

TECHNICAL DATA SHEET

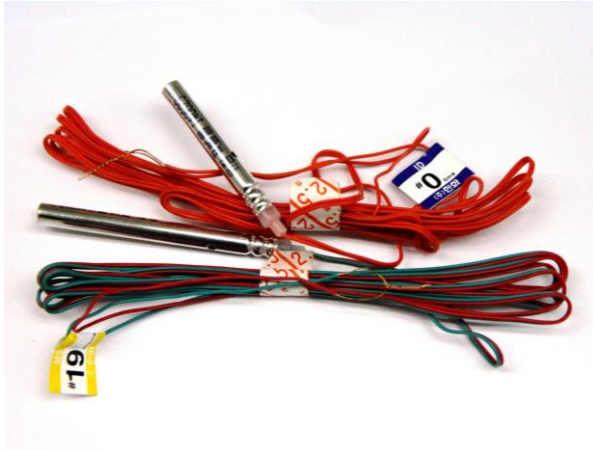
HiDETO Plus™ - MS/LP Series



Technical Data

Description

HiDETO Plus™ MS/LP Series are electric detonators widely used in both open pit and underground mines with delay time of 25ms increments MS (Millisecond) or 100 to 500ms increments LP (Long Period). The extremely accurate and various delay times system minimizes the blasting vibration and can produce high quality fragmentation.



Features & Advantages

HiDETO Plus™ MS/LP Series are equipped with insulation type ignition system to be suitably anti-static. The delay time of the product can be distinguished by various colours of the leg wires as detailed below in *Standard Delay Range*. Labels showing the lengths and delay times are attached on the leg wires.

HiDETO Plus™ MS/LP Series have a base charge of grade #8 to improve the reliability of ignition of explosives. By adopting PVC leg-wire sheath and triple crimping, HiDETO Plus™ MS/LP Series also have enhanced tensile strength.

Usage Instructions

HiDETO Plus™ MS/LP Series detonators should be fully enclosed within a suitable booster or primer and never be placed inside blastholes or charging hoses directly. If used inside blast holes, HiDETO Plus™ MS/LP Series detonators should be reversed primed ensuring the detonator base is pointing towards the blasthole collar.

Recommended Sleep time of HiDETO Plus™ MS/LP Series detonators is 2 weeks at temperatures below 40°C. Sleep time capability may be reduced at temperatures above 40°C.

HiDETO Plus™ MS/LP	
Base Charge	PETN, #8 (730mg)
Primary Charge	DDNP
Shell	Aluminum, Copper
Outer Diameter of Shell (mm)	7.5 (Al) 7.3 (Cu)
Outer Diameter of Leg-wire (mm)	1.2
Length of Shell (mm)	From 55 to 90
Length of Leg-wire (m)	1.0 / 1.5 / 2.0 / 2.5 / 3.5 / 4.0 / 4.5 / 6.0 / 8.0 / 12.0 (Custom made possible up to 20m)

Standard Resistance

Length of the Leg-wire (m)	Electric Resistance per One Shot (per unit)
1.0	0.62 ~ 1.21 Ω
1.5	0.72 ~ 1.31 Ω
2.0	0.81 ~ 1.40 Ω
2.5	0.91 ~ 1.50 Ω
3.5	1.10 ~ 1.69 Ω
4.0	1.20 ~ 1.79 Ω
4.5	1.30 ~ 1.89 Ω
6.0	1.59 ~ 2.18 Ω
8.0	1.98 ~ 2.57 Ω
12.0	2.75 ~ 3.34 Ω

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Standard Delay Range

MS		LP		Color of the Leg Wires
No.	Delay Time (MS)	No.	Delay Time (MS)	
# 0 (ID)	0	-	-	Orange
# 1	25	# 1	100	White & Red
# 2	50	# 2	200	White & Blue
# 3	75	# 3	300	White & purple
# 4	100	# 4	400	White & Green
# 5	125	# 5	500	White & Yellow
# 6	150	# 6	600	White & Black
# 7	175	# 7	700	Red & Blue
# 8	200	# 8	800	Red & Purple
# 9	225	# 9	900	Red & Green
# 10	250	# 10	1,000	Red & Yellow
# 11	275	# 11	1,200	White & Red
# 12	300	# 12	1,400	White & Blue
# 13	325	# 13	1,600	White & purple
# 14	350	# 14	1,800	White & Green
# 15	375	# 15	2,000	White & Yellow
# 16	400	# 16	2,500	White & Black
# 17	425	# 17	3,000	Red & Blue
# 18	450	# 18	3,500	Red & Purple
# 19	475	# 19	4,000	Red & Green
# 20	500	# 20	4,500	Red & Yellow
		# 21	5,000	White & Red
		# 22	5,500	White & Blue
		# 23	6,000	White & purple
		# 24	6,500	White & Green
		# 25	7,000	White & Yellow

* The delay range of product can be adjusted according to customer's requirement.

Hazard classification

UN No. (Class / Division):	0030(1.1B) / 0456 (1.4S)
Proper Shipping Name	DETONATORS, ELECTRIC for blasting
EmS	F-B, S-X (1.1B / 1.4S)

Safety

HiDETO Plus™ MS/LP Series have a high safety profile against initiation by static electricity, stray electrical currents and radio wave transmissions. However, as high-electrical shocks such as direct lightning may cause initiation, it is recommended that all work be stopped during lightning weather and workers be kept away from the blasting site. HiDETO Plus™ MS/LP Series detonators may be used in temperatures up to 70°C.

Packaging

HiDETO Plus™ MS/LP Series are packaged in cardboard boxes.

Grade UN 0030 / 1.1B (545 X 335 X 275mm)						
Length (m)	Each/ Inner Box	Each/ Box	Net Weight (kg)		Gross Weight (kg)	
			Al	Cu	Al	Cu
1.0	200	1,000	11.0	15.0	13.0	18.0
1.5	200	1,000	13.5	18.5	15.5	20.5
2.0	200	1,000	16.0	21.0	18.0	23.0
2.5	150	750	16.0	19.0	19.0	22.0
3.5	100	500	14.0	16.0	17.0	19.0
4.0	100	500	16.0	18.0	19.0	21.0
4.5	100	500	17.0	19.0	20.0	22.0
6.0	80	400	18.0	19.0	21.0	22.0
8.0	50	250	14.0	15.0	17.0	18.0
12.0	30	150	12.0	12.5	15.0	15.5

Grade UN 0456 / 1.4S (545 X 335 X 275mm)						
Length (m)	Each/ Inner Box	Each/ Box	Net Weight (kg)		Gross Weight (kg)	
			Al	Cu	Al	Cu
1.0	50	250	3.0	4.0	9.0	10.0
1.5	50	250	5.0	6.0	11.0	12.0
2.0	50	250	7.0	8.0	13.0	14.0
2.5	50	250	5.5	6.5	14.5	15.5
3.5	50	250	7.0	8.0	16.0	17.0
4.0	50	250	8.0	9.0	17.0	18.0
4.5	40	200	7.0	7.5	15.0	15.5
6.0	40	200	9.0	9.5	17.0	17.5
8.0	30	150	8.5	9.0	15.0	15.5
12.0	30	150	12.0	12.5	18.5	19.0

* Based on one box (UN certified)

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Instructions for Handling & Usage

Never mix *HiDETO Plus™ MS/LP Series* with other producer's electric detonators as mixing may cause partial blasting or misfires due to the resistance difference between the products.

After connecting the leg-wires, check whether the electric circuit of connections is properly closed. If the circuit is open, detonators may misfire.

The table below details the proper currents range of electric detonator in the blasting circuit.

Pattern	All fire current (DC standard)		
		Standard Current	Recommended
Simultaneous Detonating	1 each	1.0 Amp	1.0 Amp
	50 each	3.0 Amp	2~4 Amp
	100 each	4.5 Amp	4~5 Amp
	200 each	6.5 Amp	5~8 Amp
Series-parallel (based on series 50 each)	3.0 Amp/Series	2~4 Amp/Series	

Storage

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

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

HiDETO Plus® MS/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.

Disclaimer

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The use of Product is an intrinsically dangerous activity and must be restricted to qualified and trained users in possession of any necessary permits and licenses, and comply at all times with appropriate safety and risk prevention measures and with applicable laws.

This document and any accompanying information is not intended to constitute – and shall not be construed as – an offer or contractual commitment on Hanwha's side. For further information about Product, please contact your distributor or sales representative directly.

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