

CINTEC

DESIGNED ANCHOR SYSTEMS FOR
THE CONSTRUCTION INDUSTRY

THE ANCHOR

FOR PERMANENT AND SYMPATHETIC
ANCHORING SOLUTIONS



▲ Christ Church Cathedral, Australia



▲ Royal Border Bridge, U.K.



▲ Fitzwarren Court, U.K.



▲ Windsor Castle, U.K.

Design Concepts

The Anchor System is a specially designed system consisting of a reinforcing member surrounded by a fabric sock and is inflated using a cementious grout.

The Grout

Presstec grout is a one component mix, which has the same characteristics as Portland Cement, with graded aggregates and other constituents which, when mixed with water, produce a pumpable grout that exhibits good strength with no shrinkage.

Presstec is made in accordance with the following German DIN standards :-

DIN 1045
DIN 18156
DIN 18200
DIN 18555

The grout is independently checked both during manufacture and before final despatch. This control is undertaken by the Material Testing Institute of the German Federal State of Northern Rhine-Westfalia MPA NRW. Proof of the inspection is marked on every bag with the control mark 'U' or 'Überwacht Controlled'.

Typical values of the set grout are :-

| MEAN TENSION N/mm ² | MEAN COMPRESSION N/mm ² |
|--------------------------------|------------------------------------|
| @ 3 days = 2.5 | @ 3 days = 21.2 |
| @ 7 days = 3.5 | @ 7 days = 37.2 |
| @ 28 days = 4.5 | @ 28 days = 51.5 |

The Sock

The fabric sleeve is a specially woven polyester based tubular sock with expansion properties to suit the diameter of the bore hole and substrate. The mesh of the sock is designed to contain the aggregates of the mixed grout while still allowing the cement enriched water (milk) to pass through the sock both sizing and bonding to the substrate. The sock is manufactured in sizes from 20mm to 300mm in diameter and is adjusted to suit each individual application.

The Reinforcing Member

The types of reinforcing members utilised depend largely on the loads anticipated and the life expectancy of the anchor. A few examples are listed here :-

Mild Steel - High Tensile Steel - Fibreglass - RSJ sections - I beams - Structural plastics.

The most common member utilised in the Cintec System is Austenitic Stainless Steel. This is available in several minimum yield stress categories ranging from 190 N/mm² to 600 N/mm² and in grades 304 and 316. The grade 316 contains Molybdenum, which improves the resistance to corrosion and is beneficial especially in chemically aggressive environments.

Higher grades of Stainless Steels are available for specialist applications. Several types of section can be utilised such as :-

Square Hollow Section
Rectangular Hollow Section
Circular Hollow Section
Solid Deformed Bar (Rebar)
Studding (Allthread)
Rolled Thread Bar (Scroll Bar)
Square Solid Bar
Rectangular or Flat Bar

The Bore Hole

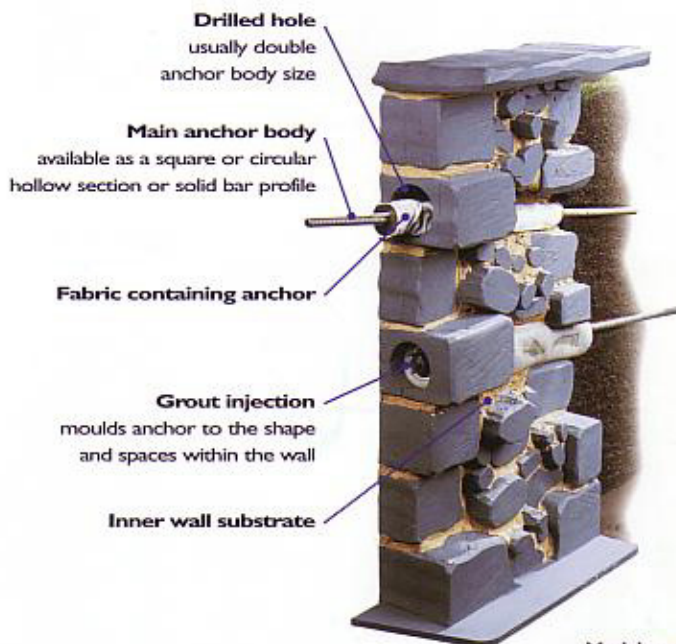
The bore hole is normally achieved using :-

Wet Diamond Core Drilling
Dry Diamond Core Drilling
Dry PKD Core Drilling
Rotary Percussion

The drilling method utilised depends on the condition of the building or structure and the sensitivity of the anchor position.

The bore hole is normally twice the diameter of the reinforcing member utilised. For longer anchors the bore hole is increased in relation to the anchor length.

The bore hole diameter can also be adjusted to decrease the bond stress on the fixed perimeter of the grout to relatively low values (i.e. 0.1 to 0.2 N/mm²).



Model courtesy of
WT Fixings & Combi-tec

The Principles

Grouting equipment and mixing

5 LITRE OF WATER 1/2 LITRE OF WATER 25 KG BAG electric mixer capable of 500 rpm

very clean bucket or container

re-mix and add up to 10% (600ml) of water if required

4 minutes of continuous mixing allow to stand for 5 minutes

grout is introduced into pressure pot through a sieve

hand held grouting gun for small quantities

injection limits between 3-5 bars

pot life 60 minutes dependent on temperature

compressor 7 cu. ft. min. 100 psi.

pressure pot

injection hose no longer than 4 metres

when injecting anchor rotate the whole body in a circular motion to position the anchor body in the centre of the bore hole

Injection sequence

Anchor is placed into an oversized drilled hole between substrates

Pressure is applied between 3 and 5 bars (42.6 - 71 psi)

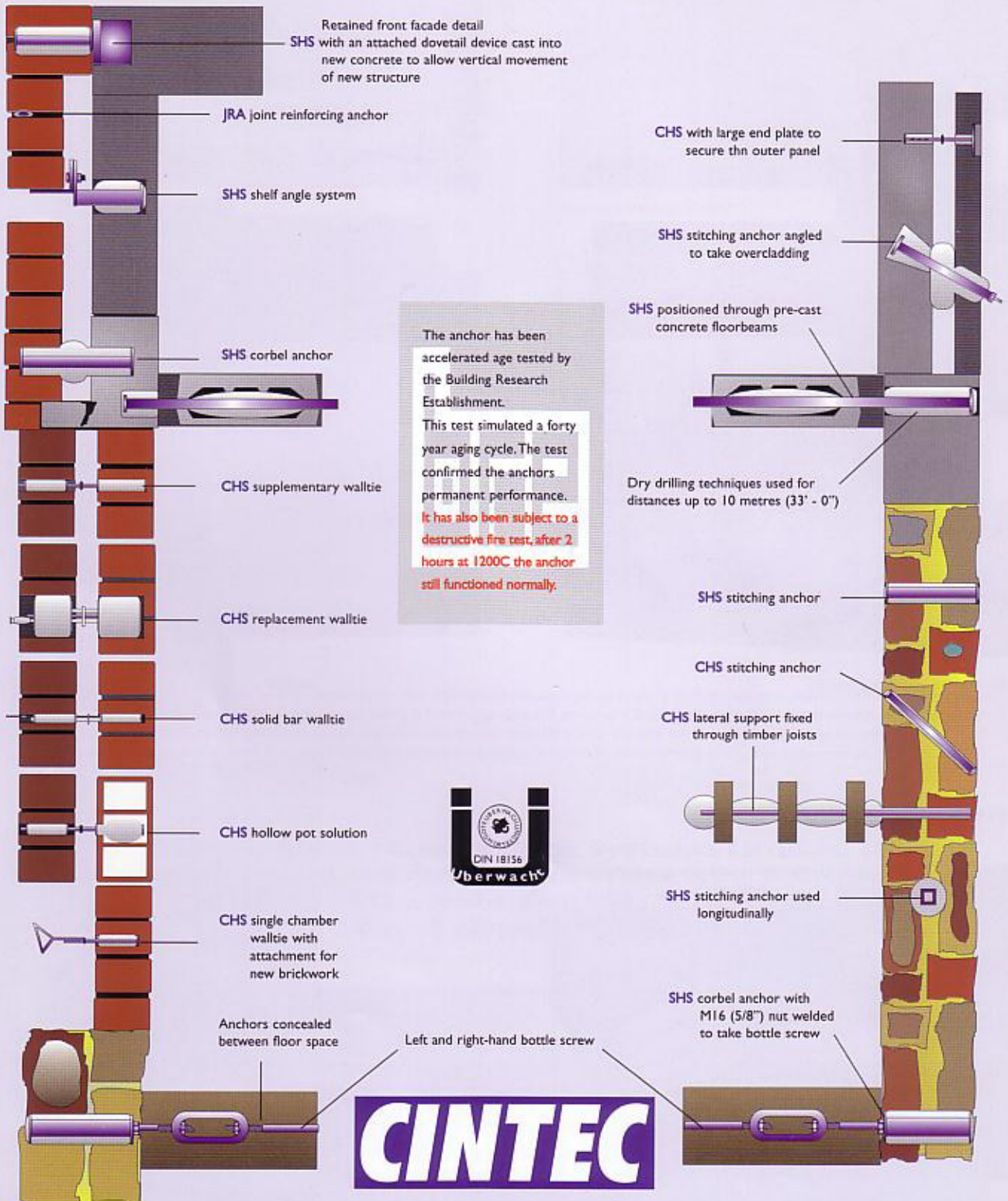
Pressure is maintained until all the surplus grout milk is forced out of the anchor and fabric sock

The excess grout milk penetrates the open mesh pores and seeps into the substrate both sizing and penetrating the small fissures



THE COMMON APPLICATIONS OF MICRO CONCRETE AND LIME GROUT ANCHORS FOR PERMANENT AND SYMPATHIC ANCHORING SOLUTIONS

THE SHAPE AND SIZE OF THE INDIVIDUAL COMPONENTS CAN BE VARIED TO SUIT DIFFERENT DESIGN REQUIREMENTS, AND A FREE ADVICE SERVICE IS AVAILABLE ON THE CORRECT USE AND SIZE OF ANCHOR REQUIRED FOR INDIVIDUAL MATERIAL

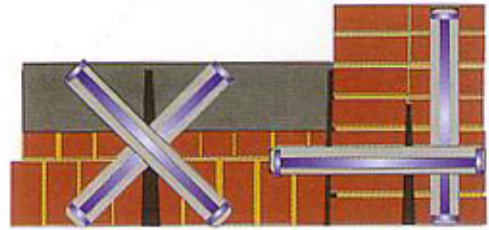


Civil Applications

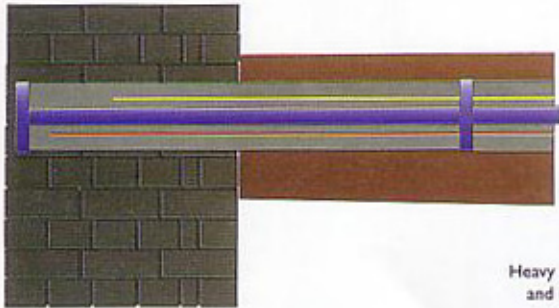
Bridge repairs



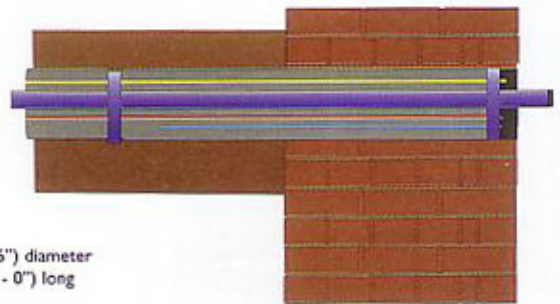
elevation



section



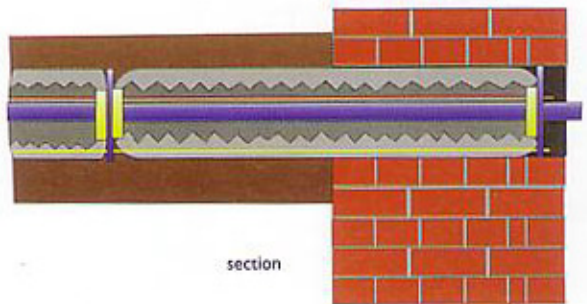
section



Heavy duty anchor 150mm (6") diameter and up to 30 metres (100' - 0") long

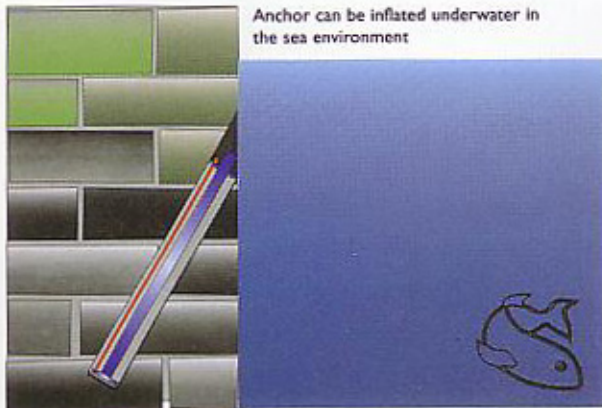


Ground anchor doubly protected



section

Harbour wall stitching



section

Plan



Repairs to masonry wall. The RWT stitching anchor stabilizes the wall and provides an attachment to add external reinforcement

Sprayed concrete

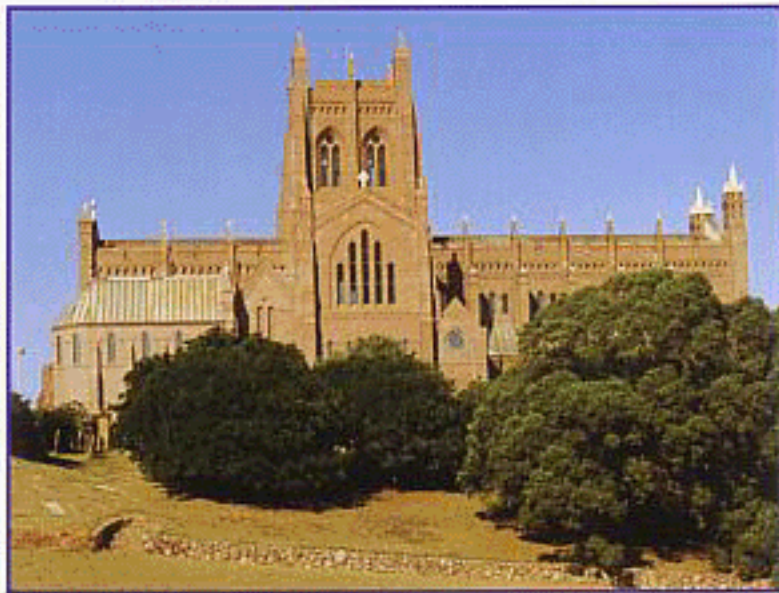
CINTEC INTERNATIONAL PROJECTS



Worcester Viaduct, England



Parliament Buildings, Canada



Christ Church Cathedral, New South Wales, Australia



Schwerin Castle, Germany

This brochure is a quick guide to the normal every day applications we are able to provide. It does not give detailed technical information which obviously would be required when undertaking a firm design, but will give you a feel for the type of problem-solving solutions we are able to achieve. We have our own in-house or contracted structural engineers who are able to advise and undertake the whole design work without initial consultation fees. The cost of specialist engineering advice is normally incorporated in the final anchor price.

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