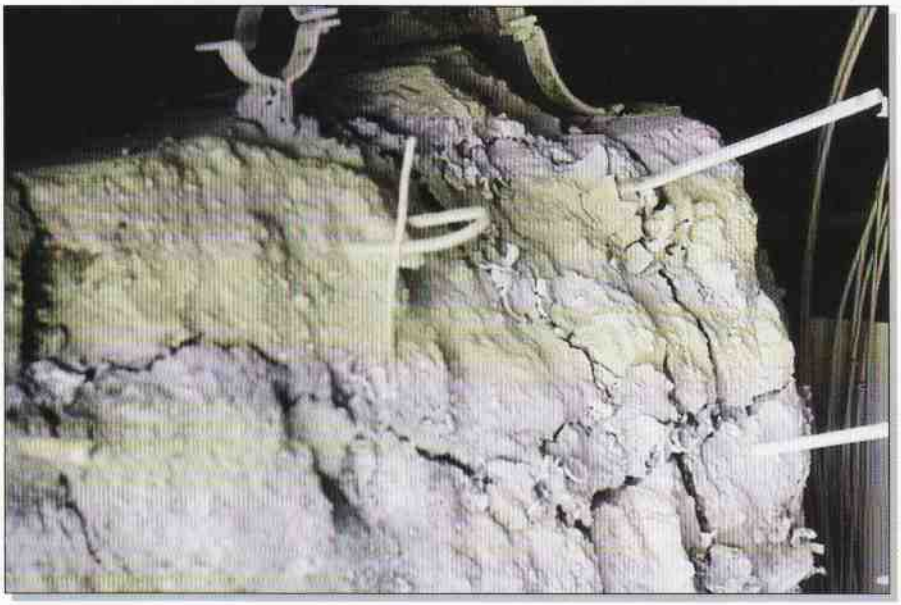
LITTLE CAUSE - BIG EFFECT



KATROCK is a non explosive demolition agent for use where explosives or mechanical means are not safe or practical. It can be used at concrete, rock or dimension stone.

Simply to use and environmentally safe.

As KATROCK does not produce a violent reaction, it does not cause fly rock, noise or vibration and can be used for almost all demolition work. Even smaller, partial demolition work can be done with KATROCK safely and efficiently as long as the the minimum thickness is 30 cm, a definite advantage for extension and structural alteration work.

Advantages:

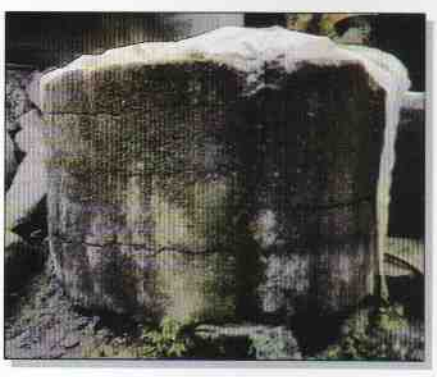
- Simple handling - the user only has to mix KATROCK with water to form a slurry ready for use
- The user does not require a special licence for the use of KATROCK
- KATROCK does not generate fly rock, vibration or noise
- KATROCK saves time compared with the conventional methods
- KATROCK is safe for the environment

WHAT IS KATROCK?
WHAT CAN KATROCK DO?
KATROCK COMPARED TO OTHER METHODS.
FIELD OF APPLICATION.
TYPES.

Application

KATROCK develops enormous power for application in almost all areas:

- Dimension Stone
- Quarrying
- Excavation
- Tunneling
- Trenching
- Sinking or widening of shafts
- Widening of underground mine roadways



KATROCK Types

Type	Hole diameter mm	Rock/ Surrounding Temperature	Temperature of mixing water
green	32 - 50 mm	5 - 20 °C	10 - 20 °C
blue	32 - 50 mm	15 - 30 °C	15 - 25 °C
HT	32 - 50 mm	25 - 38 °C	max. 30 °C

General information

- Hole diameters smaller than recommended will decrease the expansive stress
- Lower temperatures will have a delaying effect on KATROCK, however the crack width may improve
- Greater hole to hole spacing will lead to smaller cracks and delays
- Use of KATROCK, not in accordance with the manufactorer's instructions, may lead to blow outs. This means that KATROCK would shoot out of the hole possibly several times and out of several holes. Do not rush to the site where the blow out occurs until it is safe to do so.
- KATROCK types can be used for temperature below the recommended range but the reaction will be delayed

DRILLING TECHNIQUES

KATROCK requires basically the same drill patterns as it would be used with explosives and diameters from 32 - 50 mm are recommended.

The technical division is able to assist with technical advice.

3. Can the location of the steel in the concrete be determined?
4. Is the rock or the concrete homogenous or does it contain faults?

TABLE SHOWS HOLE SPACING IN CMS

grade of demolition/ requirement / kind of concrete or rock	dispersal for further cutting down with jack-hammer, o. e.				trenching of slices and blocks				complete destruction of free standing structures, without using further heavy mashinery				manufacturing of ashlars from free standing blocks			
	Ø drillhole in mm				Ø drillhole in mm				Ø drillhole in mm				Ø drillhole in mm			
	32	38	40	50	32	38	40	50	32	38	40	50	32	38	40	50
concrete, non-reinforced	30	35	40	50	30	35	40	50	35	40	45	55	-	-	-	-
concrete, slightly reinf.	20	25	28	32	-	-	-	-	-	-	-	-	-	-	-	-
concrete, medium reinf.	-	20	25	30	-	-	-	-	-	-	-	-	-	-	-	-
concrete, strongly reinf.	-	18	22	25	-	-	-	-	-	-	-	-	-	-	-	-
sandstone, soft	30	35	40	50	25	30	35	45	25	30	35	45	30	35	40	50
sandstone, hard	-	25	28	32	-	22	25	35	-	22	25	30	-	25	28	32
gneiss	-	25	28	32	-	20	25	30	-	20	25	30	-	25	28	32
granite	-	20	25	30	-	18	23	28	-	18	23	28	-	20	25	30
basalt	-	20	25	30	-	18	23	28	-	18	23	28	-	20	25	30
shistous sandstone	30	35	40	50	20	25	28	32	18	23	25	35	-	-	-	-
conglommerate	20	25	30	40	-	20	25	30	-	20	25	30	-	-	-	-
limestone	20	25	28	32	-	20	25	30	-	20	25	30	20	25	28	32
marble	20	25	28	32	-	20	25	30	-	20	25	30	20	25	28	32
porphyry	-	20	25	30	-	18	23	28	-	18	23	28	-	20	25	30

The use of holes with a diameter less than recommended will decrease the efficiency of KATROCK, larger diameters increase the danger of blow out occurring and should be avoided. The pattern design will depend on the required result and we recommend a trial run.

Job questionnaire

Before any job is commenced, an number of points need clarification to enable the operators to use KATROCK efficiently and achieve the desired result:

1. Which kind of material is to be broken?
2. If concrete, are you dealing with reinforced concrete?
5. Can the operator work towards a free face?
6. If not, can a free face be generated by breaking a V-cut?
7. Is drilling possible at all?
8. Can the minimum hole depth of 300 mm be achieved?
9. Which diameter drill bits are available?
10. Will it be partial or complete demolition?

The answers to all of the above questions will then determine the drill pattern.

USE / PREPARATION

STEP BY STEP INSTRUCTIONS

- Which material are you dealing with?
- What is the desired result?
- Select the correct type of KATROCK (table side 3)

Determine consumption at a hole diameter of 40 – 42 mm

Kind of material	Consumption
Soft rock	5 - 7 kg/cm³
Medium rock	7 - 12 kg/cm³
Hard rock	10 - 20 kg/cm³
concrete, not reinforced	4 - 8 kg/cm³
concrete, slightly reinforced	10 - 15 kg/cm³
concrete, reinforced	15 - 25 kg/cm³
concrete, heavily reinforced	20 - 35 kg/cm³
Consumption per running meter of hole depth	
Hole diameter	Consumption of KATROCK
36 mm	approx. 1,6 kg
38 mm	approx. 1,8 kg
40 mm	approx. 2,0 kg
42 mm	approx. 2,2 kg
45 mm	approx. 2,5 kg
50 mm	approx. 3,1 kg

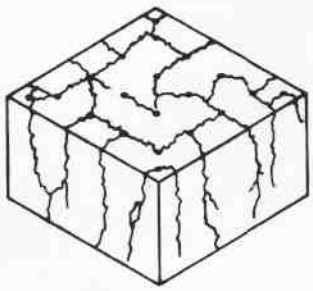
- advise to drill-pattern, see next page.

- KATROCK and clean water are mixed to a liquid slurry whereby the water quantity should be within the recommended minimum and maximum level. Thorough mixing can be achieved in cement mixers or by using electric drills with a mixing paddle. Smaller batches can be prepared mixing manually. The consistency of the finished product must be smooth and lump free.
- The KATROCK slurry should be applied within 10 minutes after mixing. If prepared with the correct quantity of water the slurry can be easily poured into the drill holes.

- KATROCK will remain working for some time but the cracks which appear after a short while relieving the expansive streses sufficiently so that mechanical removal of the broken rock can commence.
- When KATROCK ceases to react, it leaves an end product harmless for the environment. Tools that have come into contact with KATROCK should be rinsed with clear water.

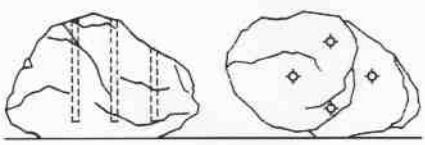
EVERY CASE IS DIFFERENT

A Concrete foundation, free standing without reinforcement
complete destruction
V = Distance from edge approx. 25 cm
D = Distance 40 cm
H = Hole depth approx. 80 %

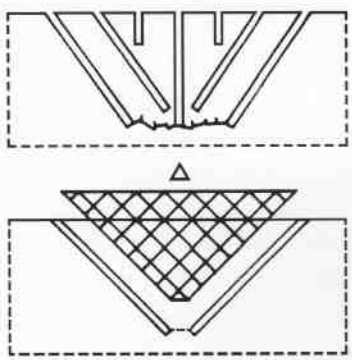


B Concrete foundation, free standing, slightly reinforced. Holes must be drilled inside the reinforcing steel.
V = Distance from edge approx. 15 cm
D = Distance 25 - 30 cm
H = Hole depth approx. 90 - 95 %

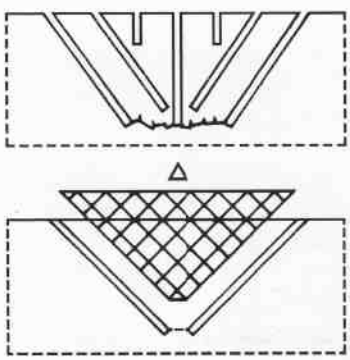
C Floater
When choosing D consider the maximum size rock which can be handled.
V = Distance from edge approx. 30 cm
D = Distance 40 - 80 cm
H = Hole depth approx. 80 %



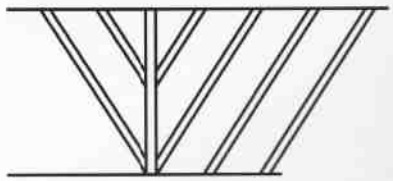
D Trenching in sedimentary rock.
When trenching in solid rock avoid vertical holes which are likely to result in blow outs.
V = not specified
D = Distance approx. 30 - 40 cm
H = Hole depth according to trench dimension
A = Angle of about 45 - 60 degr



E Trenching in sedimentary rock or concrete not reinforced
D = Distance 30 - 50 cm
H = Hole depth approx. 90 %
A = Angle 45 - 60 degr



F Widening a trench
A = Distance
H = Hole depth
A = Angle
Cases E and F can be combined by charging the holes F with a delay of 4 - 6 hours.



G Deliberate partial demolition of concrete foundations and mass concrete (not reinforced).
For this item contact technical division.

It is advisable to clean the drilled holes with compressed air to ensure that they will be free of dust and water.
If necessary plug the holes between drilling and application of KATROCK.

SOME EXAMPLES