

Stempac

Technical
Information



Description

Stempac is an underground stemming device used to retain explosive energy in blastholes drilled underground. The Stempac consists of a StemTite® Blast Control Plug surrounded by selected aggregate that is contained within a sleeve. No part of the device is explosive in nature. The Stempac is held in the hole by a retention spider. In operation the explosive energy released on detonation from the associated charge wedges the StemTite Blast Control plug into the surrounding aggregate. This redirects the energy of the blast into the blasthole wall, which effectively contains the explosive energy.

The Stempac stemming system consists of three components:

1. The Stempac Device

The Stempac device is an assembly of StemTite plugs and selected crushed aggregate. These components are contained in a package manufactured from a deformable material. The deformable material permits the Stempac to increase its diameter to fit variations in the designated blasthole diameter.

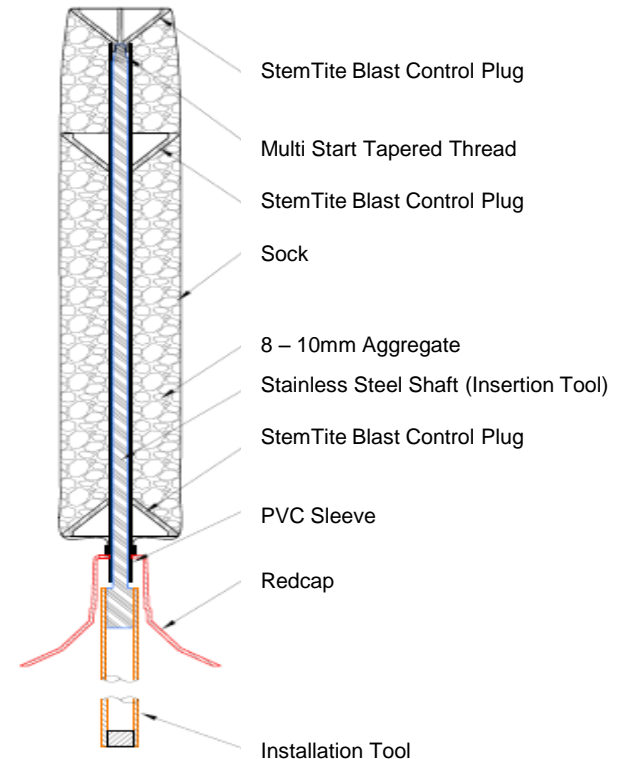
2. The Installation Tool

The installation tool consists of a stainless steel rod, which has a tapered multi start thread on the end. The stainless steel rod is fitted to a length of PVC conduit.

3. The Red Cap Retention Spider

The function of the red cap is to retain the Stempac in the blasthole and allow for the tamping of the stemming contained in the Stempac. The red cap has a hole drilled through the end to allow placement on the end of the insertion tool. The red cap is a standard device used to hold emulsion product in upholes.

Properties



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Application

Attachment of Insertion Tool

1. Place the Red Cap onto the stainless steel rod ready for placement into the blasthole. (The plastic sleeve is part of the Stempac and should not be removed.)
2. Push the installation tool rod through the tube in the centre of the Stempac until it bottoms.
3. While holding the insertion tool, turn the Stempac by the closed end until a definite resistance can be felt. To ensure the Stempac is attached firmly to the installation tool, hold the installation tool steady while pulling back on the closed end of the Stempac. The Stempac should be attached to the installation tool ready for installation into the blasthole.

Installation into the blasthole

1. While holding the installation tool, with the Stempac attached in a vertical up position, pull down on the lower open end of the Stempac. (This will stretch the Stempac, maximising the length and minimising the diameter, to ensure the section containing the aggregate is smaller than the diameter of the blasthole. If the Stempac has had excessive handling it may be necessary to kneed the aggregate to reduce the diameter. The Stempac is now ready for placement in the blasthole.
2. Clip the NONEL lead(s) into the gate in the red cap.
3. Place the closed end of the Stempac into the blasthole and push it until the red cap fingers engage the blasthole wall.
4. Pull back on the NONEL lead to ensure it is free and has not become tangled.
5. While holding the NONEL lead slowly push the Stempac device into the desired position in the blasthole. It should be noted that the Stempac cannot be retracted because the red cap can only travel in one direction.

Installation into the blasthole (continued)

6. Tamp the stemming into place by pulling back hard on the insertion tool. This will spread the stemming at the closed end of the Stempac to the size and shape of the blasthole. This stemming protects the centre Stemtite plug from the heat of the blast, which is of vital importance.
7. Turn the insertion tool to unscrew from the Stempac and withdraw the insertion tool from the blasthole.

Benefits

- Good stemming practices, with controlled energy retention prevents cratering and results in less damage to the brow of the stope.
- Effective stemming contains explosive gases, increasing the energy imported to the rock mass.
- Effective stemming results in improved fragmentation of the blasted rock.
- Effective stemming greatly reduces airblast and the damage caused as a result of airblast.
- Simple and easy to use and can be incorporated into charging procedures for underground blastholes.
- Ready for immediate use and conveniently packaged for underground storage.

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Handling

It is advisable not to handle the Stempac more than necessary prior to installation.

Packaging

The Stempac is delivered enclosed in a plastic sleeve and packaged in cartons. Each carton has a nominal weight of 30 kilograms. It is available in sizes to suit 76, 89 and 102 millimetre diameter blastholes.

Hole Size	Quantity per box
76mm	14
89mm	10
102mm	9

Safe handling, transportation and storage

First Aid – This product is manufactured from inert material.

Safety – The device itself is non-explosive, however, it is designed for use with explosives which are classified as dangerous goods and these can cause personal injury and damage to property if used incorrectly.

Transportation and Storage – The carton has a nominal weight of 30 kilograms and as such requires appropriate manual handling precautions. There are no specific storage requirements or constraints.

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