



Ground Anchors

- Bar Anchors
- Strand Anchors
- Removable Anchors



Technical Data

Bar Diameter mm	Steel Grade N/mm ²	Ultimate Strength kN (f_{bu})	Yield Strength kN (T_y)
Prestressing Steel			
15	900/1100	195	159
20	900/1100	345	283
26.5	950/1050	579	523
32	950/1050	844	764
36	950/1050	1069	967
40	950/1050	1320	1194
47	950/1050	1822	1648
Gewi-Steel			
16	500/600	121	100
20	500/600	188	157
25	500/600	295	245
28	500/600	370	308
32	500/600	482	402
40	500/600	756	630
50	500/600	1176	980
63.5	555/700	2217	1758

Corrosion Protection for Permanent Bar Anchors

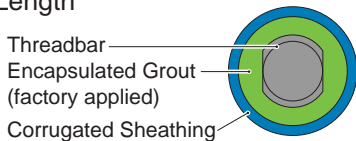
Permanent Anchors (lifespans in excess of 2 years) require sufficient corrosion protection to ensure durability throughout the working life of each anchor.

Double Corrosion Protection, featuring factory pregrouted encapsulation of the bar within a corrugated plastic sheath, ensures comprehensive protection to all parts of the anchor. Protection at the anchor head is provided by a fully enclosed assembly.

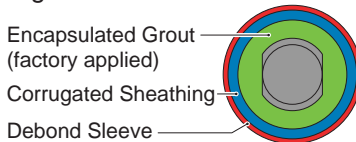
Borehole Grout is not recognised by current anchor standards (BS8081 or EN1537) as a corrosion protection barrier.

Double Corrosion Protection Detail:

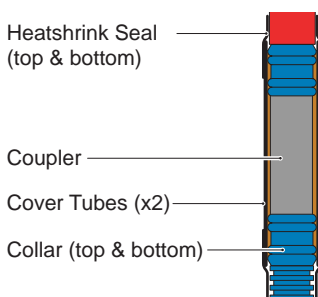
Bond Length



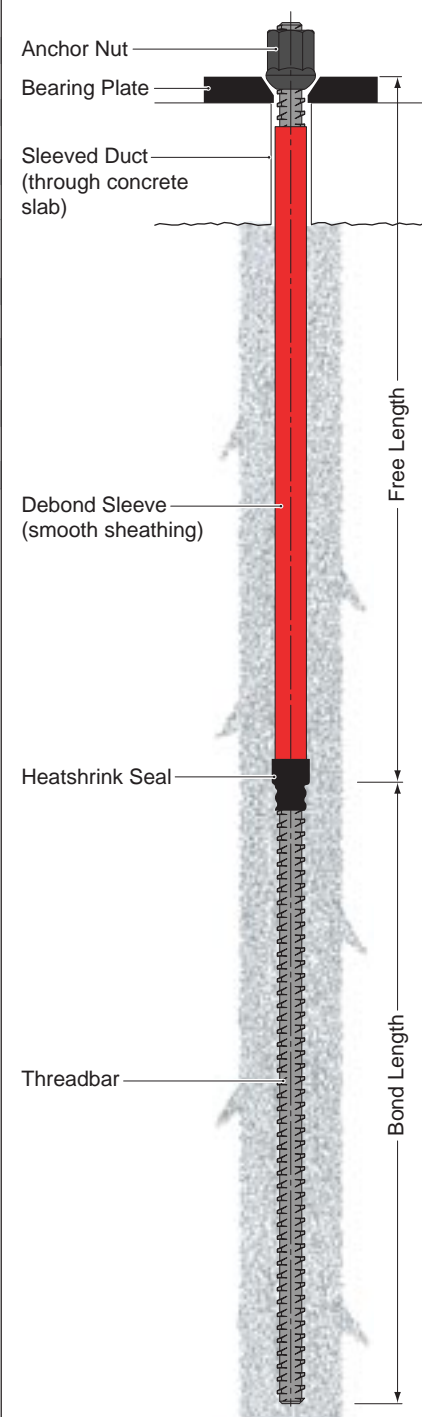
Free Length



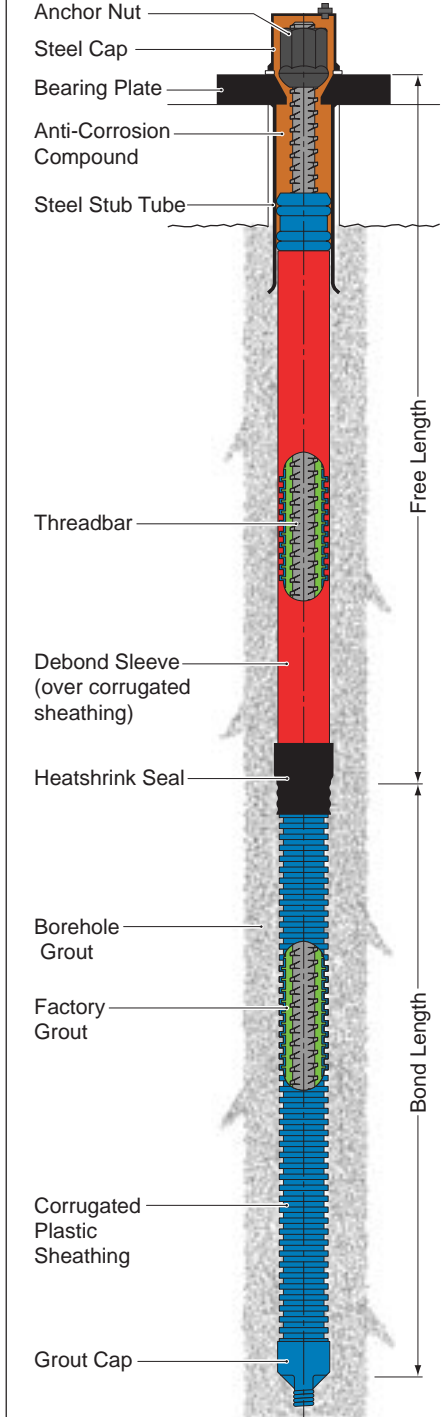
Coupler



Temporary Bar Anchor (Lifespan: up to 2 years)



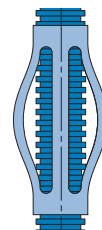
Permanent Bar Anchor with Double Corrosion Protection (Lifespan: up to 120 years)



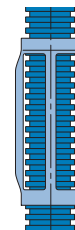
Lantern Spacer - plain bar (soil or rock)



Lantern Spacer (cased boreholes, soil)



Wrap-around Spacer (stable boreholes, rock)



Technical Data

Strand Anchors are constructed from compacted strand, grade 1550 / 1820 N/mm².

Number of Strands	Ultimate Strength kN (f_{pu})	0.1% Proof (Yield Strength) kN (T_y)
1	300	255
2	600	510
3	900	765
4	1200	1020
5	1500	1275
6	1800	1530
7	2100	1785
8	2400	2040
9	2700	2295
10	3000	2550
11	3300	2805
12	3600	3060

Higher capacity anchors are available through the addition of further strands.

Corrosion Protection for Permanent Strand Anchors

The same principles of corrosion protection for Permanent Bar Anchors apply for Permanent Strand Anchors, to ensure durability throughout the lifespan.

For Permanent Strand Anchors, Double Corrosion Protection is achieved by two independent layers of plastic sheathing as follows:

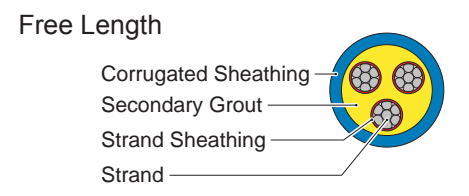
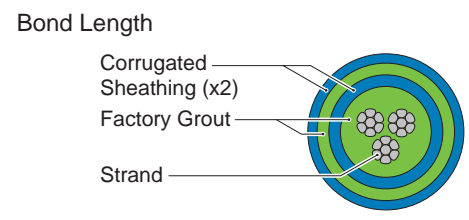
Bond Length
Two concentric corrugated plastic sheaths (typically factory pregrouted).

Free Length
Individual plastic sheaths (smooth) for each strand, all enclosed within a common external corrugated plastic sheath. Protection at the anchor head is provided by a fully enclosed assembly.

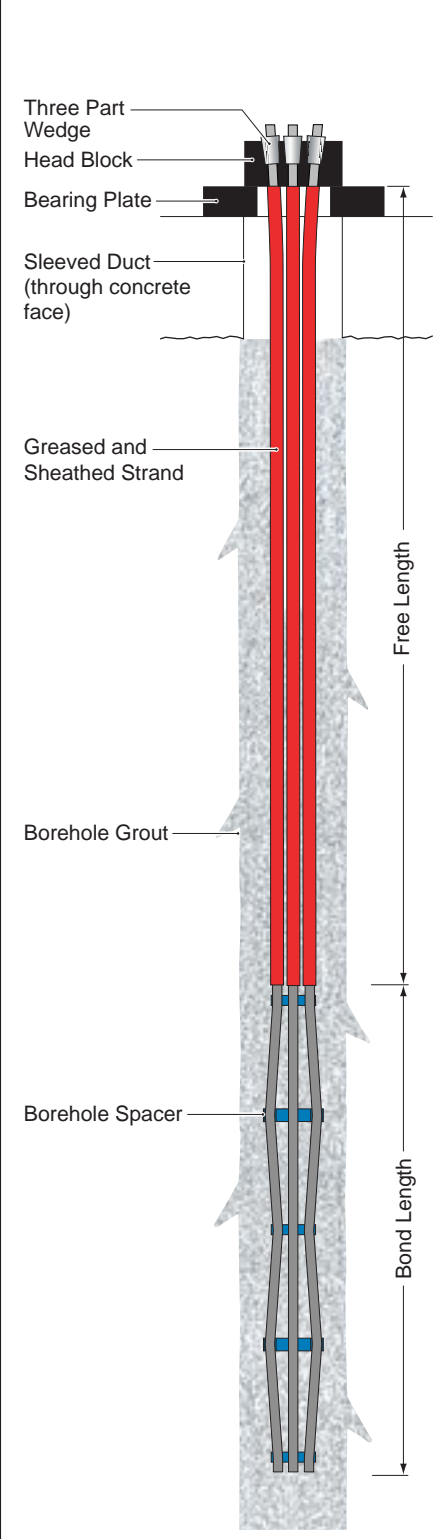
Anchors are factory assembled and coiled (except for pregrouted bond length), prior to delivery.

Borehole grout is not recognised by current anchor standards (BS8081 or EN1537) as a corrosion protection barrier.

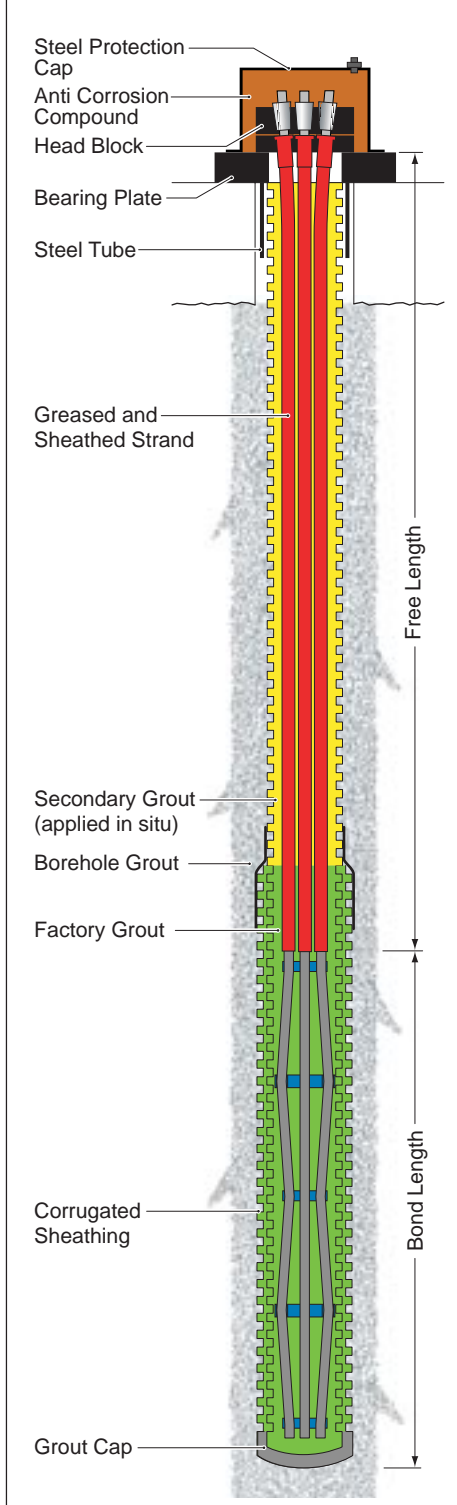
Double Corrosion Protection Detail:



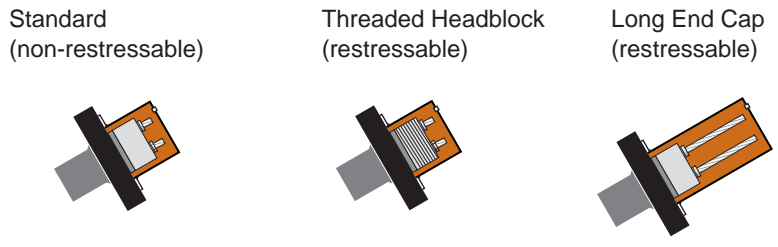
Temporary Strand Anchor
(Lifespan: up to 2 years)



Permanent Strand Anchor with Double Corrosion Protection
(Lifespan: up to 120 years)



Permanent Strand Anchors: Head Assemblies



Removable Anchors



Technical Data

Removable Strand Anchors are constructed from 15.7mm Standard Strand (Grade 1570/1770 N mm²), with a heat treated rupture point.

Number of Strands	Ultimate Strength kN (f_u)	Working Load kN (T_w)
1	220	137
2	440	275
3	660	412
4	880	550
5	1100	687
6	1320	825

Higher capacity anchors are available through the addition of further strands.

Notes:

1. Ultimate Strengths are based on the failure load at the rupture point.
2. Working Loads incorporate S_f of 1.6, in accordance with temporary anchors (BS8081).
3. Yield Strengths (T_y) of free length tendons exceed failure load at rupture point.

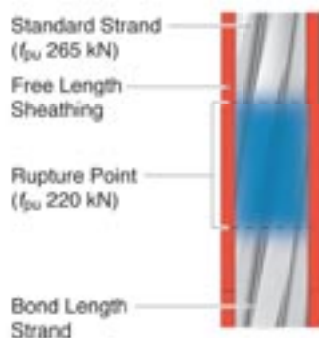
Removable Strand Anchor System (Temporary Works)

Removable Strand Anchors are typically employed in built-up areas where easement restrictions apply for anchor access, i.e. basement construction in city centres.

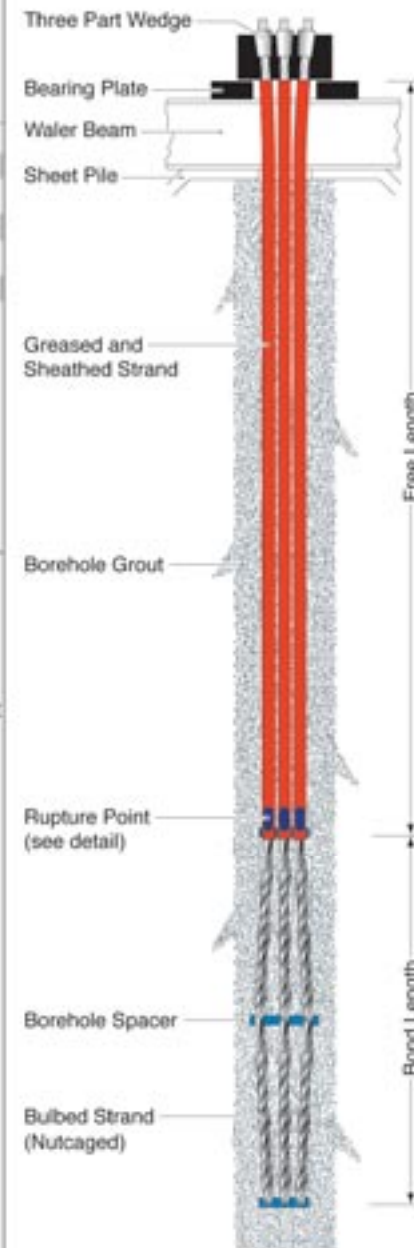
The anchors feature strands which have been specially heat treated at a point just above the bond length, to induce a rupture point. The rupture point is the only point at which the strand will fail when loaded to 220 kN.

Removal of the anchor is achieved through the loading of the strands (individually) to failure, at the rupture point. Strand movement is contained by a steel cap at the top of the jack. Following strand rupture all the strands can be withdrawn, with only short sections of strand remaining at the base of the borehole.

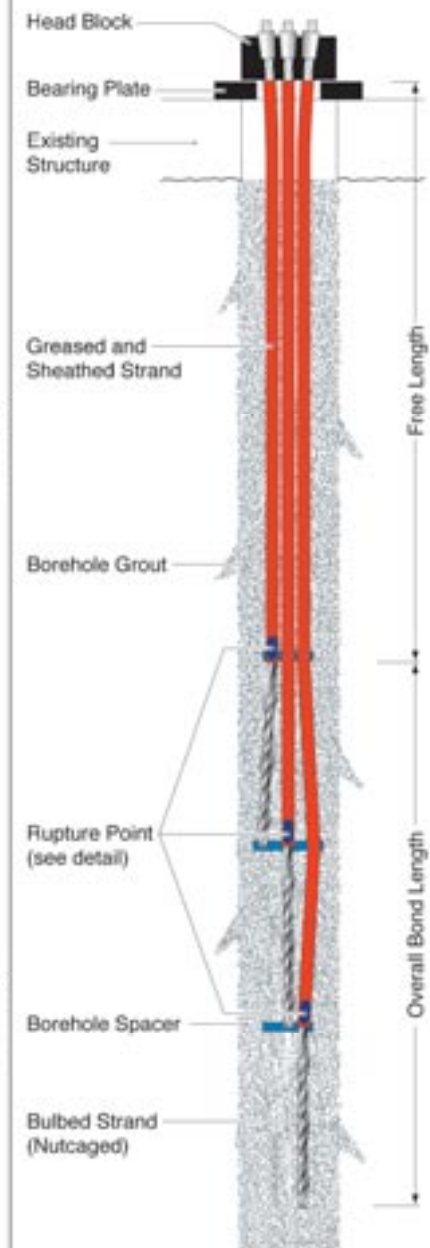
Section Through Rupture Point:



Conventional Bond Lengths (Firm Ground)



Staged Bond Lengths (Poor Ground)

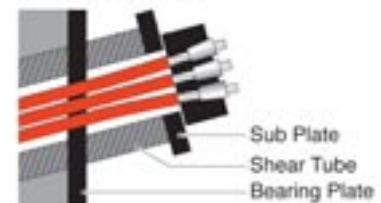


Angle Compensation

Gusset Arrangement (water beam / sheet piles)



Shear Tube (existing structure)



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