

Cut-to-Fit Seismic Shot Initiation System



Product Description

The GEOSEIS Cut-to-Fit system is comprised of four (4) components:

- **GEOSEIS detonating cord:** a strong yet flexible detonating cord that is resistant to abrasion cutting, temperature extremes and penetration of water and oil.
- **The GEOSEIS surface detonator:** a low output electric seismic detonator that is housed in a plastic connector block. It is designed to accept and initiate one properly connected GEOSEIS detonating cord downline.
- **The GEOSEIS seismic booster:** a high energy, highly reliable seismic explosive containing patented bioremediation technology, made with the highest quality PETN and other high explosives ensuring reliability and durability.
- **The Anchor:** an inert component that configures the GEOSEIS detonating cord to maximize reliable initiation of the GEOSEIS seismic booster.

IMPORTANT!

Ignoring these warnings may result in injury or death!

- **ALWAYS** exercise extreme caution when approaching a shothole that has not vented. Venting gases after detonation are common. **BLOWOUTS CAN INJURE OR KILL.**
- **NEVER** attempt to alter the product by cutting, sawing or disassembly of the package.
- **NEVER** drop load explosive into a borehole.
- **NEVER** attempt to dislodge explosives by pushing with a drill stem.
- **NEVER** unshunt electric detonators prior to use except to test with blasting galvanometer.
- **NEVER** attempt to cut or saw GEOSEIS detonating cord with a blow from a sharp or blunt object, such as an axe, pipe wrench, or rock.
- **ALWAYS** shunt electric detonators and/or the blast circuit after testing and keep shunted until connected to blasting machine.
- **ALWAYS** ask if you don't know before proceeding.

Properties

MSDS
#1145, #1126, #1148

GEOSEIS detonating cord

| | |
|---------------------------------------|--------|
| Coreload (g/m) | 2 |
| (gr/ft) | 10 |
| Tensile Strength (kg) | 54 |
| (lbs) | 120 |
| Velocity of Detonation (m/sec) | 6,400 |
| (ft/sec) | 21,000 |

GEOSEIS surface detonator

| | |
|------------------------------------|-----------------------------|
| Hydrostatic Pressure | 0.5 m (1.6 ft) for 48 hours |
| No-Fire Current | 0.45 amps for 5 minutes |
| Fire/No-Fire Impulse (amps) | 0.85 |
| (mJ/ohm) | 16 |

GEOseis seismic booster

| | |
|--|-----------|
| Energy^a (cal/g) | 1,600 |
| Gas Volume^a (moles/kg) | 23.2 |
| Velocity^c (m/sec) | 7,300 |
| (ft/sec) | 23,950 |
| Detonation Pressure^c (Kbars) | 220 |
| Density (g/cc) | 1.65 |
| Water Resistance | Excellent |

Hazardous Shipping Description

| | |
|-------------------|------------------------------------|
| Boosters | Boosters, 1.1D, UN 0042 |
| Cord | Cord, Detonating, 1.1D, UN0065 |
| Detonators | Detonators, Electric, 1.4S, UN0456 |
| Anchors | Plastic Article |





Application Recommendations

- **NEVER** use Dyno Nobel seismic explosive products and/or components with explosive products and/or components made by other manufacturers.
- **ALWAYS** attach the GEOSEIS surface detonator(s) to the detonating cord downline(s) only after receiving reports that the area is clear.
- **ALWAYS** bury the GEOSEIS surface detonator(s) after connecting it to the GEOSEIS detonating cord downline(s). The shooter should be a minimum of 30 m (100 ft) from the shot point when detonation occurs. The shooter should ensure the shot point is clear before initiating the firing sequence.
- **ALWAYS** survey the worksite for sources of dangerous extraneous electrical energy such as high voltage transmission lines, cellular phone, radio, TV and radar antennae and transmitters. If such antennae or transmitters are noted, refer to IME Safety Library Publication No. 20 "Safety Guide for The Prevention of Radio Frequency Radiation Hazards in the Use of Electric Blasting Caps" before proceeding. If high voltage transmission lines are noted, contact your supervisor or a qualified electrical expert for advice.
- **NEVER** assemble the GEOSEIS detonating cord and the GEOPRIME seismic booster until you are ready to deploy it into the borehole.
- **NEVER** half-hitch the GEOSEIS detonating cord to the charge.
- **ALWAYS** assure the GEOSEIS detonating cord is free of kinks as it is being loaded into the borehole.
- **NEVER** attempt to disassemble the surface detonator from the plastic connector block, or use the detonator by itself without the block, MISFIRES MAY RESULT.
- **ALWAYS** un-hook surface detonator connectors and connections prior to handling a misfire.
- **ALWAYS** cut detonating cord with a sharp knife, razor blade or instrument designed for cutting detonating cord.
- **NEVER** cut GEOSEIS detonating cord with devices that produce metal-to-metal contact, such as scissors, wire cutters, cap crimpers or similar instruments. It may explode and kill or injure.

Transportation, Storage and Handling

- GEOSEIS Cut-to-Fit components must be transported, stored, handled and used in conformity with all applicable federal, state, provincial and local laws and regulations.
- For maximum shelf life (5 years), GEOSEIS Cut-to-Fit components must be stored in a cool (between -40° C and 65° C [-40° F and 150° F]), dry, well ventilated magazine. Explosive inventory should be rotated. Avoid using new materials before the old. For recommended good practices in transporting, storing, handling and using this product, see the booklet "Prevention of Accidents in the Use of Explosive Materials" packed inside each case and the Safety Library Publications of the Institute of Makers of Explosives.

Undetonated Explosives

- The user of this product (or any other explosive product) should not abandon undetonated

charges in the ground. Abandoning undetonated charges constitutes misuse of the product for which Dyno Nobel and its subsidiaries are not responsible.

Bioremediation Technology

The Ensign-Bickford Company developed and patented the bioremediation technology, which involves casting millions of freeze-dried microorganisms (along with nutrients for those microorganisms) directly into the SEIS seismic booster during production. When these naturally occurring organisms are submerged in water, they become activated, as designed, and begin to slowly biotransform the undetonated GEOSEIS. When the biotransformation is complete, the compounds are no longer explosive. Complete and continuous submersion in water is required to sustain the bioremediation process. In addition, the process is dependent on various other factors and environmental conditions. For these reasons, Dyno Nobel makes no claim as to the effectiveness of the biotransformation process or the duration of time required to complete it.

Packaging

| Product | Quantity | Length/Spool | | Gross Weight | |
|--------------------------------------|----------|--------------|------|--------------|-----|
| | | m | ft | kg | lbs |
| GEOSEIS detonating cord | 1 spool | 915 | 3000 | 6.8 | 15 |
| GEOSEIS surface detonators (subpack) | 50 | -- | -- | 1.8 | 4 |
| GEOSEIS surface detonators (case) | 300 | -- | -- | 11.3 | 25 |
| Anchor component | 50 | -- | -- | 4.5 | 10 |

GEOSEIS Seismic Booster

| Unit Size | | Diameter | | Package Style | Quantity / Case |
|-----------|-----|----------|------|---------------|-----------------|
| kg | lbs | mm | in | | |
| 0.5 | 1.1 | 57 | 2.25 | Plastic | 30 |
| 1.0 | 2.2 | 57 | 2.25 | Plastic | 20 |
| 2.0 | 4.4 | 57 | 2.25 | Plastic | 10 |
| 2.5 | 5.5 | 57 | 2.25 | Plastic | 10 |

Case Dimensions

| | | |
|-----------------|------------------------|-----------------------|
| Anchor | 38.7 x 38.7 x 38.7 cm | 15 ¼ x 15 ¼ x 15 ¼ in |
| Boosters | 85.75 x 32.4 x 12.7 cm | 33 ¾ x 12 ¾ x 5 in |
| Detonating Cord | 27 x 27 x 25 cm | 10¾ x 10¾ x 10 in |
| Detonators | 29 x 42 x 37 cm | 11 ½ x 16.4 x 14 ¾ in |

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