

**TECHNICAL DATA SHEET**

# FULMELEC RETARDO (DELAY FULMELEC)

Generic Name by SUCAMEC: ELECTRIC - ELECTRONIC DETONATOR

**DESCRIPTION AND COMPOSITION:**

DELAY FULMELEC is comprised of an aluminum capsule containing the fluxing charge, the sensitive charge, the delay element and the electrical droplet that is attached to the energy conducting wires.

The electric droplet of the DELAY FULMELEC ignites as the electrical energy passes through and activates the delay element, which in turn initiates the charging of the Detonator.

DELAY FULMELEC allows users to have a wide range of delays that are generally used in replacement of the traditional Safety Fuse and Plain Detonator.


**TYPES AND USES:**

Delay Electric Detonator	I) According to the droplet	<ul style="list-style-type: none"> <li>Sensitive Delay Fulmelec (A.N.)</li> <li>Insensitive Delay Fulmelec (A.S.A.)</li> </ul>
	II) According to time	<ul style="list-style-type: none"> <li>Short Period</li> <li>Normal period</li> </ul>
		<ul style="list-style-type: none"> <li>Millisecond</li> <li>Half-second</li> </ul>

These types are used for initiating explosive charges in mesh designs and offer the following advantages:

- The delay times allow for sequencing in the formation of free faces in a blast, optimizing the shot.
- Delayed initiation within the drill optimizes the fragmentation of the blasted material.
- The delays enable blasting a large number of drills that detonate according to the planned times, helping minimize ground vibrations in the surrounding area.
- Facilitates noise control, preventing abnormalities in work areas and surroundings.
- The precision of delay times provides economy and safety.
- The electrical circuits allow checking the initiation systems using suitable instruments before initiating the shot.

The handling temperature range of the DELAY FULMELEC is from 0°C up to 35°C. For different temperatures it is recommended to contact the Technical Assistance area.

**TECHNICAL CHARACTERISTICS:**

		UNIT	SENSITIVE DELAY FULMELEC (A.N.)	INSENSITIVE DELAY FULMELEC (ASA)
Wire Color	Milliseconds	---	Yellow - Red	White - Red
	Half-seconds	---	Yellow - Blue	White - Blue
Esopo Test, Drilling Diameter		mm	Min. 11.0	Min. 11.0
Resistance to Impact 2 kg/1m		---	It does not detonate	It does not detonate
Trauzl Volume		cm <sup>3</sup>	Min. 34	Min. 34
Electrical resistance of the wire		ohm/m	0.053	0.053

Electrical resistance of the droplet	ohm	1.5	0.5
Ignition impulse	mWs/ohm	3	16
Protection against erratic currents	A	Max. 0.18	Max. 0.45

**DELAY TIME SCALE**

SHORT PERIOD	
SERIAL NUMBER	DELAY TIME (ms)
1	10
2	30
3	60
4	90
5	120
6	150
7	180
8	210
9	240
10	270
11	300
12	350
13	400
14	450
15	500
16	600
17	700
18	800
19	900
20	1000

The values expressed are results at normal conditions (20°C and 1 atm.)

NORMAL PERIOD (MS)	
SERIAL NUMBER	DELAY TIME (ms)
1	50
2	100
3	150
4	200
5	250
6	300
7	350
8	400
9	450
10	500

LONG PERIOD (LP)	
SERIAL NUMBER	DELAY TIME (ms)
1	400
2	800
3	1200
4	1600
5	2000
6	2400
7	2800
8	3200
9	3600
10	4000
11	4400
12	4800

The values expressed are results at normal conditions (20°C and 1 atm.)

**PACKAGING:**
**Packaging 1.1B**

	BOX MATERIAL	BOX CAPACITY (Pcs.)	NET WEIGHT (Kg)	GROSS WEIGHT (Kg)	OUTER DIMENSIONS (cm)
DELAY FULMELEC MS 3 m	Cardboard	500	12.9	13.9	44.3 x 41.8 x 26.0
DELAY FULMELEC MS 4 m	Cardboard	500	22.2	23.2	44.3 x 41.8 x 26.0
DELAY FULMELEC MS 5 m	Cardboard	400	26.0	27.0	44.3 x 41.8 x 26.0
DELAY FULMELEC MS 6 m	Cardboard	400	26.0	27.0	44.3 x 41.8 x 26.0

**TRANSPORT:**

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Class : 1  
Division : 1.1B  
UN No. : 0030

**STORAGE AND WARRANTY:**

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DELAY FULMELEC should be stored in magazines at **temperatures between 5°C and 30°C**, located in safe, well ventilated, dry areas, protected from rain and heat. Also, the explosive inventory should be rotated, avoiding the use of new materials before using old ones. And it must be stored according to the current compatibility table of the relevant authority.

DELAY FULMELEC, when kept in its original packaging and stored under the previously mentioned temperature conditions, is covered by a **12-month warranty** from the date of production.

**WARNING:**

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FAMESA EXPLOSIVOS S.A.C. has safe products, but they may become dangerous elements in inexperienced hands.

The purchaser or user must comply with the applicable regulations during transport, storage and use, as well as train duly all its personnel involved in its loading and handling, providing mechanical aids for loads over 25 kg per person.

FAMESA EXPLOSIVOS S.A.C. assumes no liability for transport, storage and/or improper use their products may experience.

The information and recommendation described in this document do not necessarily cover all product applications nor the different conditions under which it is being used. These are based on the experience, research and tests done by Famesa Explosivos S.A.C., who does not guarantee favorable results nor assume any responsibility, expressed or implied, in relation to the use of these suggestions. This product may be changed without prior notice.