

## Non-electric detonators

# NONEL TUNNEL



### Description

**Nonel tunnel** is a non-electric initiation system intended for use in tunnel and underground blasting works. It consists of a series of NPED (i.e. Non-Primary Explosives Detonator) with suitable length of Nonel tube.

All detonators have individual delay. The strength of each detonator is that of a No.8 plain detonator.

**Nonel tunnel** detonators are best initiated by means of bunch connectors or detonating cord. A bunch connector consists of a loop of detonating cord incorporated in surface connector (usually zero delay). A bunch connector is designed for the reliable initiation of a maximum 20 Nonel-tubes.

### Technical data

#### In-hole detonator

|                    |   |
|--------------------|---|
| Type:              | NPED  |
| Strength:          | No.8  |
| Explosive content: | 1 gr. (PETN/RDX)  |
| Shell material:    | Aluminum  |
| Shell Diameter:    | 7.5 mm  |
| Shell Length:      | 60-93 mm, depending on the delay time and the composition |

#### Tube

|           |               |
|-----------|---------------|
| Type:     | Nonel tube 3L |
| Diameter: | 3 mm          |



### Application

The **Nonel tunnel** initiation system has been developed for tunnel and underground blasting operations. The delay times between successive intervals are long enough to enable rock to be broken and displaced properly from the tunnel face before subsequent holes detonate.

## Product range and Packaging

To be easily identified against other Nonel detonators as well as rock in poor lighting conditions, the Nonel tunnel detonators are fitted with red Nonel-tubes.

Interval and delay times are given in the next table.

| Period number | Delay time (ms) | Delay interval(ms) | Period number | Delay time (ms) | Delay interval(ms) |
|---------------|-----------------|--------------------|---------------|-----------------|--------------------|
| 0             | max 10          | -                  | 16            | 1600            | 200                |
| 1             | 100             | 75                 | 18            | 1800            | 200                |
| 2             | 200             | 100                | 20            | 2000            | 200                |
| 3             | 300             | 100                | 25            | 2500            | 500                |
| 4             | 400             | 100                | 30            | 3000            | 500                |
| 5             | 500             | 100                | 35            | 3500            | 500                |
| 6             | 600             | 100                | 40            | 4000            | 500                |
| 7             | 700             | 100                | 45            | 4500            | 500                |
| 8             | 800             | 100                | 50            | 5000            | 500                |
| 9             | 900             | 100                | 55            | 5500            | 500                |
| 10            | 1000            | 100                | 60            | 6000            | 500                |
| 12            | 1200            | 200                | 65            | 6500            | 500                |
| 14            | 1400            | 200                | 70            | 7000            | 500                |

## Storage

**Nonel** detonators should be handled, stored and used according to the national laws and regulations. They are packed in bags for protection against moisture. Storage temperature below +50°C is highly recommended. Provided that storage conditions are appropriate, it is recommended to use Nonel detonators within 12 months. Product shelf life can be further extended after examined by the supplier.

| Nonel tunnel    |                 |
|-----------------|-----------------|
| tube length (m) | packing Qty/box |
| 4.0             | 100             |
| 5.0             | 100             |
| 6.0             | 100             |
| 8.0             | 80              |
| 10.0            | 60              |

| Nonel Bunch Connectors |                 |
|------------------------|-----------------|
| tube length (m)        | packing Qty/box |
| 3.6                    | 100             |
| 4.8                    | 90              |
| 6.0                    | 80              |
| 7.8                    | 70              |
| 9.0                    | 60              |
| 10.2                   | 50              |

## Product classification

Commercial Name: **Nonel tunnel**  
 Technical Name: Detonator assemblies, non-electric  
 UN-number: 0361, 0500  
 Division/Compatibility Group: 1.4B, (1.4S at request)

