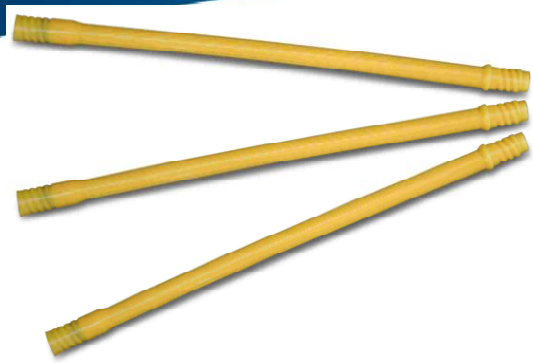
Technical Data Sheet

Force Cutmix

The Power of Partnership



Description

Force Cutmix detonator sensitive emulsion explosive is white in colour and packaged in 19 mm diameter, 735 mm long, yellow, rigid plastic tubes. The tubes' ends are sealed with caps and joiners that interconnect, enabling assembly to suit any blasthole length. Retention springs can be selectively clipped on to the tubes to ensure that the cartridge is securely retained in the blasthole.

Application

Force Cutmix is designed for the blasting of perimeter holes in mining, construction and tunnelling operations. Force Cutmix provides a radially decoupled explosive charge in the blasthole.

It can be used for pre-splitting applications for surface operations or smooth blasting applications for underground operations.

Key Benefits

- The small diameter, high velocity of detonation, and low decoupled energy of *Force Cutmix* minimises blast damage to the walls and backs leaving behind a smooth profile with minimal overbreak.
- *Force Cutmix* is water resistant and can be used in wet and dry blastholes.
- Specialty formulated for underground use *Force Cutmix* reduces post blast fumes and improves turnaround time.
- The secure locking mechanism between *Force Cutmix* components ensures complete propagation through the entire charge.
- The provision of retention springs centrally locates *Force Cutmix* in the blasthole ensuring optimum perimeter blasting outcomes.

Technical Properties

Product	***Force Cutmix***
Density (g/cm^3) (1)	1.10
Minimum Cartridge Diameter (mm)	19
Hole Type	Wet and Dry
Velocity of Detonation Range (m/s) (2)	5.532
Min. VOD. @ 19*735 (m/s)	≥3.500
Water Resistance	20 m (0,2 MPa)
Relative Effective Energy (REE) (3)	
Relative Weight Strength (%)	91
Relative Bulk Strength (%) ▪ to ANFO @ 0.80 (g/cm^3) ▪ to ANFO @ 0.95 (g/cm^3)	 125 95
Gas Volume (l/kg)	911
CO_2 Output (kg/t) (4)	182

Recommendations for Use

Priming and Initiation

Force Cutmix or packaged explosives are recommended in conjunction with *Force* detonators. *Force Cutmix*

Alternatively, a detonator of No. 8 or greater strength can directly initiate *Force Cutmix*. In this case the detonator should be inserted through the thin end plug at the base of the tube. The detonator must not be used to pierce the thin end plug. Should be used with *Force Cutmix* min 5 g detonating cord.

Sleep Time within Blastholes

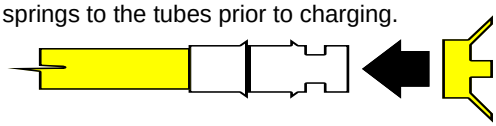
In dry blastholes, given the explosives packaging is undamaged; *Force Cutmix* may be charged and fired several months later. If the explosives packaging are damaged, the sleep-time in a blasthole is influenced by the extent of damage to the packaging and by the nature of any water present.

Packaging

Each case of Force Cutmix contains nominally 80 tubes. Each tube have 19 mm diameter and 735 mm length with weight of 250 g. Net weight of each case is 20 kg.

Charging

Retention springs may be attached to the *Force Cutmix* tubes to prevent rifling during the blast. Simply fit the retention springs to the tubes prior to charging.



NOBEL EXPLOSIVES

Force Cutmix

Fig 1. Click fit retention springs to joiner.

The tubes of *Force Cutmix* need to be connected together as they are inserted into the blasthole. Push the capped end into the joiner and twist to locate the barbs on the cap into the slots in the joiner.

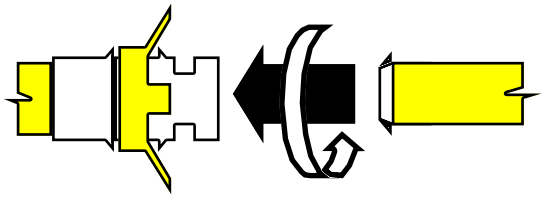


Fig 2. Push & twist cutmix together.

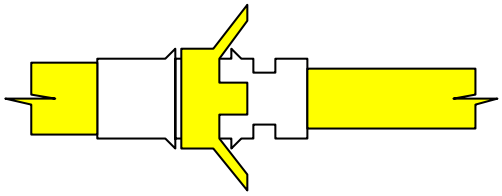


Fig 3. Finished assembly.

The primer or priming tube should be inserted into the blasthole first, with the detonator facing in the direction of initiation. Subsequent tubes should be loaded as required. To avoid face cratering dislocating the tubes, depending upon ground competency, the last 500 mm to 900 mm should be left uncharged.

Storage and Handling

Product Classification

Authorised Name:	*Force Cutmix*
Proper Shipping Name:	Explosive, Blasting, Type E
UN No:	0241
Classification:	1.1D

All regulations on the handling and use of such explosives apply.

Storage

Store *Force Cutmix* in a suitably licensed explosive magazine. The cases should be stacked in the manner designated on the cases.

Force Cutmix has a storage life of up to 12 months in an approved magazine, even in hot and humid extremes.

Force Cutmix is best stored at temperatures above -15 °C & should be stored between -15 - +30 °C. This is especially important in cold weather “load and shoot” worksites where there is insufficient inhole warm-up time.

Transport

Force Cutmix should be transported between -15°C and +30°C.

Disposal

Disposal of explosives materials can be hazardous. Methods for safe disposal of explosives may vary depending on the user's situation. Please contact a local Nobel Explosives representative for information on safe practices.

Safety

The post detonation fume characteristics of *Force Cutmix* make the product suitable for underground blasting applications. Users should ensure that adequate ventilation is provided prior to re-entry into the blast area.

Explosive fumes may contain carbon monoxide, nitrous gases, other gases, vapours or airborne solid residues and before the first use shall be determined the conditions according to the local regulations.

Force Cutmix can be initiated by extremes of shock, friction or mechanical impact. As with all explosives are *Force Cutmix* of flame and excessive heat.

Disclaimer

Explosives based on Ammonium Nitrate such as *Force Cutmix* may react with pyritic materials in the ground and create potentially hazardous situations. Nobel Explosives accepts no responsibility for any loss or liability arising from use of the product in ground containing pyritic or other reactive material.

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Notes

1. Nominal Density Only.
2. VOD will depend on application including explosive density blasthole diameter and degree of confinement. The VOD range is based on minimum unconfined and calculated ideal.
3. REE is the Effective Energy relative to ANFO at a density of 0.8 g/cm^3. ANFO has an effective energy of 2.30 MJ/kg. Energies quoted are based on ideal detonation calculations with a 100 Mpa cut off pressure. Non-ideal detonation energies are also available on request. These take account of blasthole diameter, rock type and explosive reaction behaviour.
4. Carbon Dioxide is the main greenhouse gas produced. The output is calculated assuming ideal detonation.