

TECHNICAL SPECIFICATION

NITRONEL QS

NON-ELECTRIC, ROCK, SURFACE DETONATOR
delay time: 0 ms, 17 ms, 25 ms, 42 ms, 67 ms and 109 ms

GENERAL INFORMATION

1. Application in specific conditions:

- **NITRONEL QS** is recommended for use in the underground mines and open pit mines to initiating non – electric detonators.
- **NITRONEL QS** cannot be used in conditions where the danger of coal dust and/or methane explosion exists.

2. Information about the allowable period of storage:

- The shelf life of **NITRONEL QS** is 12 (twelve) months from the date of manufacture.

3. Storage conditions:

- **NITRONEL QS** have to be stored in original package in the temperature range 0 °C ÷ 45 °C.

4. Disposal:

- Waste of non – electric detonators and expired non – electric detonators and non – electric detonators as well as packaging wastes should be delivered to a company with a proper permission to destroying.

ADDITIONAL INFORMATION

1. Information about physical form and dimensions:

- Shell material - aluminium
- Shock tube color: blue or according to customers specification.
- Length of shock tube: according to customers specification.
- Plastic connector (PE)
- Color of connector according Table 1.

2. Information about initiating sensitivity:

- A single detonator contains nominal 140 mg of PETN, used as a secondary explosive.
- To be sure that initiation of non-electric detonators **NITRONEL QS** is proper, it is recommended to use the appropriate initiation device or other approved for this purpose authorized means, included electric detonators.
- Maximum 8 pieces of shock tubes can be initiated by single detonator.

3. Information about application in humid conditions:

- **NITRONEL QS** can be used under water at the depth 3 m within 48 hours.

4. Information about application in high and low temperature:

- **NITRONEL QS** have to be used in the temperature range -25 °C ÷ 50 °C.

5. Information about technical parameters:

- Nominal delay time of NITRONEL QS for particular delay time according to Table 1.

Table 1

Kind of detonator	Nominal delay time [ms]	Colour of connector
NITRONEL QS 0 ms	2	green
NITRONEL QS 17 ms	17	yellow
NITRONEL QS 25 ms	25	red
NITRONEL QS 42 ms	42	white
NITRONEL QS 67 ms	67	blue
NITRONEL QS 109 ms	109	black

- Technical parameters for NITRONEL QS according to Table 2.

Table 2

VOD inside shock tube	2000 ± 200 m/s
Thermal stability in temperature 75 °C	48 h
Permissible pressure of use	max. 0,30 MPa

6. Certificates:

- EC Type-Examination Certificate No. 1453.EXP.05.0098 issued by Central Mining Institute in Katowice, with attachments.
- Classification Certificate No. 0090/2005/WITU issued by Military Institute of Armament Technology in Zielonka (Class/classification code: 1/1.1 B).
- Classification Certificate – No. 021/IPO-BW/2010 issued by Institute of Industrial Organic Chemistry in Warsaw (Class/classification code: 1/1.4 B).
- Classification Certificate – No. 011/IPO-BW/2012 issued by Institute of Industrial Organic Chemistry in Warsaw (Class/classification code: 1/1.4 S).

7. Packaging (class/classification code: 1/1.1 B):

- Elementary – bundles of 5 or 10 pieces with the same degree of delay – depending on length of shock tube in reel.
 - Collective – PE bags.
 - Transport – cardboard boxes arranged on wooden pallet. A cargo placed on pallet is wrapped with stretch film.
- At customer's request, another way of packing is acceptable.

8. Transport guidelines:

- Proper transport name: **DETONATOR ASSEMBLIES, NON-ELECTRIC**
- Class: **1**
- Classification code: **1.1 B 1.4 B 1.4 S**
- No. identification of material: **UN 0360 UN 0361 UN 0500**

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