

**Exel™ LP  
UK**



**Description**

Exel™ LP detonators are a series of full strength non electric detonators with long period (LP) delay intervals between successive firing times. Exel™ LP detonator assemblies consist of a non-electric detonator and a length of yellow Exel™ signal tube. Exel™ LP from Orica Sweden use the NPED (Non Primary Explosives Detonator) technology and are therefore free of lead acid. The detonator has an aluminium shell. The 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.

**Application**

Exel™ LP detonators provide a series of delay times suitable for development blasting in underground mining and for civil tunnelling.

Exel™ LP detonators will directly initiate cap sensitive boosters and packaged explosives. Refer to the relevant Technical Data Sheets for details.

**Technical Properties**

Product	Exel™ LP
Signal Tube	Yellow Exel™
- Outer diameter (mm)	3.0
- Nominal tensile strength	300 N at +20 °C
- Length (m)	4.8 – 7.8
- Shock wave propagation (m/s)	2000 ±100
Detonator	
- Initiating capability	REF. DET. #3
- Shell material	Al

**Available Delay Range**

Delay #	Nominal Delay Time* (ms)	Max. Std. Deviation (ms)	Delay #	Nominal Delay Time* (ms)	Max. Std. Deviation (ms)
0	25	16.7	11	1100	33.3
1	100	25.0	12	1200	50.0
1.5	150	16.7	14	1400	66.7
2	200		16	1600	
2.5	250		18	1800	
3	300		20	2000	133.3
3.5	350		24	2400	
4	400		28	2800	
4.5	450	32	3200		
5	500	36	3600		
5.5	550	40	4000		
6	600	25.0	44	4400	200.0
7	700	33.3	48	4800	
8	800		52	5200	
9	900		56	5600	
10	1000		60	6000	

\* Including 6 m shock tube

**Recommendations for Use**

Exel™ LP detonator assemblies can be reliably initiated by:

- Connection to detonating cord (with a core load of 3.6 to 6.0 g/m) with clips (J-Hooks).
- Bunch initiation of up to 20 Exel™ LP detonators with a loop of detonating cord or with an Exel™ B Connector. Ensure that no shock tubes cross over or lie within 200 mm of the detonating cord.

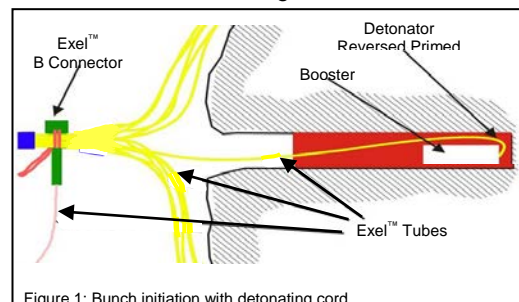


Figure 1: Bunch initiation with detonating cord

## Exel™ LP UK

Exel™ LP blasts can be reliably initiated with:

- Exel™ Starter
- an approved blasting machines for shock tube initiation, e.g. Exel™ Start DS2 or Exel™ Start HN1
- electric (e.g. Dynadet™), non-electric (e.g. Exel™ MS) or electronic detonators (e.g. uni tronic™ 600 or i-kon™ II)

### Packaging

Exel™ LP detonators are packed into plastic or aluminium bags inside cardboard cases. All units within a case have the same tube length and delay.

Tube length (m)	Qty per bag (1.1B)	Qty per box (1.1B)
6.0	10	100
6.6	10	100
7.8	10	100
9.0	10	70
12.0	10	50
18.0	5	40
24.0	5	30
30.0	4	20
42.0	2	20

1.4S packaging is available to special order.

Other tube lengths may be available upon request. Please ask your local Orica representative for further information.

### Storage and Handling

#### Product Classification

Authorised Name: Exel™ LP  
 Proper Shipping Name: Detonator assemblies, non-electric  
 Classification: 1.1B 1.4S  
 UN No: 0360 0500  
 EC Type Certificate: ENB/D/009/16

Exel™ LP detonators should be stored in a cool, dry detonator magazine. Stacks of cases should be no more than 2 metres high.

Exel™ LP detonators should be used in temperatures from -40 °C up to 70 °C. Exel™ LP detonators have a shelf life of 2 years.

### Disposal

Disposal of explosives 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.

Do not use the Exel™ LP assembly as a lowering line. Keep the shock tube taut until loading has been completed. Avoid damage to the shock tube during loading and stemming operations.

Exel™ LP detonators provide a high level of safety against initiation by static electricity, electrical stray currents and radio frequency transmissions. However, they contain sensitive explosives, which can initiate under intense impact, friction or heat. As with all explosives these detonators must be handled and stored with care.

### 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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