Target Fixings Ltd

Turbo Flex

Thin Joint Wall Tie

INTRODUCTION

With a number of the autoclaved aerated concrete (AAC) manufacturers now heavily promoting the new **'thin joint system'** into the UK, traditional wall ties are now becoming obsolete. With joints 'squeezed' to 3 mm, it is no longer possible to insert even standard 'butterfly' wire wall ties in the conventional manner. Installation of ties into the joints becomes impossible when using 'Jumbo Units', 450 mm AAC blocks, simply because of the lack of joints. The Turbo Flex drive-in wall tie easily overcomes these problems by being driven directly into the AAC block in the required location, as the outer masonry proceeds, to achieve the required fixing density.

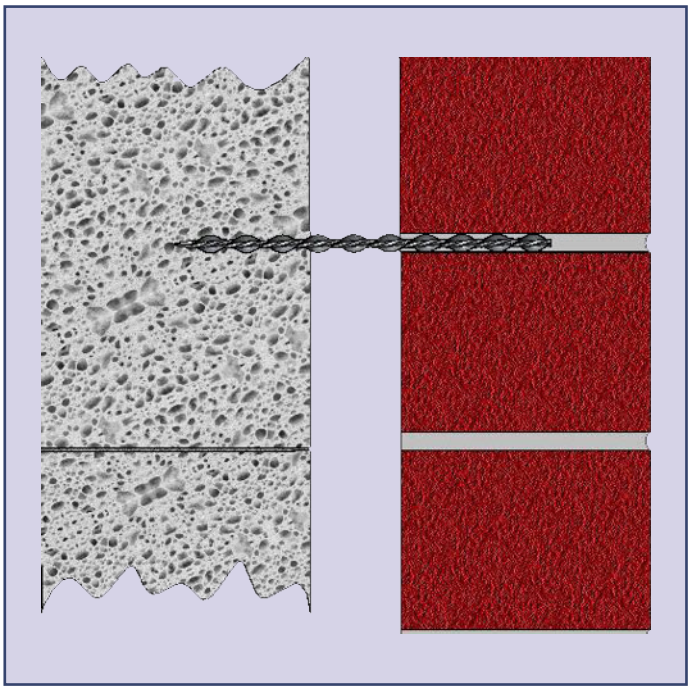
The increased speed of construction using the thin joint system is complemented by using the Turbo Flex tie. During the construction of the outer leaf, the Turbo Flex tie is laid over the top of the masonry and hammer-driven into the AAC blocks. Where insulation panels are to be included within the wall cavity, an insulation retaining clip is easily attached to the Turbo Flex and 'wound' along the tie to hold the insulation panels securely in position.

Both the design and manufacturing process of the Turbo Flex ensures that flexibility of the tie is maintained to accommodate all normal building movements, yet is capable of transferring imposed load in both tension and compression in cavity widths of up to 140 mm at normal densities. For information regarding use of the Turbo Flex ties in cavities over 140 mm, please contact out Technical Department.

THE SYSTEM

The Turbo Flex system of thin joint wall tie installation offers the advantages of a non-expanding mechanical fixing on the far leaf and a mortar fixing on the near leaf. Proof testing of the far leaf using a Target Load Test Unit can be performed randomly as installation proceeds. Because the fixing method employed does not induce additional stresses into the substrate, Turbo Flex can be used in many and varied materials, from poured concrete columns to Aircrete blocks, with satisfactory results and, because they are stress free, the edge distance spacings are negated.

The design of the Turbo Flex remedial tie ensures that any potential for installer error can be minimised. The multiple drip design of each fin allows the Turbo Flex to be installed at an angle of up to 25° towards the inner leaf without the possibility of any water transfer across the cavity. It is recommended that each Turbo Flex is installed horizontally.

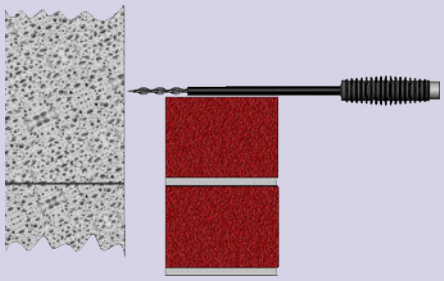


SPECIAL FEATURES

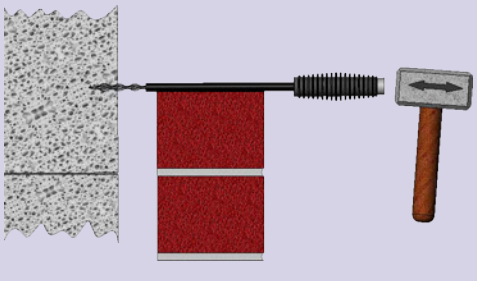
One piece design - no moving parts to lose
Immediate proof testing of connection
Multiple drip points to deter water transfer
Flexible design allows natural building movement
Fixes through insulation material
Fixes into all commonly found building materials
Quick and easy installation

Turbo Flex Hand Support Tool

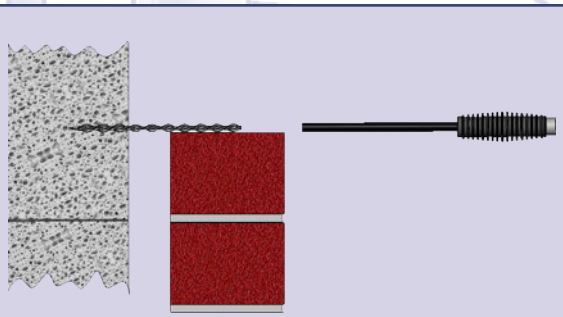
INSTALLATION PROCEDURE



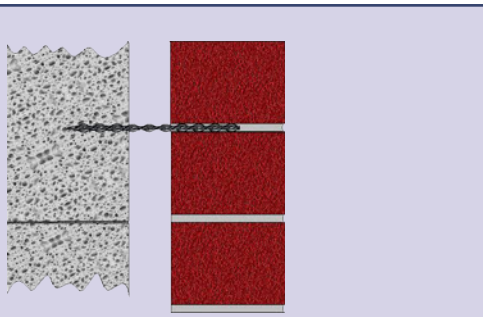
1. Build up outer leaf to the level which the wall tie is required.
2. Insert Turbo Flex Tie into Hand Support Tool and place horizontal on top of outer leaf masonry.



3. Use hammer to GENTLY drive Turbo Flex tie into inner leaf blockwork to a minimum penetration of 70 mm.



4. Remove Hand Support Tool, leaving tie in place and check length of tie remaining on outer leaf masonry. A minimum of 70 mm embedment is required in mortar joint.



5. Apply mortar to bed joint, covering Turbo Flex tie, and continue to build up until next level of Ties is required.

THE MATERIALS

Turbo Flex ties are manufactured from Grade 304 austenitic stainless steel. The 8 mm diameter Turbo Flex tie has a tensile strength in excess of 10 kN. The manufacturing process produces very hard fins that are able to cut a thread into the hardest concrete, and a very soft and flexible core.

FIXING DENSITIES

In general terms, the fixing densities for Turbo Flex wall ties would be the same as new build - 2.5 per m² or 450 mm vertically and 900 mm horizontally in a domino five pattern. This density would, however, be subject to on site testing to ensure that the required tensile loadings are being achieved. It should also be borne in mind that around all openings - doors and windows - ties should be installed at no more than 300 mm vertical centres and no more than 225 mm from the edge of the opening. BRE Digest 401 gives more information on the proof load test requirements.

TESTING

It is recommended that testing is performed in accordance with the requirements of BRE Digest 401. This publication gives a wind zone chart and the various proof test requirements for different parts of the country in differing situations. Most of the information is in table form, which negates the need for complicated calculations. It must be understood that wall ties are designed as load sharing devices and as such, there is no necessity to have a high point loading on any individual tie. Only in exceptional circumstances does the proof test load requirement exceed 1 kN.

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