

# 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 cementitious 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 <sup>2</sup>	MEAN COMPRESSION N/mm <sup>2</sup>
@ 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/mm<sup>2</sup> to 600 N/mm<sup>2</sup> 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

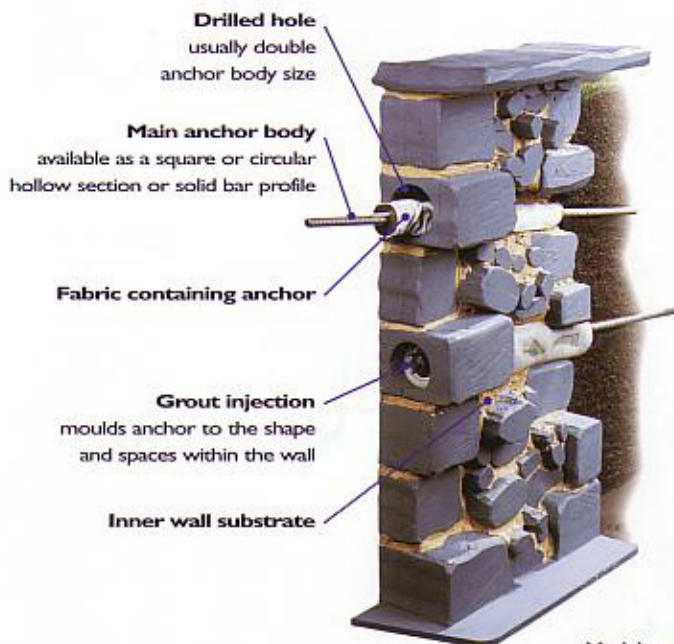
The bore hole is normally achieved using :-

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/mm<sup>2</sup>).



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)

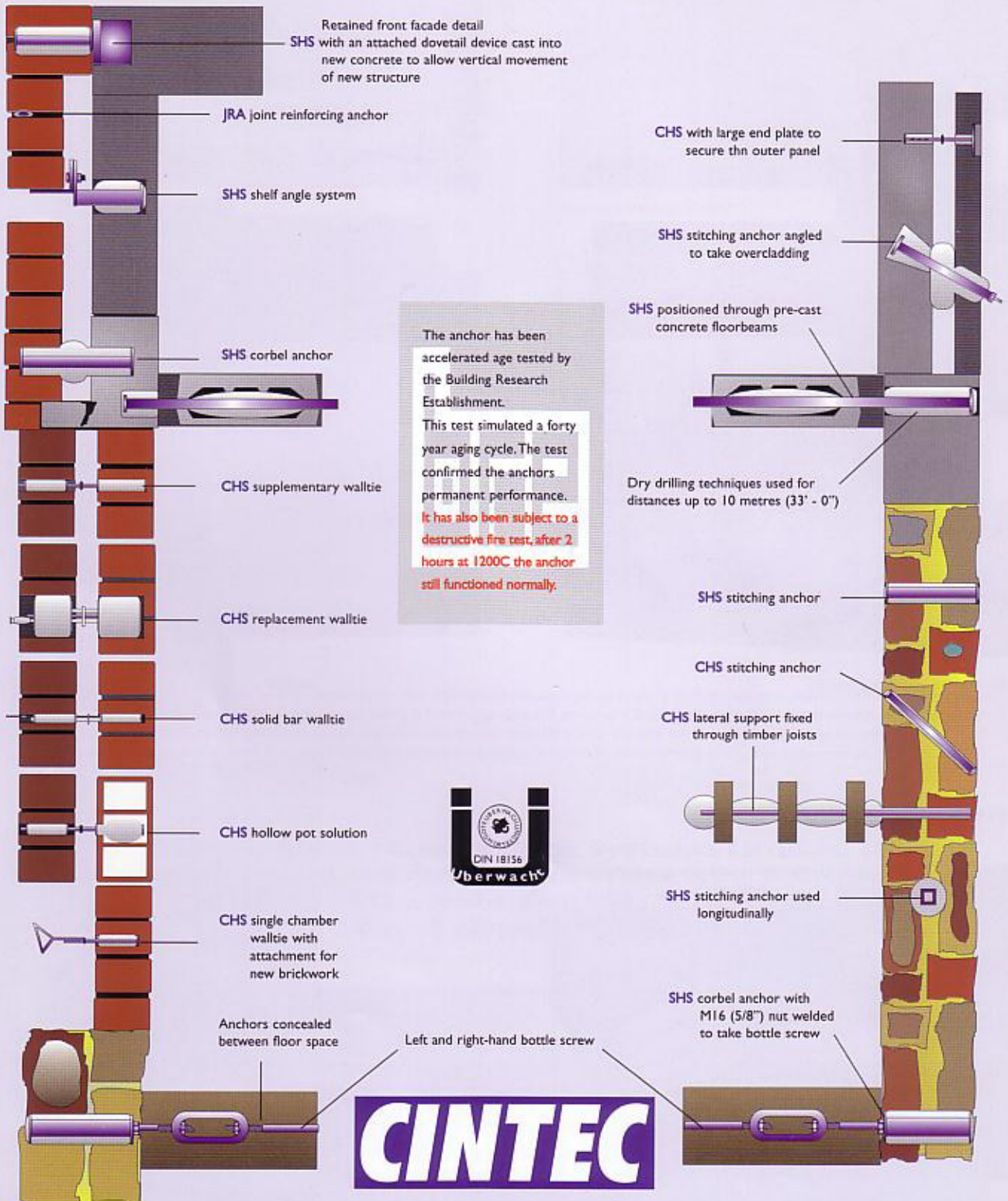
Pressure is maintained until all the surplus grout milk is forced out of the anchor and fabric sock

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**



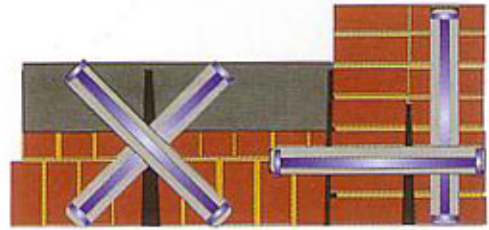
# Civil Applications

## Bridge repairs

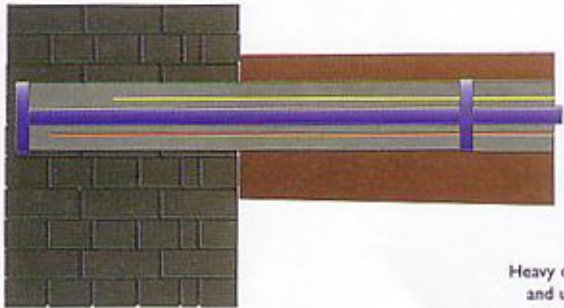


RWT stitching anchors used to strengthen separated ring arches and to secure cracks

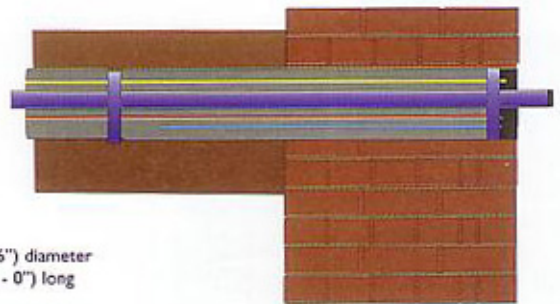
elevation



section



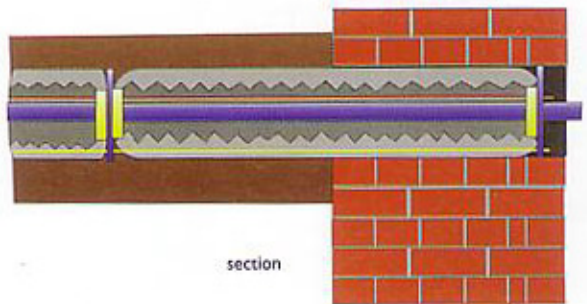
section



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

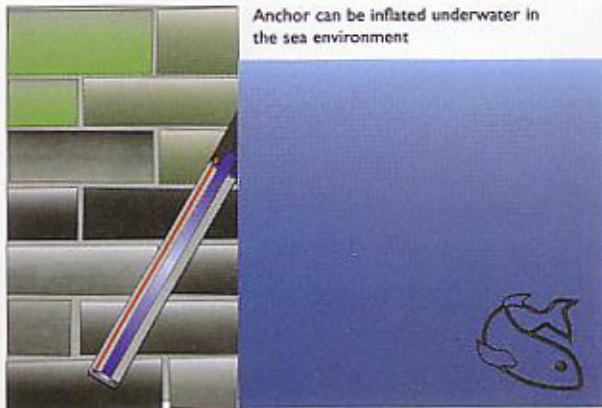


Ground anchor doubly protected



section

## Harbour wall stitching



Anchor can be inflated underwater in the sea environment

section

Plan



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

Sprayed concrete

