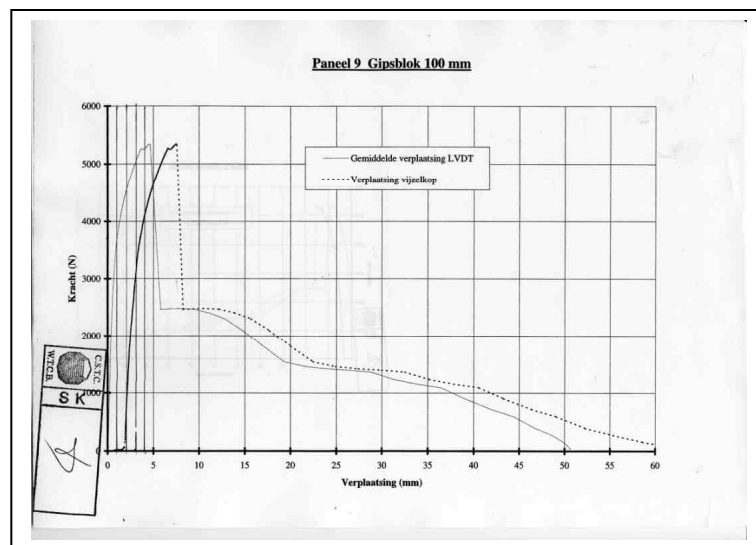




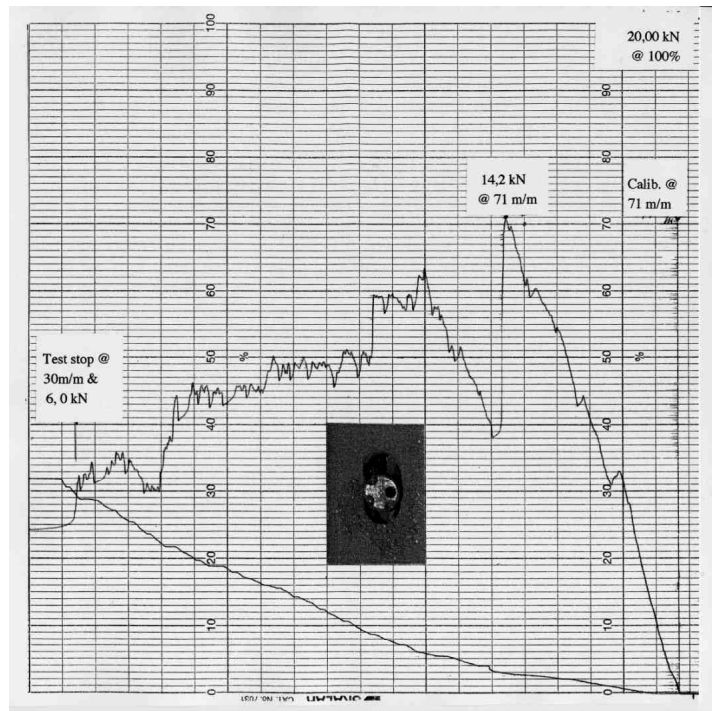
Et Arens Security Fixing

The current anchor is the result of a further development of a previous (Belgian) model. From this experience, the torsion anchor was developed for hollow and extruded bricks and other materials.

The first model was designed for materials such as full plaster elements and aerated-concrete cells. This model consists of a cylindrical body with a diameter of 22 mm and a height of 23 mm in which four steel nails of 4.2 mm x 100 mm go diagonally in to the wall. The fixing point of the anchor is a central internal thread of 6 or 8 mm. After the body is put into the hole, drive the body into the wall with 4 nails. The tests conducted by the BBRI (Belgian Building Research Institute) in Limellete show exceptional results for the materials mentioned above. The diameter of the conical dish extracted is 300 m/mm. The graph shows the tensile force exerted versus the displacement of the anchor. The curve to follow is the line (average LVDT displacement). The graph is a combination of force versus displacement. The force is expressed in (N) on the vertical axis, and the displacement is expressed in mm on the horizontal axis. In this case, you can see that the start of the displacement is at 1000 N (100 Kg) and when the body is held 3 mm out of the wall, the anchor has a displacement of 25 mm, even with 5000 N, the body is completely out of the wall and will still resist 1500 N.



Why use a torsion anchor? It has numerous benefits, primarily unrivalled safety in hollow and extruded bricks compared with traditional anchors. Force tests, conducted on various types of masonry from various manufacturers and on the weakest part of the masonry where only two rods are active, always showed an increase in tensile force after internal failure of the masonry material. The reason for this is that the rods have to fold at that moment, or the masonry material shatters along the inside.



Typical characteristic of a test in shear force exerted on the fixing point, versus the displacement of the central body. The test is conducted on the weakest part of the masonry.

Data from the graph (1 kN = 100 Kg)

The line is showing the displacement of the central body. 100% corresponds to 100 m/m.

The line showing the force exerted on the loading point 100 % corresponds with 20 kN.

The onset of internal failure occurs at (4 kN)

When there is a displacement of 0,5 m/m, the force is (6 kN)

Test stopped at (6 kN) and 30 m/m displacement.

The photograph shows the anchor in the elliptical hole after the test.

Here are few practical benefits: At the moment of overload, which causes the internal material failure of the masonry, the force needed to move the anchor increases (see typical force graph). The anchor is put into the masonry without tension and resists fire conditions, which makes it ideal for the installation of water pipes for sprinkler systems and other safety equipment. From the effect of the dissipation of forces from the central body and the rods in the wall, the anchor resists well against vibrations, and thus can also be of interest for areas prone to earthquakes. It is certainly advisable for affixing valuable items such as fireproof boxes, works of art and similar.

In the event that the anchor needs to be removed after use, there are rods with interior thread or it is enough to drill a hole in the head of the rod and withdraw it with an extractor. In most cases, two torsion and two traditional anchors are enough to fix a device. Not to be disregarded is the absence of chemical products with a limited expiry date, and other parts such as mixed heads etc., which produce environmental pollution. The torsion anchor does not use these. It is quick and easy to fit and requires little practical experience (a fitting manual is enclosed with each pair of anchors). The anchor can be loaded immediately after installation, and inspection is very simple. The fitting tools are standard equipment, apart from the hole saws, the centring drill and the adapter. In addition, use an 8 mm widia masonry drill with a length of 250 mm. The assistance rod can be replaced by an M8 or M10 threaded rod with a length of 250 mm. A normal nail punch can be used instead of the driving rod. As far as the price list is concerned, you really need to take into account that the hole saw with widia teeth wears out more quickly in certain types of hard high density bricks. Where on the other hand the diamond-tipped hole saw has an incomparable lifetime in brick, drills more smoothly and gives better results.

We hope that you have been persuaded of the exceptional qualities of the torsion anchor. We are always ready to study your affixing problems.