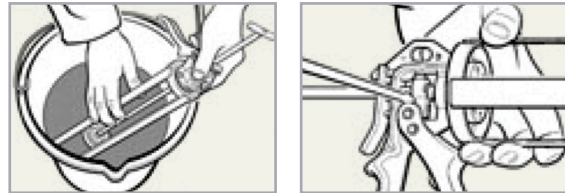
7. Adjusting the Piston

The piston is adjustable for wear and variations in the dimensions of the barrel or piston. Tightening the nuts will squeeze the piston washer to tighten its fit in the barrel. If the piston is difficult to move, even when wet, it may be over-tightened. Loosening the nuts should resolve this.



8. Cleaning

Immediately after use, always clean all tools, mixers and containers with fresh clean water. Ensure that no grout remains within the mechanism. A spherical brush is useful for cleaning the barrel and around the mechanism. If the pail is to be used more than once ensure that the pail is completely clean before loading fresh material.



9. Curing

Ideally, exposed areas of HeliBond should be cured for at least three days under damp conditions to gain full advantage of the shrinkage compensation elements in the formulation. The substrate should be kept moist and HeliPrimer WB may be applied to optimise the curing process.

10. Performance Data

Typical compressive strength development at 68°F, 50mm cubes cast under restraint, wet cured.

2 Days	7 Days	28 Days
15N/mm ²	25N/mm ²	45N/mm ²
2175psi	3625psi	6525psi
15MPa	25MPa	45MPa

Unrestricted expansion when fully cured: Approx 0.15%

11. Storage

HeliBond should be stored in dry conditions and in a temperature range of 41°F to 77°F max. **Pails may be stacked but not more than 4 high.** Shelf life under normal conditions is 12 months.

12. Temperature Range

In common with all Portland Cement products, HeliBond should not be used at temperatures below 41°F or if there is a danger of frost.

13. Health and Safety

HeliBond contains Portland Cement and is therefore alkaline when wet. Unnecessary skin contact should be avoided. In case of eye contact, the eye must be irrigated with gently running clean, fresh water and medical attention sought. A separate Safety Data Sheet is available on request.