Technical Data Sheet

Radio controlled initiation systemfor blasting NONEL® rounds

DynoRem™ Mine

The Power of Partnership

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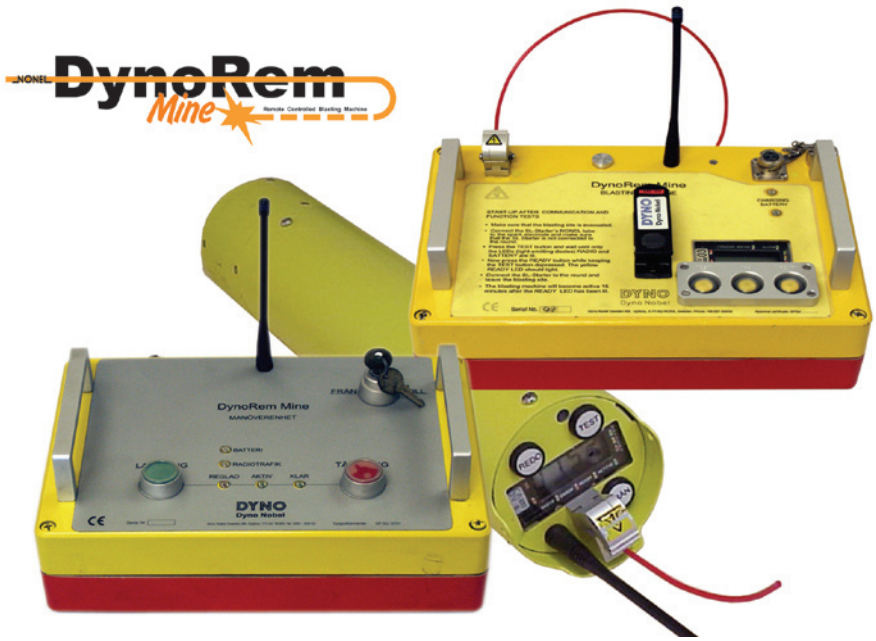

DynoRem Mine is a blasting machine system for remotely initiating NONEL rounds on worksites that uses an existing radio communication system. The system consists of a computer controlled central unit and one or several blasting machines.

The existing radio communication system at the worksite is used for the communication between the computer controlled central unit and each of the blasting machines. Thus, it is important that each of the units is located within the range of the radio system. The system is designed to be flexible in that the radio operating frequency and output power can be adjusted to suit circumstances.

DynoRem Mine	
Radio operating frequency:	According to customer demands, but preferably the UHF or VHF band.
Output power:	Max 5 W, but can be varied at the customer´s request.
Central unit dimensions:	200 mm x 300 mm x 80 mm
Blasting machine dimensions:	“Box” Model: 200 mm x 300 mm x 80 mm “Tube” Model: diameter 90 mm, length 550 mm
No. of blasting machines	Up to 24 per central equipment.
Environment classification:	Blasting machines: IP65; Central unit IP31

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Radio controlled initiation systemfor blasting NONEL® rounds

DynoRem™ Mine

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DynoRem Mine has been developed for the safe initiation of rounds consisting of NONEL® detonators. The system has been officially tested and approved to ensure safety and reliability.

Each central equipment can control up to 24 blasting machines ,which maybe divided in to groups consisting of up to 9 blasting machines in each. Thus, several blasts can be initiated within a predetermined time frame from one safe point.

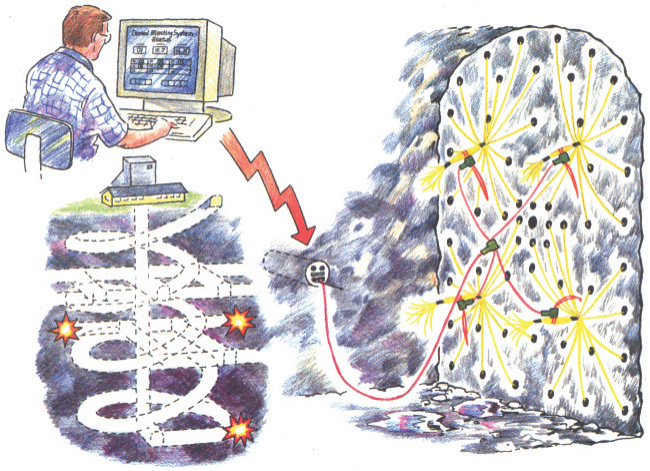
Blasting time frames are defined as "start time" - "end time" and can be set by means of the code transmitter in the central unit and stored in the code receiver in each blasting machine. The defined blasting time frames can be checked at the central unit. The blasting machines cannot be remotely controlled at times outside of the predetermined blasting time frames.

The central unit is fitted with a master clock, which controls the clock in each of the blasting machines. The system administrator has complete control to set the allowed firing time.

Each blasting machine has unique identity code that is programmed during manufacturing. The combination of these unique blasting machine identity codes with the command codes in the central unit will form a complex and unique communication code that ensures the autonomy of the system.

The blasting machine initiates the Nonel tube that is connected to the round. The "Tube" version of the DynoRem Mine is designed in such way that it can be placed into a 105 mm diameter drill hole close to the round. However each blasting machine should still be protected against impact or other mechanical damage.

Security of operation of the system is ensured by means of a user access code that must be fed into the central equipment before the transmitter can be used. Blasts are fired at the central control unit using a two-handed operation to operate the CHARGING and FIRING buttons.



Safety Features

- Each blasting machine has a unique identity.
- The built in hardware security ensures that unintentional initiation cannot occur in the case of wrong signal codes being sent or the communication signals are disturbed.
- The use of a blasting time frame controls the period of operation of the system.
- The user access control limits the number of persons who can operate the system.
- The DynoRem Mine initiation system has been officially tested and approved by SP, Swedish National Testing and Research Institute.
- The system is CE certified

Precautions

The DynoRem system is a part of the NONEL® system, and as such, the function is only guaranteed when used together with NONEL® components according to the NONEL® User's Guide. The DynoRem system must be handled, stored and used in accordance with the appropriate local regulations. Usually a national approval is required when using radio operated, remote controlled equipment. The national authorities in the country of intended use should be contacted for further information and advise before using this system.

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