

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 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

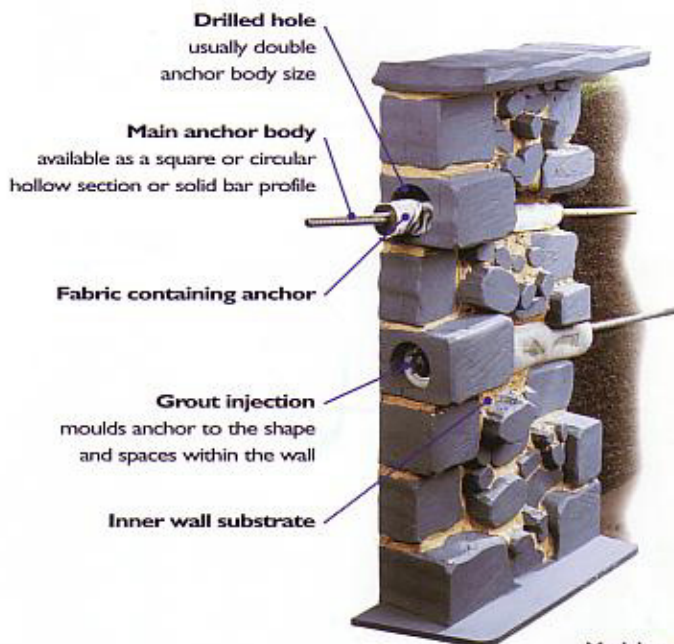
The bore hole is normally achieved using :-

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