

LINTEL REPAIR & RETROFIT BRICK BEAMS



LINTEL REPAIR & BEAMING SYSTEM

DESCRIPTION

- Load carrying masonry reinforcement system.
- High tensile 304 grade stainless steel helical bars with excellent bonding characteristics.
- High performance WHO-60 grout.
- Independently performance tested.
- BRE load/span tables available.

APPLICATIONS

- Retrofitting masonry reinforcement.
- Creating concealed deep masonry beams and lintels that resist vertical loads.
- Spanning openings and unsupported areas.

BENEFITS

- Increases tensile, shear and flexural strength of masonry.
- Absorbs stress to redistribute load.
- Minimal disturbance and fully concealed repair.
- Quick, reliable and cost effective.

PRODUCT SPECIFICATION

Thor Helical bars are available in 5, 6, 7, 8 and 9mm diameter, in standard lengths of: 1m, 2m, 7m and 10m



STEPS

- 1 Grind out two vertically displaced mortar beds (as appropriate) to a depth of 40mm for half brick wall or 55mm for full brick walls. Slots to extend 500mm either side of opening



- 2 Clear out debris & thoroughly flush out with water.



- 3 Insert a 25mm bead of WHO-60 grout.

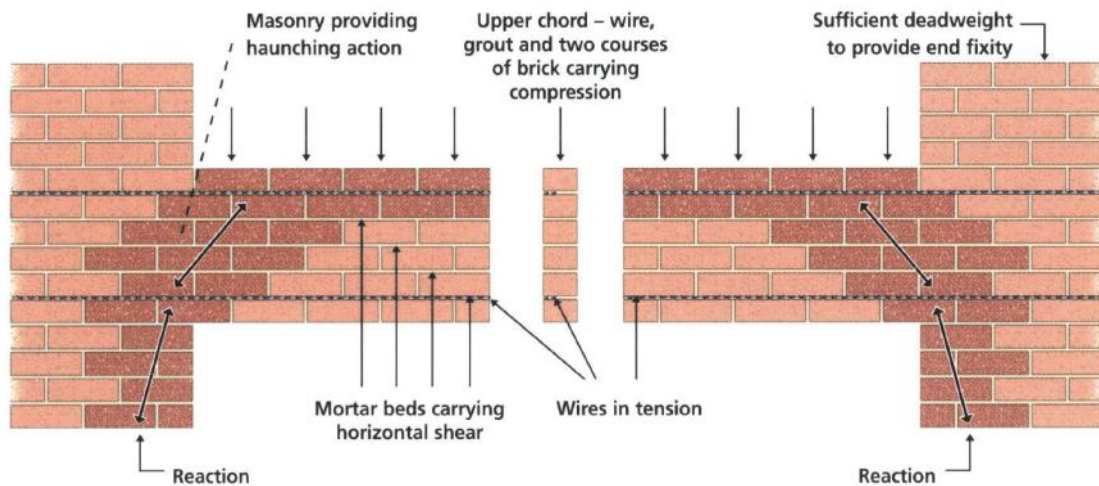


- 4 Insert and grout bars into position as below. Finish and point with colour match mortar.



- 5 Repeat items 3 and 4 to install second bar





The upper tendon combines with the two surrounding brick courses to enhance compression and the bottom tendon acts in tension to significantly increase the tensile and flexural capacity of the masonry



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EN845-1 2013 +A1:2016
THB-15/220129

Notes: BS EN 845-1:2013 National Annex NA states that the bars need to provide an equivalent performance to 30mm x 5mm lateral restraint straps with a declared mean tensile load capacity of at least 8kN.

TYPICAL TENSILE PERFORMANCE CE MARK TESTING TO BS EN 845-1

THOR HELICAL BED JOINT REINFORCEMENT IN WHO-60 GROUT

Bar Diameter	No. of Bars/Join	Mean UTL (kN)	Mean Load at 2mm Deflection (kN)
6mm	1	8.39kN	6.26kN
7mm	1	9.57kN	6.41kN
8mm	1	11.06kN	8.73kN
9mm	1	11.50kN	8.40kN
6mm	2	16.00kN	10.86kN
7mm	2	17.65kN	11.99kN
8mm	2	17.65kN	10.67kN
5mm	3	14.34kN	6.89kN

Depth of test slot: 30mm for single bar - 40mm for multiple bars

Height of test slot: 3mm greater than diameter of crack stitching bars

Position of test bars: 400mm embedment with multiple bars spaced 10mm apart

TYPICAL PROPERTIES OF THOR HELICAL BARS

Diameter	CSA (mm ²)	0.2% Proof Stress (N/mm ²)	Ult Tensile Strength (N/mm ²)*	Mean Tensile Capacity (kN) #
5mm	6mm ²	>880	1025-1225	7
6mm	8mm ²	>870	1025-1225	9
7mm	10mm ²	>880	1025-1225	11
8mm	13mm ²	>790	1025-1225	14
9mm	16mm ²	>850	1025-1225	17

* Ultimate Tensile Strength is measured within a calibrated tolerance of +/- 2%
Mean Tensile Capacity is an indicative value derived from CSA x Mean UTS

BRE factored load/span table for 102mm & 215mm thick brickwork using 6mm Thor Helical bars encased in WHO-60 Grout (kN/m run of beam)

Span (m)	Depth of Beam (m)				
	0.30	0.45	0.60	0.75	0.90
0.80	32.8	32.8	32.8	32.8	32.8
1.20	21.8	21.8	21.8	21.8	21.8
1.60	16.4	16.4	16.4	16.4	16.4
2.00	13.1	13.1	13.1	13.1	13.1
2.40	9.7	10.9	10.9	10.9	10.9
2.80	7.1	9.4	9.4	9.4	9.4
3.20		8.2	8.2	8.2	8.2
3.60		6.5	7.3	7.3	7.3

Notes:

BRE tests used weak materials in 1: 3: 12 cement: lime: sand mortar to provide lower bound values.

Tables assume:

- Compressive strength of bricks > 8.5 N/mm²
- Horizontal shear strength of masonry > 0.070 N/mm²
- No slip planes such as damp-proof within the beam

Tables include partial safety factors of:

- 1.5 for masonry in compression
- 1.5 for masonry in shear
- 1.0 for steel

For vertical shear resistance of the masonry safety factor of 1.5 has also been used to take into account variability of materials and workmanship. An additional safety factor of 2.0 has been used for the limiting serviceability conditions.

TYPICAL PROPERTIES OF WHO-60 Grout

Physical Properties	Strength (N/mm ²)
Compressive Strength – 7 days	35
Compressive – 28 days	55
Tensile Strength – 28 days	5
Flexural Strength – 28 days	12
Young's modulus (fully cured)	13