**Description**

Exel™ LP detonators are a series of high strength non-electric detonators with Long Period (LP) delay intervals between successive firing times. Exel™ LP detonators consist of a non-electric detonator and a length of Exel™ signal tube. The detonator incorporates a delay element and a high strength PETN charge inside an aluminium shell. The yellow Exel™ signal tube is a high strength, high abrasion resistant tubing which transmits the initiation signal to the detonator. One end of the signal tube is crimped into the detonator shell, and the other end is closed off by a waterproof seal.

Exel™ LP detonator assemblies, in 23 delay periods, provide flexibility in blast design and ease of use.

**Key Benefits**
- Stand up to tough underground conditions
- Provide excellent, flexible blast control
- Allow easy connection
- Facilitate rapid hook-up verification

**Features**
- Rugged, with abrasion resistant tubing
- Accurately timed in 23 delay periods
- Quick and simple to connect
- Highly visible

**Application**

Exel™ LP detonator assemblies provide long-delay, non-electric initiation of underground blast patterns.

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**Technical Properties**

<table>
<thead>
<tr>
<th>Product</th>
<th>Exel™ LP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal tube</td>
<td>Yellow Exel™</td>
</tr>
<tr>
<td>- Outer diameter (mm)</td>
<td>3 mm</td>
</tr>
<tr>
<td>- Nominal tensile strength</td>
<td>300 N at +20 °C</td>
</tr>
<tr>
<td>- Shock wave propagation (m/s)</td>
<td>2000 ±100</td>
</tr>
</tbody>
</table>

**Detonator**
- Initiating capability in-hole detonator: # 8 strength
- PETN/RDX Base charge in-hole detonator (mg): 780
- Lead azide primary charge (mg): 120
- Shell material: Al

**Detonator assembly**
- Standard configuration: with J-hook

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They can be used in underground development and production blasting, construction tunnelling and shaft sinking. Exel™ LP detonators will directly initiate cap sensitive boosters and packaged explosives. Refer to the relevant technical data sheets for details.

**Delay Range**

<table>
<thead>
<tr>
<th>Delay #</th>
<th>Nominal Delay Time* (ms)</th>
<th>Delay #</th>
<th>Nominal Delay Time* (ms)</th>
<th>Delay #</th>
<th>Nominal Delay Time* (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>25</td>
<td>14</td>
<td>1400</td>
<td>45</td>
<td>4500</td>
</tr>
<tr>
<td>1</td>
<td>100</td>
<td>16</td>
<td>1600</td>
<td>50</td>
<td>5000</td>
</tr>
<tr>
<td>2</td>
<td>200</td>
<td>18</td>
<td>1800</td>
<td>55</td>
<td>5500</td>
</tr>
<tr>
<td>4</td>
<td>400</td>
<td>20</td>
<td>2000</td>
<td>60</td>
<td>6000</td>
</tr>
<tr>
<td>6</td>
<td>600</td>
<td>25</td>
<td>2500</td>
<td>70</td>
<td>7000</td>
</tr>
<tr>
<td>8</td>
<td>800</td>
<td>30</td>
<td>3000</td>
<td>80</td>
<td>8000</td>
</tr>
<tr>
<td>10</td>
<td>1000</td>
<td>35</td>
<td>3500</td>
<td>90</td>
<td>9000</td>
</tr>
<tr>
<td>12</td>
<td>1200</td>
<td>40</td>
<td>4000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Recommendations for Use**

- Avoid damage to the shock tube.
- If the shock tube is cut or split, moisture may enter the hollow core and cause a misfire.
- Never pull so hard as to stretch or break shock tubing. A premature detonation may result.

Exel™ LP detonator assemblies are typically initiated with a low charge weight detonating cord (about 5/g m) with a J-hook.

**Packaging**

Exel™ LP assemblies are wound in coils and packed in plastic bags inside a case. All detonators in the case have the same delay and the same length of shock tube. The box dimensions are 40cm (L) x 28cm (W) x 25cm (H).

<table>
<thead>
<tr>
<th>Tube length (m)</th>
<th>Dets per bag / Bags per case</th>
<th>Qty per case</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.6</td>
<td>10/10</td>
<td>100</td>
</tr>
<tr>
<td>4.2</td>
<td>10/10</td>
<td>100</td>
</tr>
<tr>
<td>4.8</td>
<td>10/10</td>
<td>100</td>
</tr>
<tr>
<td>5.4</td>
<td>10/10</td>
<td>100</td>
</tr>
<tr>
<td>6.0</td>
<td>10/10</td>
<td>100</td>
</tr>
<tr>
<td>6.6</td>
<td>10/10</td>
<td>100</td>
</tr>
<tr>
<td>7.8</td>
<td>10/10</td>
<td>100</td>
</tr>
<tr>
<td>27.0</td>
<td>5/5</td>
<td>25</td>
</tr>
</tbody>
</table>

Delay detonators deteriorate with age and should be used in order of manufacturing date (oldest first). Batches of detonators more than 2 years old should not be used.

**Disposal**

Disposal of explosive materials can be hazardous. Methods for safe disposal of explosives may vary depending on the user's situation. Please contact a local Orica representative for information on safe practices.

**Safety**

Avoid damage to the shock tube. Never pull so hard as to stretch or break shock tubing. A premature initiation may result. Exel™ LP assemblies incorporate sensitive components inside the detonator. Care should be taken not to cause initiation via impact, friction or heat.

**Training**

This Technical Data Sheet is for information only. The Exel™ system including the Exel™ LP should only be used by personnel who have been properly trained to use this system.

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TECHNICAL DATA SHEET

Exel™ LP

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