

## Multi-bulb passive anchors

The 35 ton multi-bulb passive anchor is a flexible, high tensile steel strand of a specific length, anchored inside a drilled hole, with an innovative multi-coloured breathing tube system. The advantages of using this breathing tube system in a vertical crater retreat mining operation is, that once a round has been blasted, the remaining coloured breather tube indicates the actual depth of the blast.

Multi-bulb passive anchors are made to requirements as specified by the end user. These anchors were designed as a support for vertical crater retreat mining operations and are normally grouted, but not pre-stressed, thus aptly named as passive anchors.



### ADVANTAGES

- These anchors are easily installed using trained support installation crews
- The cable anchors are manufactured to the required specifications of the customer eg, the cut length of the strand
- All these multi-bulb passive anchors are installed to the specification of the supplier
- The multi-bulb passive anchor requires the correct diameter drilled hole for the fish hooks to embed itself inside the drilled hole
- All multi-bulb passive anchors are grouted after installation.

### SPECIFICATIONS

Strand diameter (mm)	Ultimate tensile strength (tons)	Working load (tons)	Hole diameter (mm)
18.0	35.0	20.0	45.0 to 51.0

### FLEXIBLE ANCHORING SYSTEMS INSTALLATION PROCEDURE

Before installing the multi-bulb passive anchor, check the following:

1. The length of the anchors, always add 0.1m for the grouting of the hole
2. Invert the anchor and push it to the back of the drilled hole, if 0.1m of strand is left protruding from the hole, then the depth of the drilled hole is correct
3. Check the diameter of the hole. If it is not to the correct specifications, i.e oversized or undersized, the anchor could slip inside the hole, or not be able to enter the hole
4. Push the multi-bulb passive anchor with the fish hooks up the hole until only 0.1m of strand protrudes from the hole
5. Push the grout tube up the hole and seal the collar of the hole
6. Once the quick-setting grout at the collar of the hole has set, proceed to full column, grout the hole and continue so until the grout starts to emanate from the breather tube
7. The anchor installation is now complete and proceed to the next hole.

**GRINAKE-LTA MINING PRODUCTS DO 'ON THE JOB' MULTI-BULB PASSIVE ANCHOR INSTALLATION TRAINING, WHEREBY CERTIFICATES ARE PRESENTED TO THE INDIVIDUALS THAT PASS THE ANCHOR TRAINING PROCEDURES.**