

Fixed Aids & Anchors in Caves & Mines.

Anchors

The Derbyshire Caving Association installs resin anchors in caves and mines as part of the British Caving Association's resin anchor scheme which was set up in 1990. There are full details of the scheme on the British Caving Association website and on the DCA website, where you can also find details of how to inspect anchors prior to use and report any issues you find:

<https://www.thedca.org.uk/equipment/resin-set-anchors>

Almost every anchor placed under the BCA scheme is either a DMM Eco Anchor (original 'P' bolt) or a similar looking Bolt Products 'BP' Anchor. Occasionally DCA has had need to place another type of specialist anchor that does not look the same as the standard resin anchor. When this is required, the DCA will include details of these non-standard anchor types on rigging guides and descriptions that it produces. In all but this very small number of cases, assume any anchor that is not a DMM Eco or BP 'P' anchor are nothing to do with the DCA.

Why do you need to know if an anchor is a DCA installed one or not?

DCA anchors are installed by trained and approved volunteers, using a methodology proven to result in strong and reliable anchor placements. Although you should never trust single anchors or use any anchor without first inspecting it, the anchor installation scheme gives cavers a certain level of security that cannot be afforded by unknown anchor types or installers. Further to the BCA scheme, DCA also choose to proof test each anchor after installation. Every BP anchor placed has received a test load of 6kN (600kg) once it has been given time to set. This load is applied directly out from the rock ('axial') and is a test of the anchor-resin-rock bond, not the ultimate strength of the placement or anchor. This level of load would far exceed the forces likely to ever be placed on that anchor in real use* but represents only a fraction of the theoretical strength of the placement, so causes it no damage.

** A fall factor of 1 onto a caver's cowstail might approach this, so do not ever climb above the anchor you are clipped to!*

Anchors placed by unknown parties are not covered by the DCA anchor installation and testing scheme and can vary greatly in their quality and security. Old sleeve 'Spit' type anchors have been known to fail under very low loads, especially once they become corroded.

Cavers and mine explorers are reminded that they should inspect every anchor prior to use and, regardless of the anchor type and origin, acknowledge that there are risks associated with their use and accept this.

Please report any defective or worn anchors to the DCA Equipment Officer via the website.

Ropes

Numerous fixed ropes exist within the caves and mines of the UK. Often this is to aid climbing awkward passages or traverses but occasionally they may be fixed on pitches that can only be accessed from below. The state of these fixed ropes can vary greatly, and you should always assume that any rope encountered underground may have been there for some time and received no maintenance or inspection during its life. Occasionally some caving clubs, individuals or organisations will adopt fixed ropes and take responsibility for their upkeep and replacement, but this is not the norm.

In an ideal world there would be no fixed ropes left underground at all, but DCA accept that these are a necessary measure in some specific locations. Sites that have been climbed using bolting

techniques or with ladders and maypoles over the years would no longer be accessible to sport cavers without fixed ropes, or at least not be accessible without adding more anchors or steel to re-climb these hard to reach sites, which of course further damages the cave/mine environment. Where the DCA has felt that no other alternative is possible or practical, it may choose to install fixed ropes. In this case, the DCA will:

- Make it clear on rigging guides and in a central database the exact location of any of the fixed ropes that it has installed.
- Give the date of installation and date which the rope will be retired.
- Encourage visiting cavers to report the state of the ropes directly to DCA following any trip.
- Undertake inspections of the ropes within a reasonable timeframe when requested to do so by the landowner or any concerned cavers.
- Issue warning notices via its website and social media should we be informed of the absence or damage of any of our fixed ropes.

Please note that this only applies to DCA installed rope and not the 99% of other ropes that can be found in the caves and mines of our region.

Cavers who intend to use any fixed rigging should:

- Accept that they always need to inspect it prior to use.
- Use the rigging with care and respect to preserve its condition and lifespan as far as possible.
- Inform DCA if they see any damage or the rigging has gone missing from one of the sites DCA is responsible for.
- Inform the wider caving community through social media or forums of any dangerous or absent fixed rigging in non-DCA managed sites.
- Strongly consider lifelining one another using a separate line whilst using fixed ropes, especially those that are approached from below. For traverses and down pitches this is simple, for up pitches this might require dynamic rope and lead climbing techniques.
- Accept all risks arising from the use of any fixed ropes regardless of who installed them.

Cavers should consider if they need to discuss with other cavers or DCA before adding any fixed rigging to a cave or mine site. This should only be done as a last resort and to aid temporary but regular digging or diving trips or where no other access would be possible without leaving the rope in. Leaving fixed rigging at sites where access is simple, or it would usually be rigged and de-rigged on each trip, would generally not be thought of as acceptable by cavers. It may be that the landowner or management group (if one exists) of a cave or mine site should be consulted before adding any new fixed rigging. If unsure, ask DCA for advice.

Connectors

Where it is necessary to install fixed ropes, it may also be necessary to use connectors. Where possible, DCA will install its fixed ropes using knots tied directly through the eye of a resin anchor. When rigging to hanger plates, the radius of the hole is far too small to safely rig ropes to, so we will use semi-permanent connectors. In most cases, these connectors are stainless steel Maillon Rapide quick links. They will be PPE certified and logged on DCA's system. They will be spanner tightened to ensure a secure connection and may be glued shut to prevent theft.

Any connectors attached to fixed rigging (whether DCA ones or not) must be inspected for condition on every visit.

Cavers are asked to perform a visual check for deformation, corrosion, cracks and wear, as well as a tactile check for sharp edges or other damage. Please report any concerns to the DCA Equipment Officer via the website.

Pull-Throughs & Chain Belays

In certain sites, pull through trips are common. Rigging ropes directly through anchor eyes can lead to wear on the anchor and ultimately result in it becoming unsafe. Where a pull through is a regular route, DCA may install a Ring System. For some pitches with anchors high above the take-off point, or where rope rub is a concern, DCA might install a chain Y hang.

These systems comprise a large stainless steel ring or Maillon Rapide at the centre, fixed to a pair of anchors using either a galvanised steel cable or stainless steel chain. The presence of these aids will be shown in DCA rigging guides.

Cavers are asked to perform a visual check for deformation, corrosion, cracks and wear, as well as a tactile check for sharp edges or other damage. Cables must not show any broken wire strands or wear to the ferrules (crimps) that form the eyes. Please report any concerns to the DCA Equipment Officer via the website.

Other

Any other fixed aids encountered in caves or mines should be treated with caution and you should be prepared to inspect prior to use and accept full responsibility for their use.

Such aids may take the form of steps, wires, chains, ladders, handlines, stemples, props or just about any other type of non-natural inclusion.

As with fixed ropes, very few fixed aids will have been installed or be maintained by DCA or other responsible party. User beware!

Current DCA Installed Fixed Ropes

Check before use and report any damage. You should be prepared to rig your own ropes if you find the fixed rope is damaged or missing. These ropes are not inspected on a regular basis by DCA.

Odin Mine, 2nd Pitch (upwards) after the new traverse.

Teufelberger Patron 10mm Type A Low Stretch. 35m.

Manufactured January 2018. Installed December 2020.

Retire before January 2028.

Oxlow Mine, Pilgrim's Way traverse at the top of the 'pull-up'.

Teufelberger Patron 10mm Type A Low Stretch. 5m.

Manufactured January 2018. Installed December 2020.

Retire before January 2028.