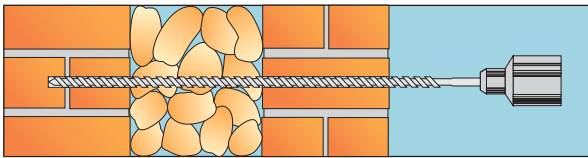


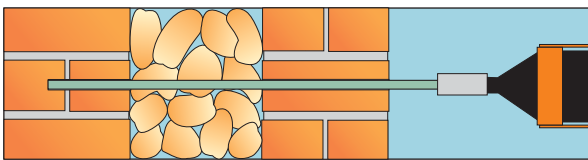
Cem-fix

Cem-fix Masonry stabilising system is a combination of our special Cemspand cementitious grout with controllable expanding agent and our Cem-fix reinforcement rods brought together to give a fast and cost effective set of masonry repair strategies to re-stabilising multi brick arches and brick tunnels, rubble filled walls, and separated party walls.

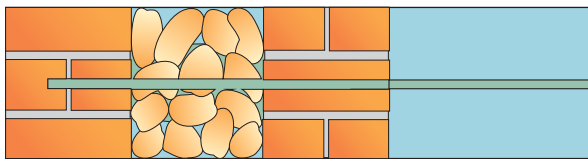
Installation Procedures



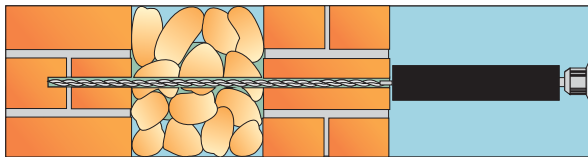
1) Drill clearance hole to recommended depth.



2) Fill mortar gun with Cemspand then insert special nozzle to back of hole.

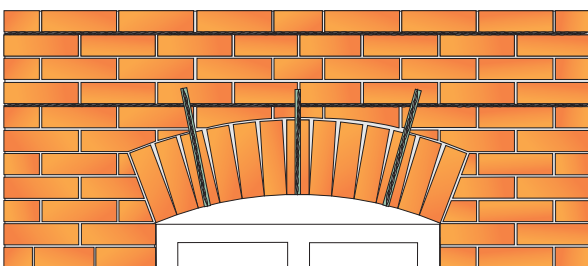


3) Fill hole and voids with Cemspand while slowly removing nozzle.



4) Drive in Cem-fix tie using are fast-fix support tool.

Re-stabilizing brick Arches



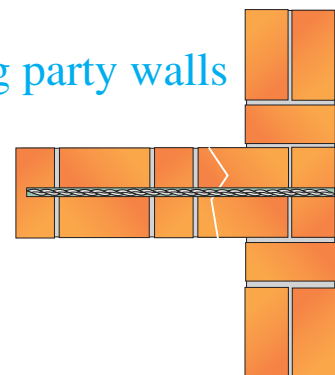
Benefits

- Quick installation.
- Low labour costs.
- High tensile strength.
- Allows for thermal movement.
- Many repair strategies.
- Stress free fixing.

Features

- Easy and problem free installation.
- Austenitic 304 or 316 Stainless Steel.
- Minimal structural and visual disturbance.
- Cemspand cementitious grout with controllable expanding agent.

Repairing party walls

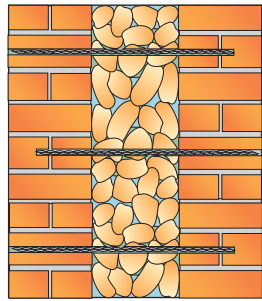


Cem-fix

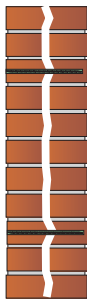
Repair Strategy's

- CF-01** Repairing Separating walls using Cem-Fix
- CF-02** Repairing Cracks in Solid Walls using Cem-Fix
- CF-03** Repairing Cracks in Cavity Walls using Cem-Fix
- CF-04** Repairing Cracks in Solid walls using Cem-Fix Cross Stitching
- CF-05** Repairing Failed Soldier Course Lintels in Cavity Walls
- CF-06** Repairing Near Corner Cracks in Solid Walls using Cem-Fix
- CF-07** Repairing Near Corner Cracks in Cavity Walls using Cem-Fix
- CF-08** Repairing Failed Arch Lintels in Solid Walls
- CF-09** Repairing Failed Arch Lintels in Cavity Walls
- CF-10** Repairing Solid Parapet Walls
- CF-11** Repairing Cavity Parapet Walls
- CF-12** Repairing cracks in Bay Windows main wall junctions
- CF-13** Repairing Cracks in Solid Bay Windows in main wall junctions and Bay Corners
- CF-14** Repairing Brick Arches with Angled Cem-fix
- CF-15** Repairing Loose Bricks & Re-pointing on Under Side of Brick Arches
- CF-16** Replacing Loose Bricks & Re-pointing on Under Side of Brick Arches
- CF-17** Repairing Separating Arches using Cem-Fix

Repairing Separating wall using Cem-Fix



Rubble Fill Wall



Solid Wall

(1) Drill clearance holes (13mm-16mm diameter depending upon material and length of tie to be used) to specified depth and at required vertical spacing.

(2) Blow out holes and thoroughly flush with water.

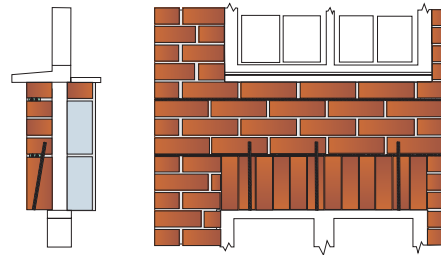
(3) With the aid of a grout gun, pump Cemspand cementitious grout to outlet of nozzle. Insert nozzle to full depth of drilled hole and pump grout to fill hole. Maintain pressure on gun while retrieving nozzle to ensure that all voids are filled with grout.

(4) Wind correct length Cem-fix into hole using Fast-fix support tool. Make good all holes at surface with colour matching dyed mortar.

Installation Notes: Unless specified otherwise the following criteria are to be used.

a) Cem-fix to be installed at the same density as remedial wall ties 2.47 per square metre using horizontal centres of 900mm and vertical centres of 450mm with additional Cem-fix installed either side of openings at 300mm vertical centres.

Repairing Failed Soldier Course Lintels in Cavity Walls



(1) Cut out slots into horizontal mortar joints to specified depth and at required vertical spacings. Blow out slots and thoroughly flush with water.

(2) With the aid of a grout gun insert a 10mm bead of Cemspand cementitious grout into the back of the top slot only. Push the Tri-bar rod into the grout until a good coverage is achieved. Insert a second 10mm bead of Cemspand cementitious grout over the exposed rod. Push second Tri-bar rod into the grout until a good coverage is achieved. Insert a final 10mm bead of Cemspand cementitious grout over the exposed rod and iron into slot using a finger trowel.

(3) After locating and marking positions of holes on the under side of Soldier course. Drill clearance holes (13mm-14mm diameter depending upon material) at required angle and depth. Angle of drill should just miss the back of lower Tri-bar beam and continue up at least 50mm into the above brick course.

(4) Blow out holes and thoroughly flush with water.

(5) With the aid of a grout gun, pump Cemspand cementitious grout to outlet of nozzle. Insert nozzle to full depth of drilled hole and pump grout to fill hole. Maintain pressure on gun while retrieving nozzle to ensure that all voids are filled with grout. Wind correct length Cem-fix into hole using Fast-fix support tool. Make good all holes at surface with colour matching dyed mortar.

(6) Install lower Tri-bar beams as per (2). When Cemspand has set repaint joint to match existing mortar joint.

Installation Notes: Unless specified otherwise the following criteria are to be used

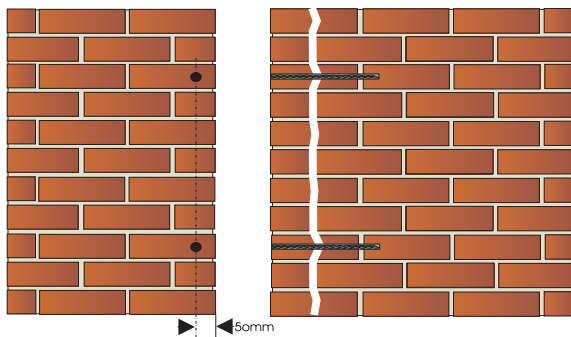
a) The depth of slot to be 40 to 55mm

b) Tri-bars are to extend a minimum of 500 mm each side of opening.

c) Top and bottom Tri-bar beams to be vertically spaced as far apart as possible to maximum distance of 900mm.

d) Cem-fix spacings no more than 400mm.

Repairing Cracks with Cem-Fix on Corners of Cavity Walls



(1) Drill clearance holes (13mm-16mm diameter depending upon material and length of tie to be used) to specified depth and at required vertical spacing.

(2) Blow out holes and thoroughly flush with water.

(3) With the aid of a grout gun, pump Cemspand cementitious grout to outlet of nozzle. Insert nozzle to full depth of drilled hole and pump grout to fill hole. Maintain pressure on gun while retrieving nozzle to ensure that all voids are filled with grout.

(4) Wind correct length Cem-fix into hole using Fast-fix support tool. Make good all holes at surface with colour matching dyed mortar.

Installation Notes: Unless specified otherwise the following criteria are to be used.

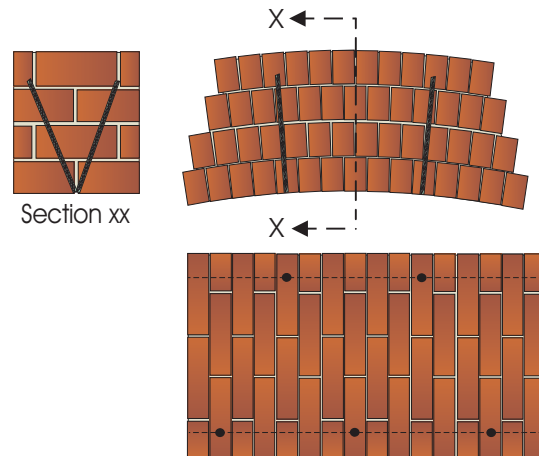
A) Cem-fix to extend at least 100mm past crack.

b) Normal vertical spacing of Cem-fix is 450mm(6 brick courses).

c) Cem-fix to be installed 50mm from corner.

d) If cracking occurs on both elevation of the same corner then stagger Cem-fix.

Repairing Brick Arches with Angled Cem-fix



(1) Mark positions of lines and holes on the under side of arch to required spacing.

(2) Drill clearance holes (13mm-16mm diameter depending upon material and length of tie to be used) to specified depth. Alternating 60 deg angled holes left to right along marked line.

(3) Blow out holes and thoroughly flush with water.

(4) With the aid of a grout gun, pump Cemspand cementitious grout to outlet of nozzle. Insert nozzle to full depth of drilled hole and pump grout to fill hole. Maintain pressure on gun while retrieving nozzle to ensure that all voids are filled with grout.

(5) Wind correct length Cem-fix into hole using Fast-fix support tool. Make good all holes at surface with colour matching dyed mortar.

Installation Notes: Unless specified otherwise the following criteria are to be used.

A) Normal spacing of lines is 450mm.

b) Normal spacing of Cem-fix is 450mm(6 brick courses).

Cem-Spand

Cem-spand is a specially formulated High performance injectable cementitious grout for bonding metal to all types of common masonry substrates. Cem-spand has the added benefit of being able to control its properties to suit the required applications when carrying out structural works and repairs. Cem-spand is supplied in a bucket container with a controlled amounts of clean aggregates, liquid milk and additional expanding agent.



Cem-spand with injection gun

Benefits

- ✓ Controlled expansion.
- ✓ Controlled compression strength.
- ✓ Thixotropic grout
- ✓ Rapidly cures and develops high compressive strength.
- ✓ Clean, safe and easy to use.



Testing Compression strength



Monitoring expansion

Cemspand Cementitious Grout

Compression strength with different amounts of expanding agents per 5 Kgs

	Day 1	Days 7	Days 28
Standard			
3 GMS of Expanding Agent			
Compression strength	9.9 N/mm ²	44.0 N/mm ²	52.0 N/mm ²
Expansion	1%	1%	1%
Cube Size	100mm	100mm	100mm
Cube mass	1940g	1876g	1899g
Density	1940 kg/m ³	1880 kg/m ³	1900 kg/m ³
Failure Load	99.1 kN	442 kN	522 kN

* Supplied on request

* 12 GMS of Expanding Agent

Compression strength	11.0 N/mm ²	27.5 N/mm ²	30.5 N/mm ²
Expansion	4%	4%	4%
Cube Size	100mm	100mm	100mm
Cube mass	1787g	1775g	1736g
Density	1790 kg/m ³	1780 kg/m ³	1740 kg/m ³
Failure Load	110 kN	274 kN	304 kN

* 25 GMS of Expanding Agent

Compression strength	7.7 N/mm ²	15.0 N/mm ²	18.5 N/mm ²
Expansion	16%	16%	16%
Cube Size	100mm	100mm	100mm
Cube mass	1558g	1580g	1560g
Density	1560 kg/m ³	1580 kg/m ³	1560 kg/m ³
Failure Load	76.7 kN	152 kN	165 kN

* 50 GMS of Expanding Agent

Compression strength	7.2 N/mm ²	12.0 N/mm ²	13.5 N/mm ²
Expansion	20%	20%	20%
Cube Size	100mm	100mm	100mm
Cube mass	1579g	1520g	1580g
Density	1580 kg/m ³	1520 kg/m ³	1580kg/m ³
Failure Load	71.9 kN	119 kN	133 kN

* 100 GMS of Expanding Agent

Compression strength	0.7 N/mm ²	3.7 N/mm ²	4.9 N/mm ²
Expansion	40%	40%	40%
Cube Size	100mm	100mm	100mm
Cube mass	1248g	1258g	1283g
Density	1250 kg/m ³	1260 kg/m ³	1280kg/m ³
Failure Load	7.4 kN	37.0 kN	48.7 kN