

FLEXIBLE MECHANICAL ANCHORS

DESCRIPTION

Flexible mechanical rock anchors provide mechanical point-anchoring within the rock mass using an expansion shell attached to the inserted end of a multi-strand flexible cable. The use of a flexible medium enables unlimited insertion depths from confined working areas and the mechanical end-anchoring provides immediate support to the rock mass upon tensioning. Facilities to post-grout are also provided.

Tension is maintained by means of a barrel and wedge arrangement which can grip the cable at any point. A domed bearing plate is provided and a hydraulic jack is used to apply the load.

FEATURES

- Flexible Mechanical Anchors provide support immediately upon tensioning
- Can be post grouted.
- A range of cable strengths is provided.
- "Indent" cables are formed with surface dimples which enhance the steel/grout bond
- Long anchors can be inserted from confined spaces.
- The barrel and wedge arrangement can grip the cable at any point.
- Either a conventional Direct Tensioner Indicator (DTI) barrel and wedge or "Surelock" shear ring barrels can be used.
- The bearing plate is equipped with holes for the grout and breather tubes.

PHYSICAL PROPERTIES

Cable Diameter	Type	Ultimate Tensile Strength	Working Load	Hole Diameter	Dome Plate	Length
15.2 mm	Plain	250 kN	150 kN	36–42 mm	150 x 12 mm	As required
15.2 mm	Compact (cold formed)	300 kN	150 kN	36– 42 mm	150 x 12 mm	As required
18 mm	Indent (cold formed)	350 kN	200 kN	48–51 mm	200 x 16 mm	As required
18 mm	Compact (cold formed)	380 kN	200 kN	48–51 mm	200 x 16 mm	As required



GENERAL PRINCIPLES

1. Allow 0.5m additional cable for the hydraulic tensioner.
2. Ensure the hole diameter is in the correct range for the mechanical shell.
3. For horizontal anchors the holes should ideally be drilled at approximately 5 degrees above or below the horizontal plane to ensure the best grout fill.
4. The breather tube doubles as a guide for the release wire of the expansion shell. Once the cable has been fully inserted the shell must be released by pulling on the wire to expand and lock against the sides of the hole.
5. The bearing plate slides up the protruding cable until flush with the collar of the hole. The two small holes are provided for the grout filler pipe and the breather pipe.
6. The barrel and wedge slide up the cable until flush with the bearing plate.
7. The hydraulic tensioner "jack" pushes over the protruding cable until flush with the barrel and wedge.
8. The tensioner jack is pressurised until the required pre-load is achieved (DTI system) or, if the barrel is provided with a shear-collar (Surelock) device, until the collar shears.
9. If the DTI system is used the wedges must be manually locked in; the Surelock mechanism ensures that the installation is locked off at the right load. If the Surelock system is used the correct nose cone adaptor (for the shear collar) is required for the tensioner jack.
10. If required, a hydraulic strand cropper is used to crop the end of the cable to about 100 mm from the end of the barrel.
11. Pump the grout into the grout tube until it escapes from the breather tube. Tie off the breather and pump once or twice more to ensure the hole is full, then disconnect and close off the grout tube.

APPEARANCE

