

# TECHNICAL DATA SHEET

## HiNEL Plus® - DHD Series



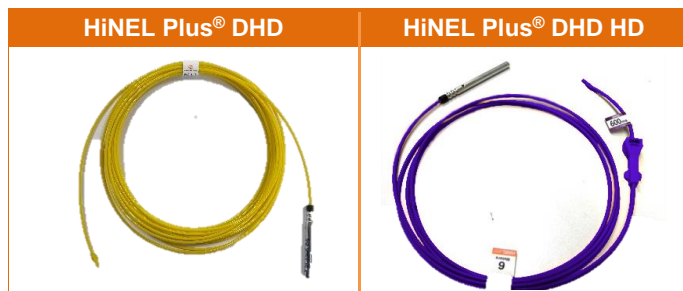
### Description

HiNEL Plus® DHD (Down Hole Delay) Series detonators are non-electric detonators specifically developed specifically for surface mines with enhanced delay time accuracy. HiNEL Plus® DHD Series detonator are designed to be used in combination with HiNEL Plus® SDD Series. The shock tube is constructed of high-strength, abrasion/impact/methane and oil resistant materials. The shock tube transmits the signal to detonator in order to initiate. The shock tube is crimped into the detonator shell at one end and closed by a waterproof seal at the other. J-Hook (optional) can be provided to sites where detonating cords are used instead of surface delay detonators.

### Features & Benefits

HiNEL Plus® DHD Series detonator consist of a non-electric detonator containing a delay element, a high strength Pentaerythritol Tetranitrate (PETN) base charge, a length of HiNEL Plus® shock tube(yellow) or HiNEL Plus® heavy duty shock tube(violet) and J-Hook (optional). HiNEL Plus® DHD Series is also available with heavy duty shock tube. Labels showing the lengths and delay times are attached on shock tube.

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



### Usage Instructions

HiNEL Plus® DHD Series detonators are made up of a 3 layer shoke tube. HiNEL Plus® DHD HD Series detonators are made up of heavy duty shock tube that has enhanced tensile strength and impact resistance. However moisture may present if shock tube is split or cut in any way, which may result in misfire.

HiNEL Plus® DHD Series detonator 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® DHD Series detonator should be reversed primed ensuring the detonator base is pointing towards the blasthole collar.

In case of using detonating cord, HiNEL Plus® DHD Series detonator 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 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 of 5.0 g/m PETN, HiNEL Plus® DHD Series detonator can be reliably initiated.

Recommended sleep time of HiNEL Plus® DHD Series detonator is 2 weeks at temperatures below 40°C. Recommended sleep time of HiNEL Plus® DHD HD Series detonator is 4 months at temperatures below 40°C. Sleep time capability may reduce at temperatures above 40°C.

### Technical Data

HiNEL Plus® DHD detonator		
Base Charge	PETN, #8 (730mg)	
Primary Charge	DDNP	
Shell	Aluminum	
Outer Diameter of Shell	7.5mm	
Outer Diameter of Shock Tube	3.0mm	
Length of Shell	From 80mm to 90mm	
Tensile Strength of Shock Tube	Normal	HD
	Nominal 45 kgf	Nominal 51 kgf
Length of Shock Tube (m)	3.6 / 4.8 / 6.0 / 7.2 / 9.0 / 12 / 15 / 18 / 21 / 24 / 30 / 36 / 45 / 60 / 80 (Custom made possible)	

### Standard Delay Range

Delay Time (ms)	Color of Shock Tube	
400	Normal	HD
425	Yellow	Purple
450		
475		
500		
550		
600		
650		

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### Packaging

HiNEL Plus® DHD Series detonators and HiNEL Plus® DHD HD 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
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	8.5
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)

\* HD shock tube is available for all lengths.

### 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)

### Safety

HiNEL Plus® DHD Series detonators are designed to reduce the risk of initiation by static electricity, stray electrical currents and radio wave transmissions. However, 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. HiNEL Plus® DHD Series detonators should be isolated from energy sources including impact, heat or friction. HiNEL Plus® DHD 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® DHD Series detonator should be stored in a properly conditioned magazine of cool and dry atmosphere. HiNEL Plus® DHD Series detonator 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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## HiNEL Plus® - DHD Series



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