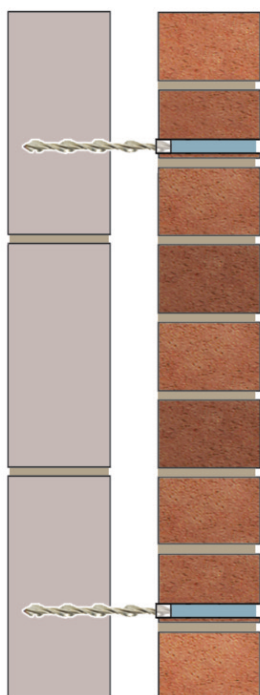


RetroTie

A remedial wall tie with a dry / resin fix

APPLICATIONS

- Versatile replacement wall tie
- Use where there is hard external brick material
- Use where random testing is required of the security of fixing in the inner leaf



Remedial wall tie – brick to structural block

Standard repair specifications are available online, covering common structural faults.

Relevant Repair Detail: RT02. Refer also to BPIR Helifix DryFix, ResiTie, RetroTie and BowTie Product Information Sheet.



FEATURES

- Quick, easy, non-disruptive installation
- Effective in all common building materials
- Far leaf security of fixing easily proof tested



Injecting resin to complete the RetroTie installation



For full product information, case studies and downloadable repair details go to:
[www.helifix.co.nz /products/remedial-products/retrotie/](http://www.helifix.co.nz/products/remedial-products/retrotie/)

TECHNICAL SPECIFICATIONS

RETROTIE

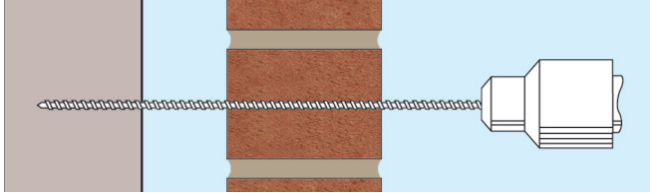
Material	Austenitic stainless steel Grade 316 (as standard)
Diameter	8mm (10mm available)
Length	3/4 of near leaf thickness + cavity width + far leaf penetration depending on material, typically 70mm
Standard lengths	170mm, 195mm, 220mm, 245mm, 270mm, 295mm, 325mm and 350mm
Depth of pilot hole	Near leaf thickness + cavity width + far leaf penetration + 10mm
Minimum fixing density	In accordance with project specification
Bonding agent (near leaf only)	EpoxyPlus or CrackBond epoxy resin (or HeliBond if required)
Diameter of far leaf pilot hole	To be ascertained on site (typically 5mm)
Diameter of near leaf clearance hole	12mm (14mm for 10mm tie)

NOTE: All published wall tie capacities are indicative dependent on the exact nature of the substrate. Testing should always be undertaken on site using the Helifix Load Test Unit. Fixing Density shall be calculated by the designer.

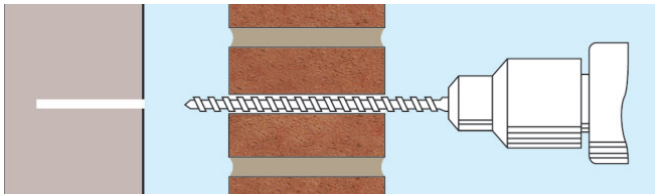
RECOMMENDED TOOLING

For drilling pilot hole	Rotary percussion 3-jaw-chuck drill
For drilling clearance hole	SDS hammer drill or rotary percussion drill
For installing RetroTie	Power driver

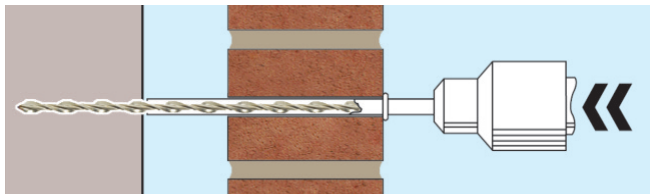
INSTALLATION PROCEDURES



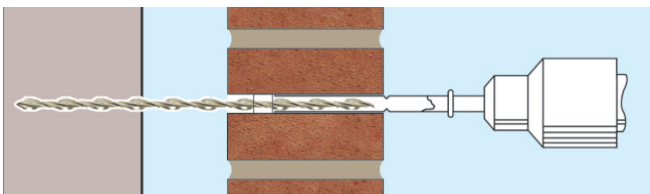
1. Mark the points for RetroTie insertion on the face of the near leaf brickwork. Drill an appropriate diameter pilot hole through the near leaf brick and to the required depth into the far leaf. The hole should be drilled about half way up the brick and around 15mm from the end to avoid frogs and core holes.



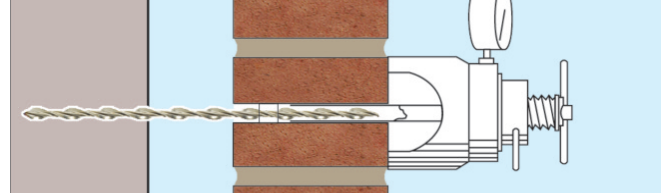
2. Widen the hole, through the near leaf only, to 12 mm diameter. Clean the hole in both the near and far leaves.



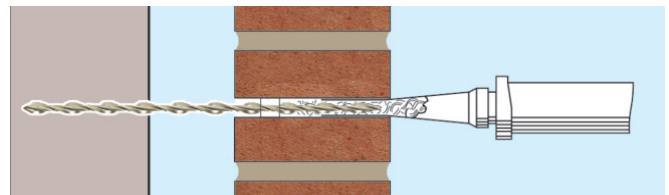
3. Load the RetroTie into the support tool, insert through the near leaf and drive home into the far leaf. The 'O' ring marker allows the cavity width to be measured and avoids over-driving.



4. Position the plastic sleeve over the outer end of the RetroTie and slide it down the tie with the support tool until the mark on the tool stem is flush with the outer face. The sleeve centres the tie and seals the hole adjacent to the cavity.



5. Security of fixing in the far leaf can be tested with a Helifix Load Test Unit.



6. Inject resin until the hole is filled and then make good.

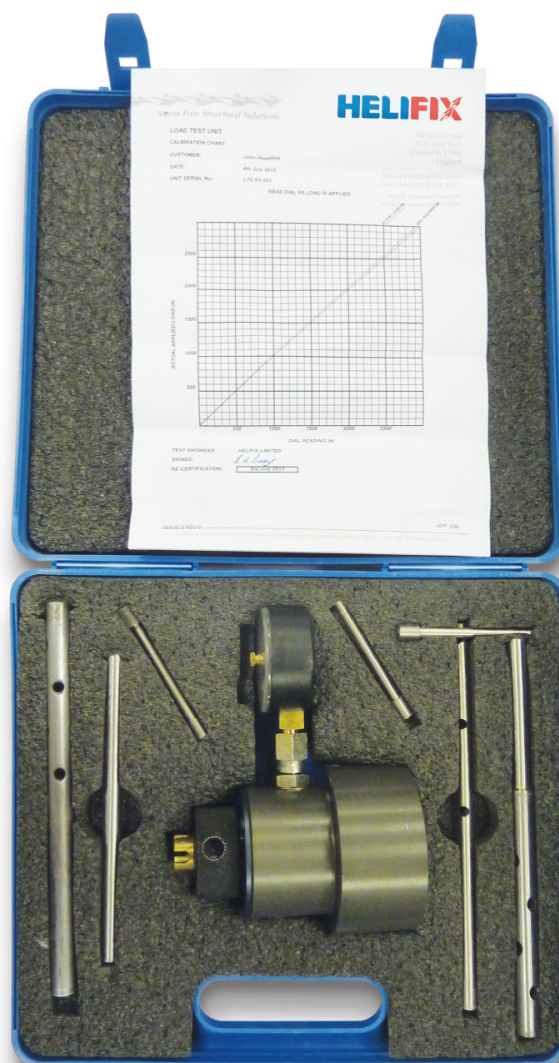
Load Test Unit

Used on site to test tie pull-out loads

The Helifix Load Test Unit is used on site to test the pull-out loads from the actual masonry units within the structure in question.

These loads will be more meaningful than laboratory performance figures using selected materials.

NB Each substrate (leaf) must be tested separately



OPERATING INSTRUCTION

1. Unpack the unit from the box. Any minor oil leakage should be wiped clean. In the event of significant leakage contact Helifix.
2. Check the enclosed calibration certificate to ensure calibration is current.
3. Select the appropriate test key to fit the item to be pull-tested.
4. Fit key over the end of the tie/pin to be tested and wind down at least one full turn. Remove cross pin if fitted.
5. Slide the Load Test Unit over the key and replace the cross pin through the key, engaging it in the castellation on the top of the centre stud.
6. Turn load nut by hand until the initial load is applied. This can be judged by feel or by seeing the pointer on the gauge start to move from zero.
7. Turn load nut slowly using the "tommy" bar provided, until proof or maximum load has been reached. **DO NOT** enter the red zone on the gauge and **DO NOT OVERLOAD.**
8. Note the reading and release the tension on the tested Wall Tie The Helifix Load Test Unit is used on site to test the pull-out loads from the actual masonry units within the structure in question. These loads will be more meaningful than laboratory performance figures using selected materials.
9. Remove the cross pin and detach the unit from the test key.
10. Detach the test key from the Wall Tie.
11. Refer to the Calibration Chart to convert the indicated load to the actual load.

After the load has been applied it is possible that the collet in the test key will deform the fins (particularly with the 8mm products) and be difficult to disengage. Patience and working the key to and fro will ultimately disengage the key.

The weight of the unit should always be supported with one hand when used on vertical surfaces (e.g. walls) as leaving the unit hanging on the Load Test Key is to be avoided.

After use re-pack the unit into its carrying case for protection.

When re-calibration is due, return the Load Test Unit to Helifix.



1. Install tie into inner or outer leaf masonry.



4. Place the cross pin through the LTK and take up the slack on the central nut.



2. Fit the appropriate sized Load Test Key (LTK) at least 50mm (normally one full turn) over the end of the tie. Remove the cross pin, if fitted.



5. Turn the Tommy bar slowly until the proof or maximum load is achieved. **DO NOT** enter the red zone and **DO NOT OVERLOAD.**



3. Slide the Load Test Unit (LTU) over the LTK and replace the cross pin, engaging it in the castellation on the top of the centre stud.



6. Note the reading and then release the tension on the tested wall tie.

Power Driver Attachment

APPLICATIONS

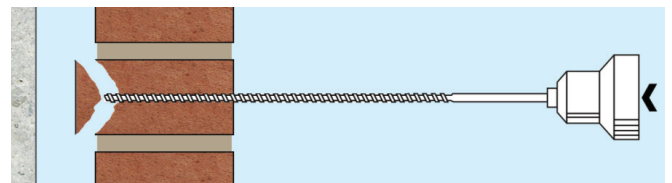
- For installing the DryFix pinning and tying system.
Might also be used on occasion with RetroTie and StarTie

The Power Driver Attachment (PDA), fitted to an SDS hammer drill, ensures the rapid easy installation of DryFix and other Helifix ties and fixings. There are two sizes, with the larger version for DryFix, of which variants can recess ties below the outer surface, making their full concealment very simple. The compact model is for the installation of InSkews (**not available in NZ**).

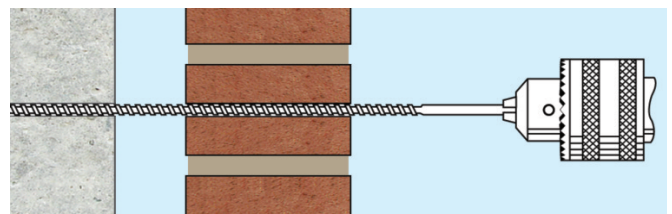
ADVICE NOTES FOR DRYFIX INSTALLATION

DryFix can be installed through the brick or the mortar. If the mortar is of good enough quality, this will avoid any damage to the brick, but it must be tested at various locations as mortar strength can vary throughout a structure. If unsure of the mortar quality then install DryFix through the brick as it leaves only a small entry hole, which can be concealed with drilled-out brick dust. By installing through the brick a reliable connection can be guaranteed. Ties should be installed about 3cm from the end of the brick to avoid the frog.

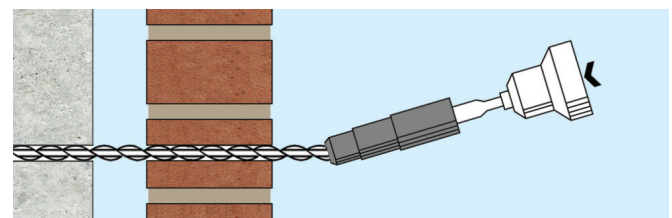
- Drill gently using a rotary percussion drill (3-jaw-chuck type). Do not use a heavyweight rotary hammer drill as this will damage the masonry, causing spalling of the internal face of the outer leaf.
- Stop the drill while pushing it across the cavity to avoid the drill bit whipping and bending as this will cause alignment problems for the tie. Restart the drill when contact is made with the surface of the far leaf masonry.
- Keep the drill bit perpendicular to the masonry for standard applications.
- Fit the power driver attachment to an SDS hammer drill and load the DryFix tie. Hold on to the power driver attachment during installation.
- Ensure the hammer drill is set to hammer only.
- Allow the hammer drill to drive the tie into the masonry. Simply maintain a steady connection between the tie and the installation tool.
- Do not push on the hammer drill as this may bend the tie and prevent the drill from developing full power and producing a reliable connection.
- Drive the tie slowly across the cavity to avoid whip as this may cause misalignment and bending.
- Ensure the tie locates the pilot hole in the inner leaf and drive in slowly until the outer end of the tie is recessed below the face of the masonry.
- Installation is very fast but attempting to go too quickly will lead to alignment and connection problems.
- For long DryFix ties a nozzle extension can be used.



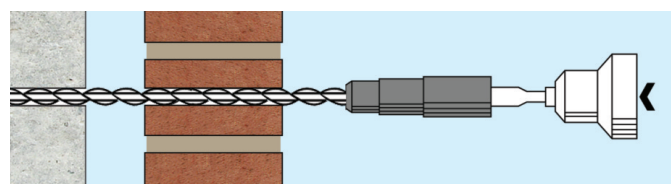
A. Do **NOT** use SDS type drill to drill the pilot hole



B. Use rotary percussion drill (3-jaw-chuck-type) to drill pilot hole



C. Do **NOT** drive tie in at an angle



D. Drive tie in perpendicular to the wall

DRILLING NOTES

Correct drilling techniques are essential to ensure efficacy of remedial wall ties, and to minimise aesthetic and structural damage to the property under repair. Helifix requires the use of Rotary Percussion drill bits for drilling pilot / clearance holes wherever possible. This keeps spalling of the rear side of the outer leaf masonry, in cavity situations, to a minimum. Any spalling of the brick / block rear will reduce the effectiveness of the wall ties installed.

ROTARY PERCUSSION DRILL (3 JAW CHUCK)

This type of rotary percussion drill is designed to provide a rotary drilling action, which may be amplified by a light 'tapping' action. This light percussion improves the drilling rate but is gentle and permits fragile masonry substrates such as brick, terracotta, mortar, hollow concrete block to be drilled without damage, particularly when the drill breaks through the material into a void or cavity. This kind of drill will commonly have a chuck speed up to 2500 rpm with 10-40,000 percussive 'taps' per minute.

NOTE: Not suitable for use with any Helifix Power Driver Attachments



Example: Bosch
Rotary 2-28 DFV



Example: DeWalt
Percussion: DWD525KS

ROTARY HAMMER DRILL

The rotary hammer drill, SDS type, is always used to drive the Helifix tie into position with either a 'DryFix' Power Driver Attachment for masonry stabilisation, or a Helifix Power Support Tool for masonry re-facing. The SDS hammer drilling system is only used for drilling pilot holes into dense materials such as reinforced concrete, some limestone and sandstone and for blind holes in strong material. Sometimes the method may be used to drill mortar. The drilling of all holes should be tried first with the 3-jaw-chuck type drilling machine and the SDS method should be seen as a "last resort". It should not be used into cavity masonry as significant breakout is likely to occur in the cavity. A 3-jaw-chuck adaptor fitted to an SDS machine must NEVER be used in place of an rotary percussion drill. Typically, SDS type Rotary Hammer Drills have a chuck speed range of 600-800 r.p.m. with approx. 4,000 hammer blows/minute. There are a wide variety of tools available.

NOTE: Fitting a 3-jaw chuck attachment to a rotary hammer drill does **NOT** alter its performance – it is still an SDS type drill!