

TECHNICAL DATA SHEET

FANEL

Generic Name by SUCAMEC: NON-ELECTRIC DETONATOR

DESCRIPTION AND COMPOSITION:

FANEL is an effective initiation system for being used in underground mining, surface mining and civil work, which offers synchronization benefits without risk, by removing any possibility of wrong connections.

It is made of the following components:

- **Delay Detonator:** It is a Detonator No. 12 containing a very sensitive primary explosive, a secondary high explosive one and a delay element based on its serial number, which allows it to be detonated at different time intervals. For this purpose, two scales are offered to the market: short period (MS) and long period (LP).
- **Fanel Shock Tube:** Manufactured with high mechanical resistance thermoplastic materials, and uniformly coated inside with a reactive substance that when activated carries a shock wave, with the enough pressure and temperature as to initiate the Delay Detonator.

One of its ends is ultrasonically sealed and the other end is assembled to the Delay Detonator. The color of the Fanel Shock Tube allows to identify the Fanel delay time scale, so: For the short period the Fanel Shock Tube is red or orange (MS); for the long period the Fanel Shock Tube is yellow (LP).

- **Label:** Indicates the serial number and the delay time in milliseconds or seconds. Additionally, we have a bar code that allows the traceability of the product.
- **"J" type plastic connector:** This is a plastic block, specially designed for facilitating connection and ensuring contact between the Fanel Shock Tube and the Detonating Cord.

Additionally, the color of the plastic connector allows to identify the delay time period of the Fanel, as follows:

- For the short period, the plastic connector type "J" is red.
- For the long period, the plastic connector type "J" is blue.

TYPES AND USES:

In order to satisfy the needs of both the national and international market, FAMESA EXPLOSIVOS S.A.C. offers two types based on the delay time:

- FANEL - Short period (MS).
- FANEL - Long Period (LP).

FANEL is a blasting accessory with improved traction and abrasion characteristics for the Fanel Shock Tube, making it suitable for all surface mining, underground mining and civil work applications; reaching high efficiency, safety and increased productivity.

The handling temperature range of the FANEL is from -10°C up to 35°C. For different temperatures it is recommended to contact the Technical Assistance area.



TECHNICAL CHARACTERISTICS:

- DELAY DETONATOR**

	UNIT	FANEL
Diameter	mm	7.3
Length	mm	60 / 68 / 88 / 92
Esopo Test, Drilling Diameter	mm	Min. 11.0
Trauzl Volume	cm ³	Min. 34.0
Resistance to Impact 2 kg/1m	---	It does not detonate

- FANEL SHOCK TUBE**

	UNIT	FANEL
Material	---	Flexible and great mechanical resistance thermoplastic
Diameter	mm	3.3 ± 0.2
Length	m	Variable
Color	Short Period	Red or Orange
	Long Period	Yellow
Wave Velocity	m/s	2 000 ± 200

- LABEL**

	UNIT	FANEL
Material	---	Plastic
Font color	---	Black
Background color	---	White

- "J" PLASTIC CONNECTOR**

		FANEL LSEF
Material	---	Plastic
Color	Short Period	Red
	Long Period	Blue

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

DELAY NOMINAL TIME SCALE

STANDARD SERIES		UNIVERSAL SERIES	
SHORT PERIOD		SHORT PERIOD	
SERIAL NUMBER	DELAY TIME (ms)	SERIAL NUMBER	DELAY TIME (ms)
0	0	0	0
1	25	1	25
2	50	2	50
3	75	3	75
4	100	4	100
5	125	5	125
6	150	6	150
7	175	7	175
8	200	8	200
9	225	9	250
10	250	10	300
11	300	11	350
12	350	12	400
13	400	13	450
14	450	14	500
15	500	15	600
16	600	16	700
17	700	17	800
18	800	18	900
19	900	19	1000
20	1000	20	1100
		21	1200

LONG PERIOD		LONG PERIOD	
SERIAL NUMBER	DELAY TIME (s)	SERIAL NUMBER	DELAY TIME (s)
1	0.5	0	0
2	1.0	1	0.2
3	1.5	2	0.4
4	2.0	3	0.6
5	2.5	4	1.0
6	3.0	5	1.4
7	3.5	6	1.8
8	4.0	7	2.4
9	4.5	8	3.0
10	5.0	9	3.8
11	5.6	10	4.6
12	6.2	11	5.5
13	6.8	12	6.4
14	7.4	13	7.4
15	8.0	14	8.5
16	8.6	15	9.6

PACKAGING:
Packaging 1.1B

	BOX MATERIAL	BOX CAPACITY (Pcs.)	PERIOD	NET WEIGHT (kg)	GROSS WEIGHT (kg)	OUTER DIMENSIONS (cm)
FANEL 4.0 m	Cardboard	150	Short	5.9	6.7	56.0 x 30.5 x 18.0
			Long	6.6	7.4	
FANEL 4.2 m	Cardboard	150	Short	6.2	7.0	56.0 x 30.5 x 18.0
			Long	6.8	7.6	
FANEL 4.8 m	Cardboard	150	Short	6.7	7.5	56.0 x 30.5 x 18.0
			Long	7.5	8.3	
FANEL 12.0 m	Cardboard	50	Short	4.9	5.7	56.0 x 30.5 x 18.0

Packaging 1.4B (*)

	BOX MATERIAL	BOX CAPACITY (Pcs.)	PERIOD	NET WEIGHT (kg)	GROSS WEIGHT (kg)	OUTER DIMENSIONS (cm)
FANEL 12.0 m	Cardboard	80	Short	8.5	14.0	66.5 x 33.5 x 32.5
FANEL 15.0 m	Cardboard	80	Short	10.1	15.6	66.5 x 33.5 x 32.5
FANEL 18.0 m	Cardboard	70	Short	10.2	15.7	66.5 x 33.5 x 32.5

(*) DOT approved packaging: Fanel LP (EX2002060238) and Fanel MS (EX2002060238C).

TRANSPORT:

Class : 1
Division : 1.1B
UN No. : 0360



Class : 1
Division : 1.4B
UN No. : 0361


STORAGE AND WARRANTY:

FANEL should be stored in magazines at **temperatures between 0°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.

The FANEL kept in its original packaging and stored in the above mentioned temperature conditions is **guaranteed for 12 months** after its production date.

WARNING:

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.