



VDM

INFRA PUNE

Rock Fragmentation By Chemical Method.

- Chemical fragmentation is a soundless and safe demolition agent which is quite different from ordinary demolition agents such as explosives and dangerous materials.

We Recommend this method

- Where blasting permission is not allowed.
- Mechanical excavation using hydraulic breaker gives very less output.
- In city area where buildings are close to excavation site.
- Where excavation is needed in buildings or nearby RCC structure.
- Where excavation is needed in nearby underground utility lines such as Drainage , Water supply , Gas , Petroleum etc.

METHODOLOGY



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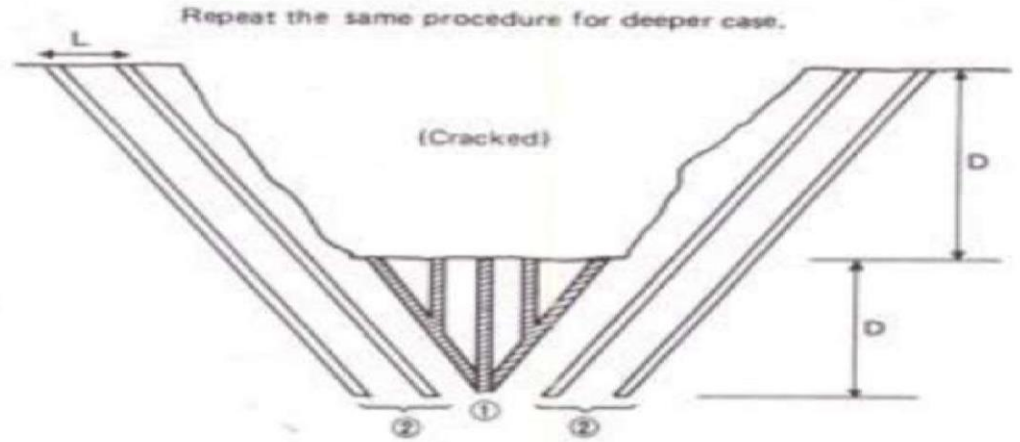
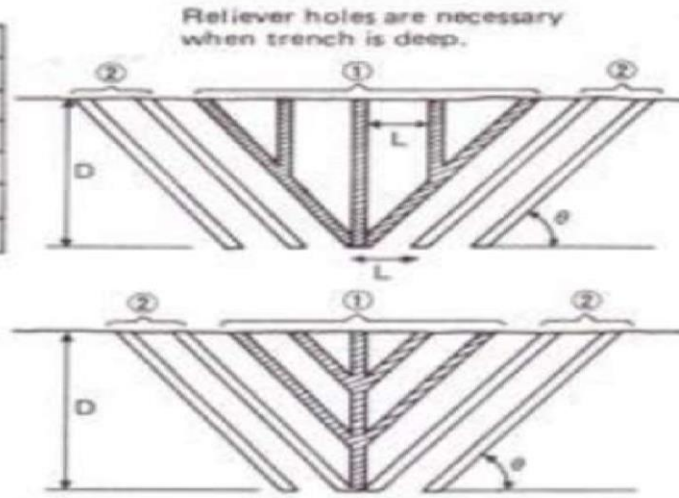
DRILLING

- Drill holes using an air hammer driller with appropriate drill bit specific to the rock type.
- Recommended hole diameter 32mm–50mm (1.28”–2.0”). Depth should be equal to the freeface available on site.
- Along freeface of excavation drill the holes in a row at spacing of 0.30 meter * 0.30 meter. If 20 Ton class excavator is used for removal of cracked area.

6 Trenching and Tunneling

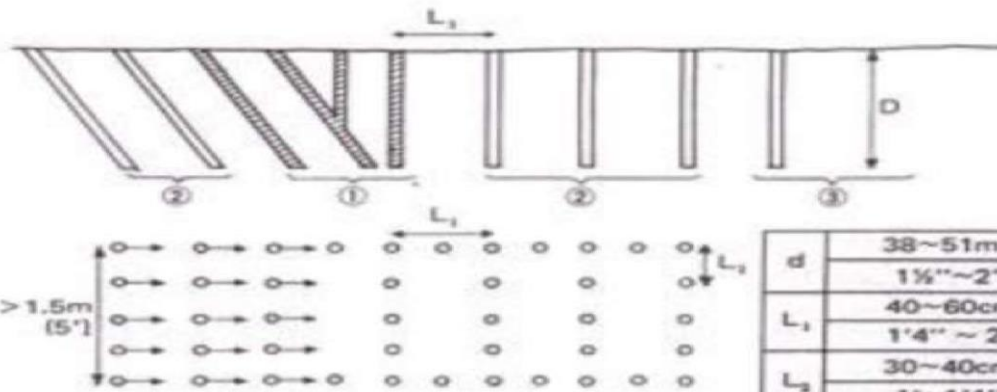
(1) V-cut

d	38~51 mm 1½"~2"
L	30~60cm 1'~2'
D	1~1.8m 3'~6'
θ	45~60°



Fill in ① holes and then ② holes after delaying.

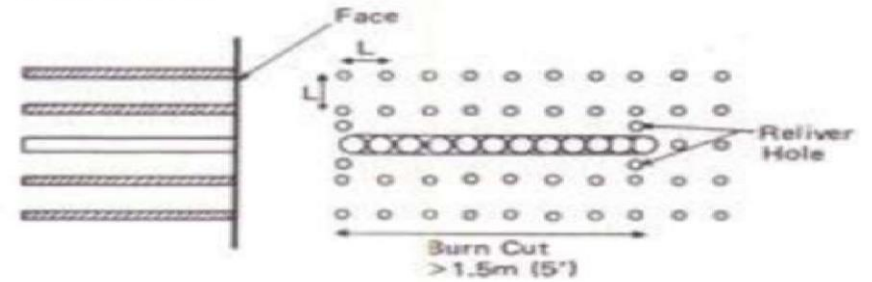
(2) V-cut



Fill in ① holes and then ② and ③ after delaying.

d	38~51mm 1½"~2"
L ₁	40~60cm 1'4"~2'
L ₂	30~40cm 1'~1'4"
D	1~1.8m 3'~6'

(3) Burn Cut



d	38~44mm 1½"~1¾"
L	30~60cm 1'~2'

For horizontal holes, drill them with some slope to help in filling.



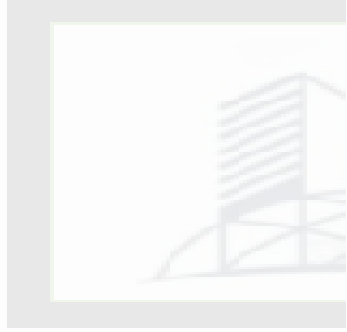
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MIXING

- For regular safety reasons one should mix 10 KG quantity at a time.
- Plastic container or bucket should be used for mixing
- 3 Litres of water should be added to mix 10 KG of Chemical.
- Mix the mixture properly using a Mixing machine is recommended.
- Water used for mixing should be neat and clean with pH value in between 6.5-7.0. Ensure that no lumps should remain in bucket while mixing.



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POURING

- Clean holes before filling using air hose remove excess dust from drilling.
- Slurry should be poured into holes within 3 min. after mixing. when rock is at normal temperature. (should not be too hot.)
- Do not fill the holes completely leave holes empty ½” to 1” from the top, In case the rock is too hard. Fill this gap with loose soil or dust and cover the area with ply or tarpaulin.
- Mix well and pour into holes while agitating the hole to make sure no air gaps are in the hole. Example:Using a piece of rod or stick to poke holes. Pouring of holes at a time 4-5 rows are suggested.
- CRACKS START DEVELOPING WITHIN THE HOLES IN 8-10 HOURS
[MAXIMUMLIMITIS24HOURS].



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SAFETY PRECAUTIONS

- In this method it is highly recommended to under go all process with skilled technical staff.
- Use of safety glasses , helmet , jacket and gloves is compulsory.
- Improper mixing, non technical manpower, improper proportion and if burden is more (spacing not maintain) may cause blown out from the holes.
- Advice the workers to stay away from work area till the gushing out is over.
- Read Safety Instructions on the carton before use.

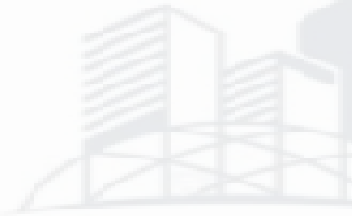
Merits

- No vibration.
- No legal permissions are required.
- Non explosives material.
- No sound.
- Less time consuming and gives more output than primary breaking for hard rock.
- Safe method.

Demerits

- Cost is more than controlled blasting.
- It requires skilled supervision.
- Pouring of chemical is depends on climatic conditions

FINAL RESULTS



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**THANK YOU
FOR YOUR
VALUABLE TIME**



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