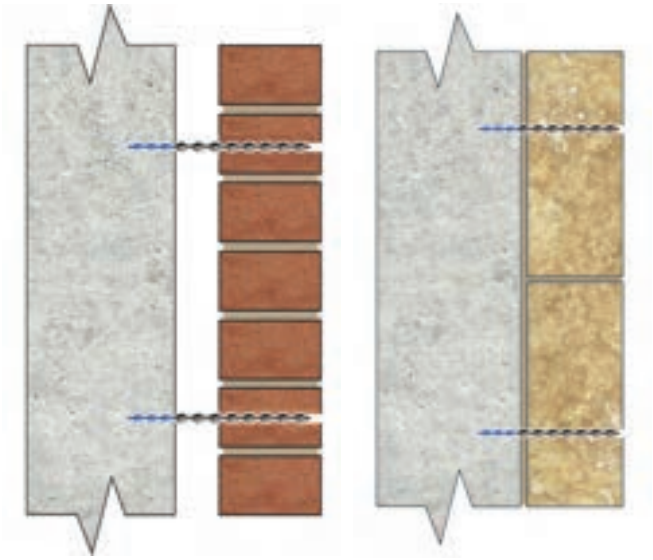
DryFix Asymmetric Tie

Dry mechanical pinning and remedial tying system

APPLICATIONS

- For securing relatively soft near leaf materials to hard far leaf materials, such as concrete or hard brick
- For pinning delicate masonry features
- The asymmetric tie has a longer outer section with a standard diameter and a shorter reduced diameter inner section



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

Relevant Repair Details: RT04. Refer also to BPIR Helifix DryFix, ResiTie, RetroTie and BowTie Product Information Sheet

FEATURES

- Requires no resin, grout or mechanical expansion
- Does not stress or fracture fragile substrates
- Quick, easy, concealed installation using the Power Driver Attachment
- Installed tie is recessed below face of masonry
- Highly economical with low installed costs
- Effective in most common building materials
- Leaves masonry virtually unmarked
- Usable in all weathers and temperatures
- Security of fixing in both leaves must be tested separately

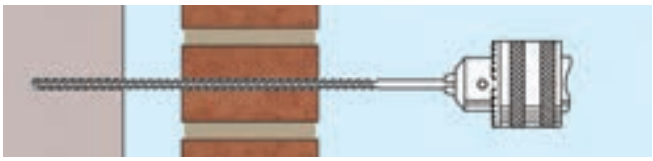
TECHNICAL SPECIFICATIONS

DRYFIX ASYMMETRIC TIE	
Material	Austenitic stainless steel Grade 316 (as standard)
Diameter	Longer section is standard 10mm diameter with a shorter reduced diameter section of 8mm
Length	Near leaf thickness + cavity width + required penetration into the far leaf less required penetration of the PDA
Standard lengths	155mm, 170mm, 195mm, 220mm, 245mm, 270mm, 295mm, 325mm and 350mm
Diameter of pilot hole	Diameter of pilot holes to be ascertained on site, by conducting pull-out tests. These will determine diameter of tie and pilot holes required to comply with the specification
Depth of pilot hole	Length of DryFix + 25mm (Taking care to not penetrate through far leaf)
Minimum fixing density	In accordance with project specification
Bonding agent	None required

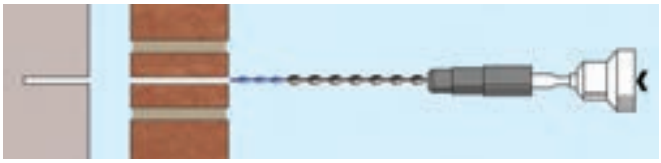
RECOMMENDED TOOLING	
For drilling pilot hole	Rotary percussion 3-jaw-chuck drill
For installing DryFix tie	Power Driver Attachment fitted to an electric hammer drill (SDS type)

INSTALLATION PROCEDURES

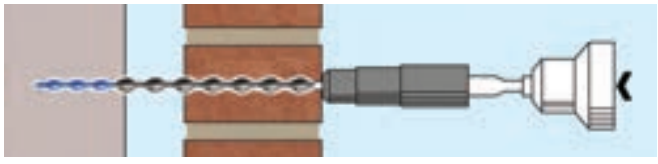
1. Mark the position for the DryFix tie on the face of the near leaf.
2. Drill an appropriate diameter pilot hole (depending on the density of near and far leaf materials) which must be evaluated, prior to commencement of the works, using a Helifix Load Test Unit. Drill through the near leaf and into the back-up substrate, to the predetermined depth, using an appropriate rotary percussion drill (3-jaw-chuck-type).
3. Fit the special patented DryFix Power Driver Attachment (PDA) insertion tool to an electric hammer drill (SDS type).
4. Load the wider diameter end of the DryFix tie into the PDA insertion tool.
5. Power-drive the tie into position until its outer end is recessed below the face of the near leaf by the insertion tool.
6. Make good the entry hole with matching materials.



1. Drill small pilot hole using rotary percussion drill, 3-jaw-chuck type.



2. Load tie into DryFix Power Driver Attachment fitted to SDS hammer drill.



3. Drive in tie until outer end is fully recessed below face of masonry.

NOTE: Some substrates, such as hard concrete and granite, are not suitable for Asymmetric Tie installation, due to the inability of the tie to cut into the material. Appropriately sized pilot holes for near and far leaves are essential for a successful tie. Too large, and the tie will 'push in', and too small, the tie will 'wedge', not cut into the substrate.

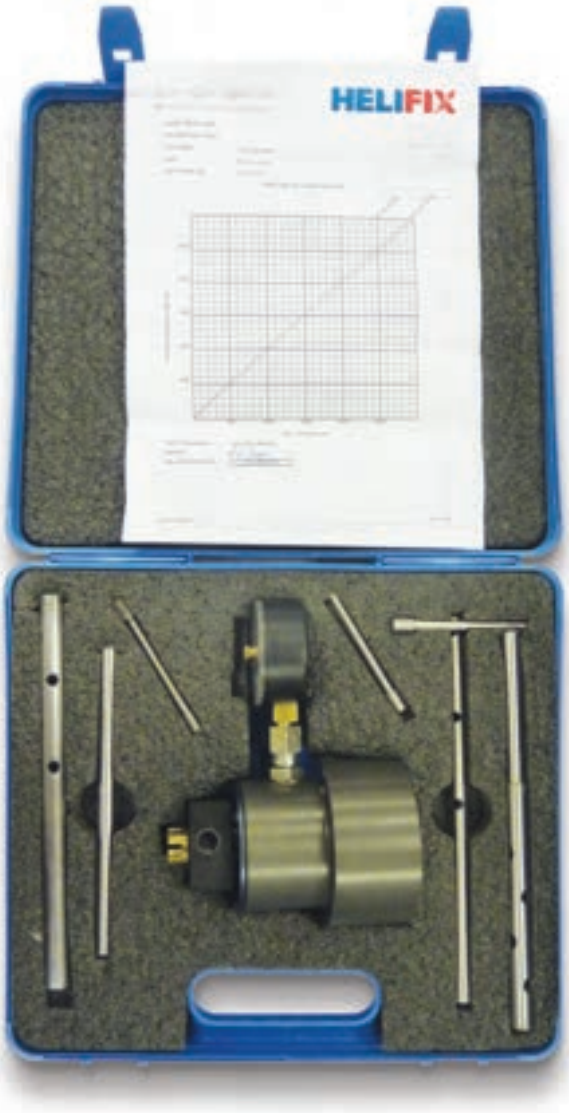
Load Test Unit

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.

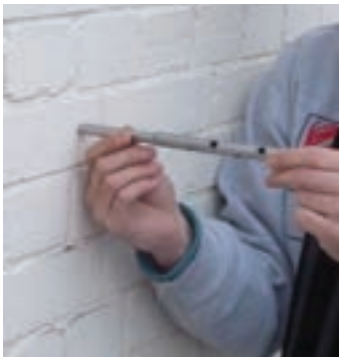
The weight of the unit should always be supported with one hand when used on vertical surfaces (e.g. walls) as leaving the unit hanging on the Load Test Key is to be avoided.

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.

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Power Driver Attachment

APPLICATIONS

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

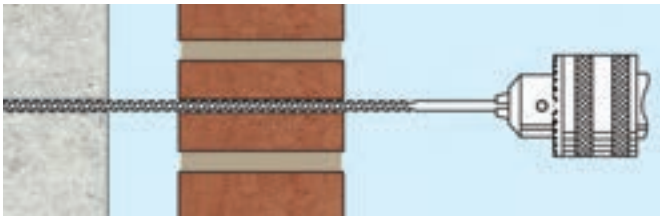
The Power Driver Attachment (PDA), fitted to an SDS hammer drill, ensures the rapid easy installation of DryFix and other Helifix ties. ties and fixings. There are two sizes, with the larger version for DryFix, of which variants can recess ties below the outer surface, making their full concealment very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

ADVICE NOTES FOR DRYFIX INSTALLATION

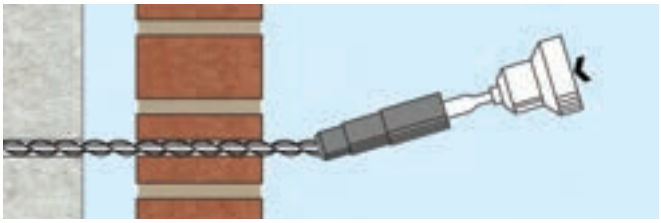
DryFix can be installed through the brick or the mortar. If the mortar is of good enough quality, this will avoid any damage to the brick, but it must be tested at various locations as mortar strength can vary throughout a structure. If unsure of the mortar quality then install DryFix through the brick 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-jawchuck 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.

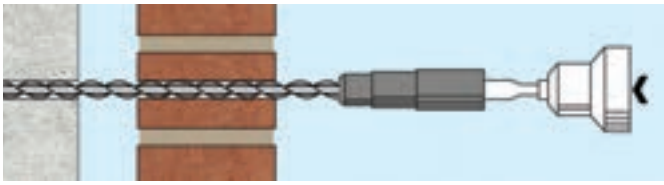
A. Do **NOT** use SDS type drill to drill the pilot hole



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: DeWalt
Percussion: DWD525KS

Example: Bosch
Rotary 2-28 DFV

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!

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