

BowTie

Remedial ties for restraining bowed walls



BowTie into joist end through a solid wall



APPLICATIONS

- For stabilising bowed external building walls by securing them to internal floor and ceiling joists
- Standard BowTies are recommended when installing into joist ends

FEATURES

- Quick, easy, non-disruptive external installation
- Self-tapping design – no splitting of timbers
- Effective in all common building materials
- Suitable for hardwood use
- Easily tested for security of fixing
- Fully concealed – no unsightly external plates



Drilling clearance hole for installing BowTie into joist end

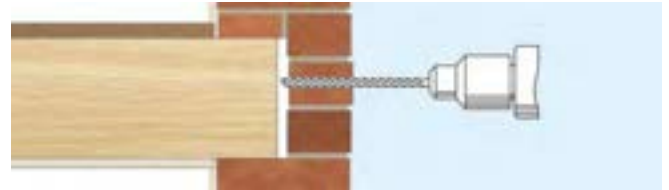
Standard repair specifications are available online, covering common structural faults.

Relevant Repair Details: RB04. Refer also to BPIR Helifix DryFix, ResiTie, RetroTie and BowTie product information sheet

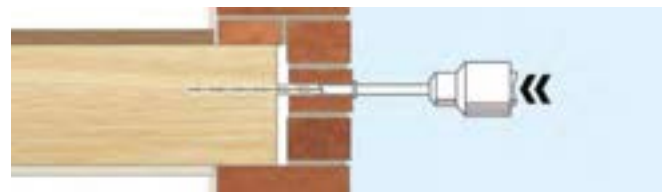


INSTALLATION PROCEDURES

1. Mark the positions of the joists on the external wall.
2. Drill clearance holes (normally 12mm), through the masonry only, in line with the centre of the joists.
3. Clean out the hole to clear any dust or debris.
4. Fit the power support tool into an SDS rotary hammer drill and insert the BowTie.
5. Drive the BowTie (roto stop) into the joist to the required depth (75mm minimum).
6. Fit the sleeve over the tie and push it to the back of the hole in the masonry (use the support tool).
7. Inject Helifix epoxy resin into the hole to fill it completely.
8. Make good all holes at the surface with brick dust or matching mortar or leave ready for any decoration.



1. Mark the position of the joist centre on the external wall and then drill a clearance hole (normally 12mm) through the wall (and first joist if parallel to the wall). Clean out the hole.



2. Fit the BowTie Support Tool to an SDS rotary hammer drill, insert the BowTie and drive it into joist end to the required depth – at least 75mm (or through the second joist if parallel).



3. Fit the plastic sleeve over the BowTie and use the support tool to push it to the back of the hole in the masonry (in the outer leaf in a cavity wall).



4. Inject resin to fill the hole and bond the BowTie to the masonry and then make good.

TECHNICAL SPECIFICATIONS

BOWTIE

Material	Austenitic stainless steel Grade 316 as standard
Diameter	8mm and 10mm
Length	Thickness of the wall + any cavity + sufficient to drive 75mm minimum into the joist end
Standard Lengths	155mm, 170mm, 195mm, 220mm, 245mm, 270mm, 295mm, 325mm and 350mm
Diameter of masonry clearance hole	12mm
Fixing density	As per specific engineering design*
Bonding agent (near leaf only)	Helifix epoxy resin

RECOMMENDED TOOLING

For drilling clearance holes and insertion of BowTies	SDS rotary hammer drill 650/700w with roto stop
For injection of PolyPlus resin	Applicator gun and injection sleeve

***IMPORTANT INFORMATION.** Achievable pull-out loads should be tested on site. Static testing may be conducted using a Helifix Load Test Unit. Ensure all joists into which ties are to be installed are sound and secure. Timbers should show no signs of excessive moisture, rot, or borer damage/activity. Ties should be installed in bricks and not mortar, and unreinforced masonry must be free from any apparent cracking/damage.

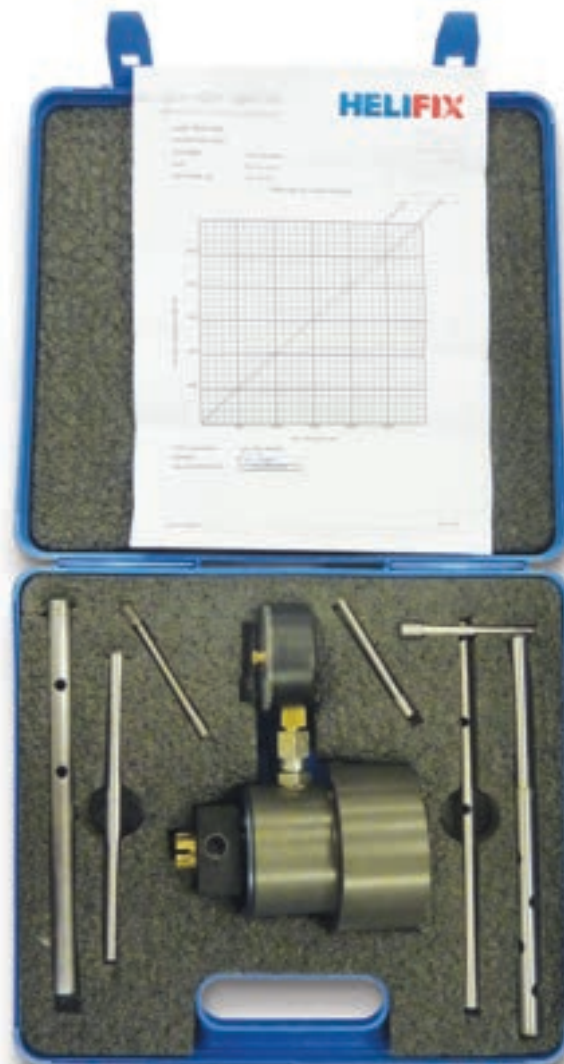
Load Test Unit

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

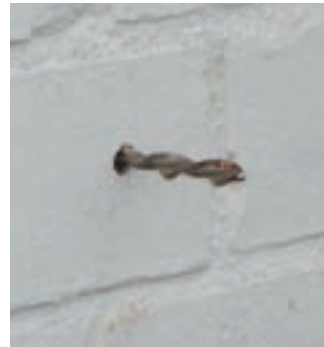
1. Unpack the unit from the box. Any minor oil leakage should be wiped clean. In the event of significant leakage contact Helifix.
2. Check the enclosed calibration certificate to ensure calibration is current.
3. Select the appropriate test key to fit the item to be pull-tested.
4. Fit key over the 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.

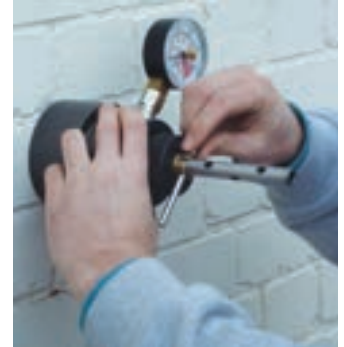
The weight of the unit should always be supported with one hand when used on vertical surfaces (e.g. walls) as leaving the unit hanging on the Load Test Key is to be avoided.

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.