

FORCE MS (Millisecond Detonator)



Description

Force MS detonators are a series of high strength non-electric detonators with millisecond (MS) delay intervals between successive firing times. Force MS detonators consist of a non-electric detonator, a length of signal tube. The detonator incorporates delay elements and a high strength base charge inside an aluminum shell. The 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

Force MS detonators provide a series of delay times suitable for surface mining, quarrying and underground operations. Force MS detonators will directly initiate cap sensitive boosters and packaged explosives. Refer to the relevant Technical Data Sheets for details.

Technical Properties

Signal tube	Yellow
Outer diameter	3 mm
Nominal tensile strength	25 kg (+20 °C / 2 min)
Lengths	4.8 - 27 m
Detonator base charge	(#8 Strength)
Water resistance	0.3 MPa
Shock tube velocity	2000 m/s

Available Delay Range

Delay #	3	4	5	6	7	8
Time (ms)	75	100	125	150	175	200
Delay #	9	10	11	12	13	14
Time (ms)	225	250	275	300	325	350
Delay #	15	16	17	18	19	20
Time (ms)	375	400	425	450	475	500

Recommendations for Use

Force MS detonators should always be secured inside a suitable primer, which fully encloses the detonator. Exposed detonators should not be placed inside blastholes or charging hoses. Force MS detonators used inside blastholes should normally be "reverse-primed", with the detonator base pointing towards the hole collar. Excessive force should not be applied to signal tubes connected to in-hole detonators and primers. If a primer becomes stuck when attempting to retrieve or reposition it, a replacement unit should be used.

Force MS detonators may be used in temperatures -30°C to +80°C.

Force MS detonators can be reliably initiated by Force surface connector detonators. Force MS blast can be reliably started by #8 Strength Electric Detonators.

Packaging

Force MS detonators are packed into sealed "barrier bags" inside cardboard cases. All detonators within a case have the same lead length and delay.

Tube Length (m)	Qty per bag (1.1B)	Qty per box (1.1B)
4.8	10	100
6.0	10	100
7.8	10	100
12.0	10	50
15.0	10	50
18.0	5	40
21.0	5	30
24.0	5	30
27.0	5	25

Safety

Force MS detonators provide a high level of safety against initiation by static electricity, stray electrical currents and radio frequency transmissions. Force MS detonators incorporate sensitive components inside the detonator. Care should be taken not to cause initiation via intense impact, friction or heat. Force MS detonators may be used in temperatures up to 70 °C. Force MS detonators are supplied in Class 1.1B / 1.4B and 1.4S packaging and have UN Number 0360 / 0361 and 0500.

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Disclaimer

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Storage and Handling

Product Classification

Authorised Name: *Force MS*
Proper Shipping Name: Detonator assemblies,
non-electric
UN No: 0360, 0361, 0500
Classification: 1.1B, 1.4B,
1.4SEC Type Certificate: ENB/D/009/8

Force MS detonators should be stored in a cool, dry detonator magazine. The temperature range should be 0° C to +50 °C and the relative humidity max. 45 %. Stacks of cases should be no more than 2 metres high. *Force MS* detonators should be used within 3 months of opening the sealed "barrier bag". Batches of detonators more than 2 years old should not be used.

Force MS detonators will remain in good working order for a minimum of 2 years from the date of manufacture if stored properly under the above conditions.

Nobel Explosives

Patlayıcı Mad. San. Ve Tic
A.Ş.Hülya Sokak No:45,
06700
G.O.P. - Ankara /
Turkey Phone: +90 312
446 16 00 Fax: +90 312
446 15 55
Email: info@nobelexplosives.com

Emergency Telephone Numbers

Within Turkey: 312.4461600
Outside Turkey: +90.312.4461600