

## HEAVY DUTY INJECTION SOCK ANCHOR

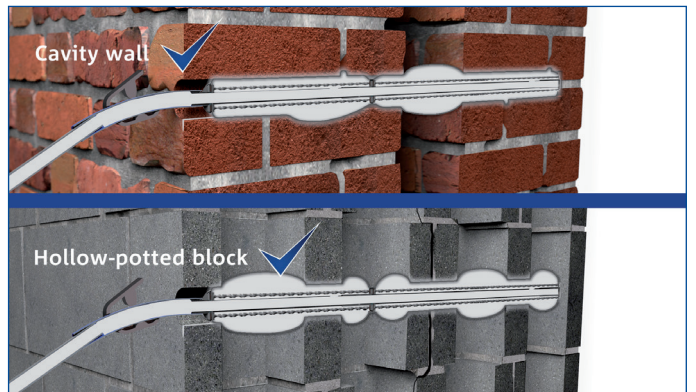
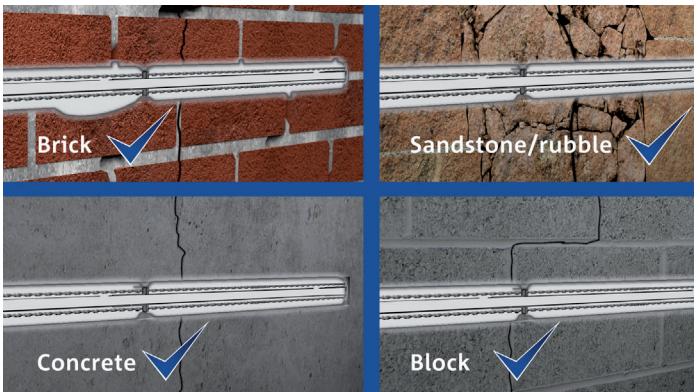


### Benefits:

- ▣ Versatile applications (arches, historic or new build structures)
- ▣ The only injection sock anchor that is designed to be assembled on site to achieve required length facilitating the installation process
- ▣ Eliminates the need for pattress plates
- ▣ Compatible to the original structure (cementitious)
- ▣ Durable (stainless steel)
- ▣ SureTwist helical section used for increased tensile strength and keying the grout
- ▣ Easy to install
- ▣ Clean to install
- ▣ Can be used in weak and poor quality substrates
- ▣ No manufacturing lead time (pre-manufactured in 3 lengths)
- ▣ Grout is pumped through the central spine (no plastic tubes creating weak spots)
- ▣ Easy to ship on pallets
- ▣ Suitable for nearly all solid and hollow substrates

### Applications:

- ▣ The SureTwist Heavy Duty Sock Anchor system is a fully engineered technical solution for strengthening masonry and repairing cracked or delaminated stonework.
- ▣ Available in standard and bespoke lengths to cater for any job, the SureTwist HDS Sock Anchor system stabilises and secures all types of masonry, with minimal disruption, to ensure a strong, durable and flexible repair.



Patent Pending

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## HEAVY DUTY INJECTION SOCK ANCHOR

The SureTwist HDS Heavy Duty Sock Anchor system is suitable for repairing and strengthening all masonry structures; bridges, arches, historic buildings, monuments and high rise constructions, and is ideal when high shear loads are being considered.

It is the only purpose designed injection sock anchor on the market, allowing assembly on site from our three standard off the shelf stock sizes, economising transport costs as the HDS comes palletised. It also allows for the contractor to complete the contract, without manufacturing delays.

The SureTwist HDS Heavy Duty Sock Anchor has been fully tested at the Imperial College London, along with SureGrout HDS. Below is a summary of those tests.

It is a very simple anchor to install, purely drill your hole using either SDS max drills, core drills or

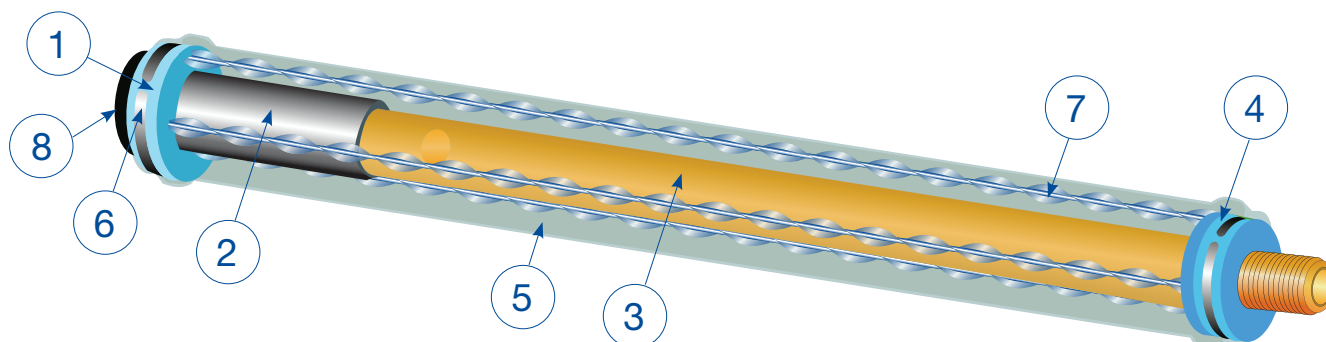
diamond drills, clean the holes, screw the blanking plug into the end anchor and push into the drilled hole, connecting the anchors to the desired length. Screw the pipe onto the end, mix the grout, put into a pneumatic gun and fill the anchor. Once the grout milk is seen running from the hole, stop pumping and let it relax for a few minutes then clamp the pipe and remove the gun. Leave for at least an hour then remove the pipe and clamp. (See installation sheets for comprehensive installation information.)

### Technical Information

- Drill hole size 37 - 60mm
- Standard lengths: 1000mm, 500mm and 250mm (Individual lengths can be manufactured to order)
- Central internal pipe: 14mm
- Minimum tensile strength: 45.38 kN (as individual connectors)
- SureGrout HDS compressive strength: 65 N/mm<sup>2</sup> after 28 days. Tested to EN 196-1 and 3 and EN 445, 446 and 447

### Technical Guide

| Anchor Type | Anchor Dia. MM | Core Dia. MM | Embedment MM | Substrate N/M | Ultimate Tensile kN | Ultimate Shear kN |
|-------------|----------------|--------------|--------------|---------------|---------------------|-------------------|
| HDS 32      | 32             | 14           | 250          | Brick 16      | 46.77               | 75.28             |



| ITEM | DESCRIPTION     |
|------|-----------------|
| 1    | 17MM COLLAR     |
| 2    | THREADED SLEEVE |
| 3    | CENTRE TUBE     |
| 4    | 14MM COLLAR     |

| ITEM | DESCRIPTION          |
|------|----------------------|
| 5    | SOCK SLEEVE          |
| 6    | 28MM ROUND SNAP RING |
| 7    | 4.5MM HELICAL ROD    |
| 8    | BLANKING PLUG        |

### Additional Products

- PNEUMATIC GUN
- INSTALLATION PACK (ADDITIONAL HOSE / HOSE CLIPS / STEEL OR COPPER INJECTION NOZZLE)
- 2HP 110V COMPRESSOR
- 35LTR. MIXING TUB
- 110V, 1150W MIXER
- 20LTR. PRESSURE MIXER (CAN CONNECT DIRECTLY TO PNEUMATIC GUN)

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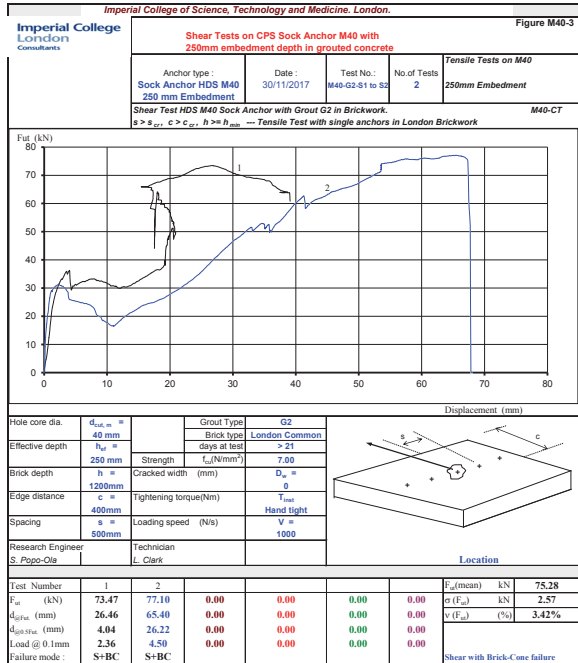
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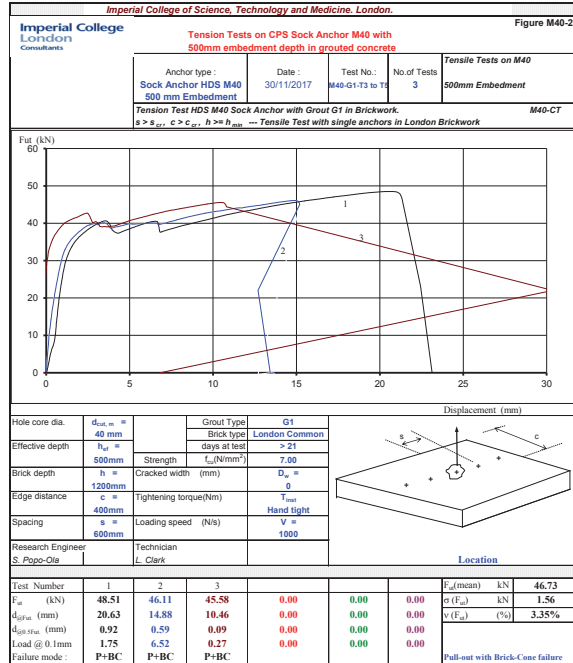


# HEAVY DUTY INJECTION SOCK ANCHOR TEST RESULTS

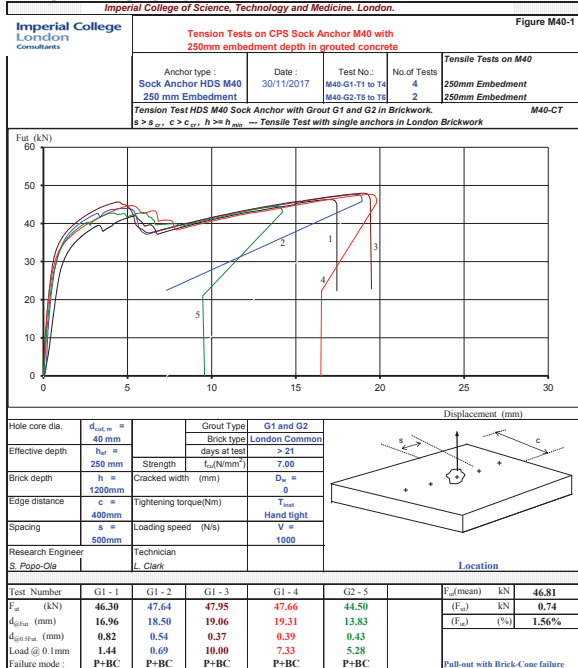
## SHEAR TESTS 250MM EMBEDMENT



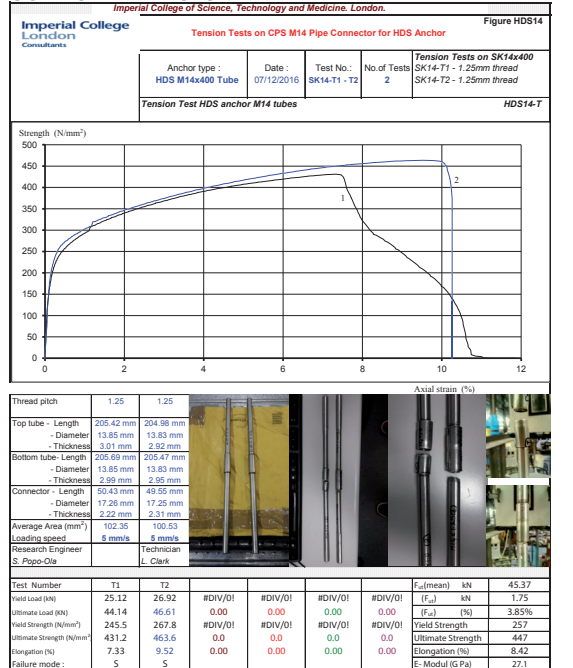
## TENSILE TESTS 500MM EMBEDMENT



## TENSILE TESTS 250MM EMBEDMENT



## COMPONENT TESTS



Summary of connection components testing at the Imperial College London.

| Test ref. | Area (mm <sup>2</sup> ) | Length (mm) | Failure load (kN) | Yield load (kN) | Failure Strength (MPa) | Yield Strength (MPa) | Max Axial Elongation (%) | Failure mode     |
|-----------|-------------------------|-------------|-------------------|-----------------|------------------------|----------------------|--------------------------|------------------|
| M14x1.25  | 100.1                   | 410         | 45.38             | 25.9            | 448.3                  | 255.65               | 9.52                     | Top bar breakage |

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## HEAVY DUTY INJECTION SOCK ANCHOR TEST RESULTS

Test programme for CPS HDS M40 Sock Anchors grouted (G1 and G2) in Brickwork

| Test Ref.  | Test type | Anchor depth | Grout type | Face of Brick | Failure load | Date of test | Failure mode | Manufacturer Ref. |
|------------|-----------|--------------|------------|---------------|--------------|--------------|--------------|-------------------|
| T40-G1-1   | Tension   | 250          | Grout-1    | 1             | 46.30        | 30/11/2017   | P + BC       | HDS-M40-G1-T1     |
| T40-G1-2   | Tension   | 250          | Grout-1    | 1             | 47.64        | 30/11/2017   | P + BC       | HDS-M40-G1-T2     |
| T40-G2-1   | Tension   | 250          | Grout-2    | 1             | 44.50        | 30/11/2017   | P + BC       | HDS-M40-G2-T1     |
| T-S40-G1-1 | Tension   | 250          | Grout-1    | 1             | 47.95        | 30/11/2017   | P + BC       | HDS-M40-G1-TS1    |
| T-S40-G1-1 | Tension   | 250          | Grout-1    | 1             | 47.66        | 30/11/2017   | P + BC       | HDS-M40-G1-TS2    |
| T40-G1-3   | Tension   | 500          | Grout-1    | 2             | 48.51        | 01/12/2017   | P + BC       | HDS-M40-G1-T3     |
| T40-G1-4   | Tension   | 500          | Grout-1    | 2             | 46.11        | 01/12/2017   | P + BC       | HDS-M40-G1-T4     |
| T40-G1-5   | Tension   | 500          | Grout-1    | 1             | 45.58        | 30/11/2017   | P + BC       | HDS-M40-G1-T5     |
| S40-G2-1   | Shear     | 250          | Grout-2    | 2             | 73.47        | 30/11/2017   | S + BC       | HDS-M40-G2-S1     |
| S40-G2-2   | Shear     | 250          | Grout-2    | 2             | 77.10        | 30/11/2017   | S + BC       | HDS-M40-G2-S1     |

P + BC: Pullout with Brickwork Cone failure

S + BC: Shear with Brickwork Cone Pryout failure

P: Pullout by hand failure

| Drill Hole Size (mm) | Grout Consumption per linear metre | Metre per 20kg bag |
|----------------------|------------------------------------|--------------------|
| 32                   | 0,8                                | 15,5               |
| 37                   | 1,1                                | 11,6               |
| 40                   | 1,3                                | 9,9                |
| 45                   | 1,6                                | 7,8                |
| 50                   | 2,0                                | 6,3                |
| 55                   | 2,4                                | 5,2                |
| 60                   | 2,8                                | 4,4                |



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