

TECHNICAL DATA SHEET

HiNEL Plus[®] - LP Series

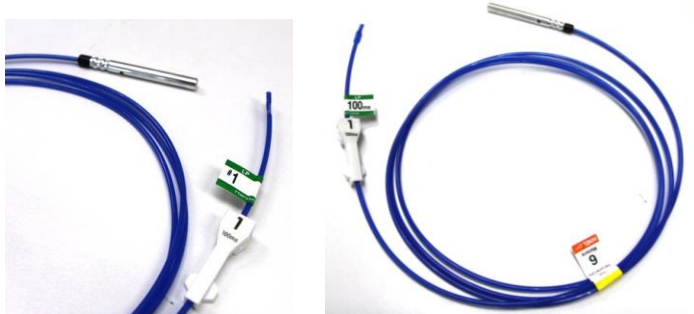
Description

HiNEL Plus[®] LP (Long Period) Series are a high strength non-electric detonator with Long Period (LP) delay intervals of between 100 and 500 milliseconds. The accurate delay time system of HiNEL Plus[®] LP Series detonators have been specifically developed for underground tunneling and shaft sinking. The shock tube is both abrasion resistant and high-strength and transmits the signal to detonator in order to initiate. With a plastic J-hook connector providing a secure and rapid means of attaching shock tubing to the detonating cord, it is color coded and stamped with both delay number and firing time. The shock tube is crimped into the detonator shell at one end and closed by a waterproof seal at the other.

Features & Benefits

HiNEL Plus[®] LP Series detonators consist of a non-electric detonator containing a delay element, a high strength Pentaerythritol Tetranitrate (PETN) base charge, a length of blue shock tube and a color-coded J-Hook connector(optional). Labels showing the lengths and delay times are attached to the shock tube.

HiNEL Plus[®] LP Series detonators have a base charge of grade #8 PETN to improve the reliability of the ignition of explosives. By adopting a 3 layer shock tube, rubber plug and triple crimping, HiNEL Plus[®] LP Series detonators also have enhanced tensile strength.



Usage Instructions

HiNEL Plus[®] LP Series detonators are made up of a 3 layer shock tube and have enhanced tensile strength, however moisture may become present if the tubing is split or cut in any way, and this may result in a misfire.

HiNEL Plus[®] LP Series detonators should be fully enclosed within a suitable booster or primer and never be placed inside blastholes or charging hoses directly. Excessive force should not be used when handling shock tubes connected to detonators or primers. A replacement should be used if a primer becomes stuck or non-retrievable.

If used inside blast holes, HiNEL Plus[®] LP Series detonators should be reversed primed ensuring the detonator base is pointing towards the blasthole collar.

In case of using detonating cord, HiNEL Plus[®] LP Series detonators should be attached via J-hook connector to the detonating cord trunklines. Each J-hook connector should be clipped to the trunkline, and the cord and shock tube should be kept at right angles. Pull the end of the shock tube through its J-hook connector until the tube is straight and firm between the connection and the blasthole collar. No shock tubes should cross over or lay within 300mm of the detonator cord. Using a detonating cord with a core charge between 5.0 g/m PETN, HiNEL Plus[®] LP Series detonators can be reliably initiated.

Recommended Sleep time of HiNEL Plus[®] LP Series detonators is 2 weeks at temperatures below 40°C. Sleep time capability may be reduced at temperatures above 40°C.

Technical Data

| HiNEL Plus [®] LP | |
|-----------------------------------|--|
| Base Charge | PETN, #8 (730mg) |
| Primary Charge | DDNP |
| Shell | Aluminum |
| Outer Diameter of Shell (mm) | 7.5 |
| Outer Diameter of Shock Tube (mm) | 3.0 |
| Length of Shell (mm) | From 65 to 90 |
| Tensile Strength of Shock Tube | Nominal 45 kgf |
| Length of Shock Tube (m) | 3.6 / 4.8 / 6.0 / 9.0 / 12.0 / 15.0 / 18.0 (Custom made possible) |

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Standard Delay Range

| HiNEL Plus® LP | | |
|----------------|-----------------|---------------------|
| No. | Delay Time (ms) | Delay Interval (ms) |
| # 1 | 100 | 100 |
| # 2 | 200 | 100 |
| # 3 | 300 | 100 |
| # 4 | 400 | 100 |
| # 5 | 500 | 100 |
| # 6 | 600 | 100 |
| # 7 | 700 | 100 |
| # 8 | 800 | 100 |
| # 9 | 900 | 100 |
| # 10 | 1,000 | 200 |
| # 11 | 1,200 | 200 |
| # 12 | 1,400 | 200 |
| # 13 | 1,600 | 200 |
| # 14 | 1,800 | 200 |
| # 15 | 2,000 | 500 |
| # 16 | 2,500 | 500 |
| # 17 | 3,000 | 500 |
| # 18 | 3,500 | 500 |
| # 19 | 4,000 | 500 |
| # 20 | 4,500 | 500 |
| # 21 | 5,000 | 500 |
| # 22 | 5,500 | 500 |
| # 23 | 6,000 | 500 |
| # 24 | 6,500 | 500 |
| # 25 | 7,000 | - |

| | | | | |
|------|----------|----|------|------|
| 21.0 | 5 | 50 | 7.0 | 8.5 |
| 24.0 | 4 | 48 | 7.5 | 9.0 |
| 30.0 | 4 | 40 | 7.5 | 9.0 |
| 30.0 | 1/bobbin | 24 | 7.5 | 9.5 |
| 36.0 | 1/bobbin | 24 | 8.5 | 10.5 |
| 45.0 | 1/bobbin | 24 | 10.0 | 12.0 |
| 60.0 | 1/bobbin | 10 | 8.0 | 10.0 |
| 80.0 | 1/bobbin | 10 | 9.5 | 11.5 |

| Grade UN 0500 / 1.4S (470 X 295 X 315 mm) | | | | |
|---|-------------|----------|-----------------|-------------------|
| Length (m) | Each/Bundle | Each/Box | Net Weight (kg) | Gross Weight (kg) |
| 3.6 | 5 | 100 | 3.0 | 8.0 |
| 4.8 | 5 | 100 | 4.0 | 8.5 |
| 6.0 | 5 | 90 | 4.0 | 8.0 |
| 7.2 | 5 | 90 | 5.0 | 9.0 |
| 9.0 | 5 | 90 | 6.5 | 11.0 |
| 12.0 | 5 | 70 | 6.0 | 10.0 |
| 15.0 | 5 | 60 | 7.0 | 11.0 |
| 18.0 | 5 | 50 | 6.0 | 9.5 |
| 21.0 | 5 | 50 | 7.0 | 10.5 |
| 24.0 | 4 | 40 | 6.0 | 9.5 |
| 30.0 | 4 | 32 | 6.0 | 9.5 |
| 30.0 | 1/bobbin | 24 | 7.5 | 10.0 |
| 36.0 | 1/bobbin | 24 | 8.5 | 11.0 |
| 45.0 | 1/bobbin | 24 | 10.0 | 12.5 |
| 60.0 | 1/bobbin | 10 | 8.0 | 10.5 |
| 80.0 | 1/bobbin | 10 | 9.5 | 12.0 |

* Based on one box (UN certified)

Hazard Classification

| | |
|----------------------------|---|
| UN No. (Class / Division): | 0360(1.1B) / 0500 (1.4S) |
| Proper Shipping Name | DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting |
| EmS | F-B, S-X (1.1B / 1.4S) |

Packaging

HiNEL Plus® LP Series detonators are packed in cardboard boxes. Each box contains only a single lead length and delay.

| Grade UN 0360 / 1.1B (470 X 295 X 330mm) | | | | |
|--|-------------|----------|-----------------|-------------------|
| Length (m) | Each/Bundle | Each/Box | Net Weight (kg) | Gross Weight (kg) |
| 3.6 | 10 | 240 | 7.0 | 8.5 |
| 4.8 | 10 | 200 | 7.5 | 9.0 |
| 6.0 | 10 | 180 | 8.0 | 9.5 |
| 7.2 | 10 | 140 | 7.5 | 9.0 |
| 9.0 | 5 | 120 | 8.0 | 9.5 |
| 12.0 | 5 | 90 | 7.5 | 9.0 |
| 15.0 | 5 | 80 | 9.0 | 10.5 |
| 18.0 | 5 | 70 | 8.0 | 9.5 |

Safety

HiNEL Plus® LP Series detonators are designed to reduce the risk of initiation by static electricity, stray electrical currents and radio wave transmissions. As high-electrical shocks, such as lightning, may cause initiation, it is recommended that personnel evacuate to a safe distance and keep away from the blasting site whenever this hazard is present. HiNEL Plus® LP Series detonators should be isolated from energy sources including impact, heat or friction. HiNEL Plus® LP Series detonators may be used in temperatures up to 70°C.

Storage

All ignition sources, such as matches and lighters, are strictly prohibited within minimum of 8 meters radius of the detonators.

HiNEL Plus® LP Series detonators should be stored in a properly conditioned magazine of cool and dry atmosphere.

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HiNEL Plus® LP Series detonators must be used within 12 months after opening the packaging. Detonators that are older than four years should not be used.

Store in a secure magazine, access to products and storage should be restricted to authorized personnel.

Delay detonators should be used in order of manufacturing date as they deteriorate with age. Use oldest stored product first.

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