

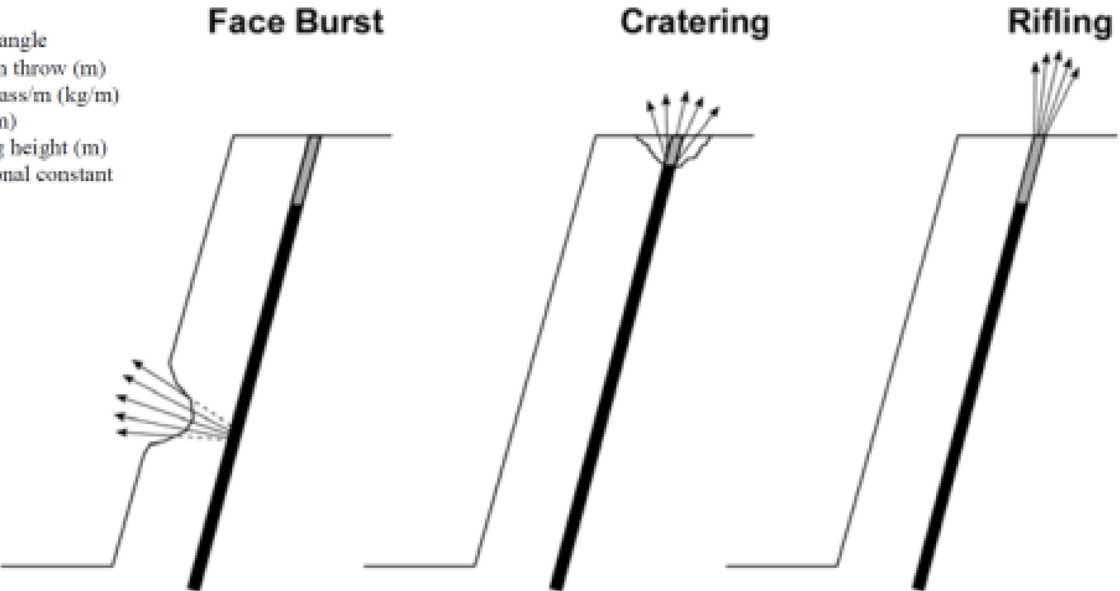


Flyrock model manual

Instructions: models for flyrock

θ = drillhole angle
 L = maximum throw (m)
 m = charge mass/m (kg/m)
 B = burden (m)
 SH = stemming height (m)
 g = gravitational constant

Face Burst **Cratering** **Rifling**



The three key mechanisms of flyrock

$$\frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{B} \right)^{2.6} \quad \left| \quad \frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{SH} \right)^{2.6} \quad \left| \quad \frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{SH} \right)^{2.6} \sin 2\theta_0$$

Navigation: < > Ok

O-Pitblast uses three different mechanisms to predict the radius of the clearance zone.

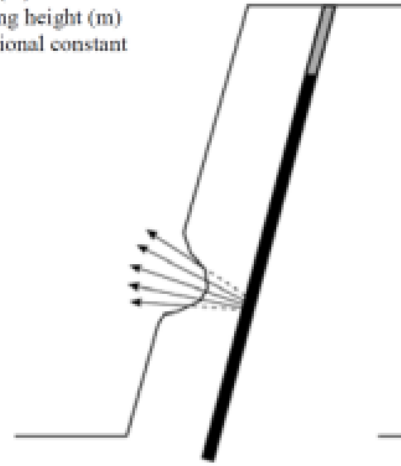
1st model

Instructions

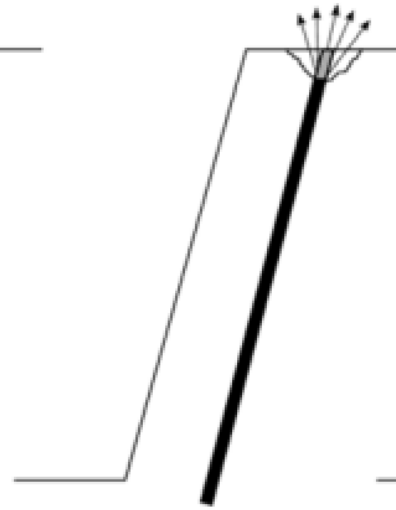


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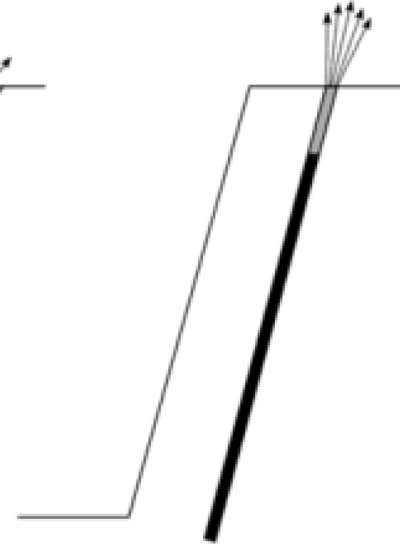
Face Burst



Cratering



Rifling



The three key mechanisms of flyrock

$$\frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{B} \right)^{2.6} \quad \left| \quad \frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{SH} \right)^{2.6} \quad \left| \quad \frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{SH} \right)^{2.6} \sin 2\theta_o$$



Ok



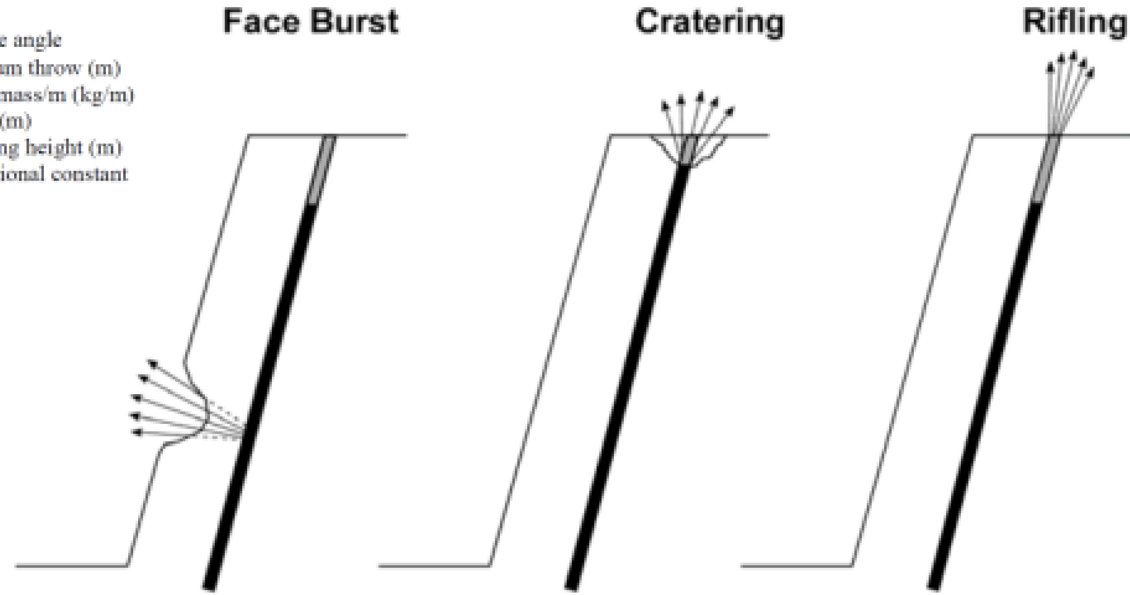
Based on face burst (burden)

2nd model

Instructions



- θ = drillhole angle
- L = maximum throw (m)
- m = charge mass/m (kg/m)
- B = burden (m)
- SH = stemming height (m)
- g = gravitational constant



The three key mechanisms of flyrock

$$\frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{B} \right)^{2.6} \quad \left| \quad \frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{SH} \right)^{2.6} \quad \left| \quad \frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{SH} \right)^{2.6} \sin 2\theta_o$$



Ok



Based on stemming height

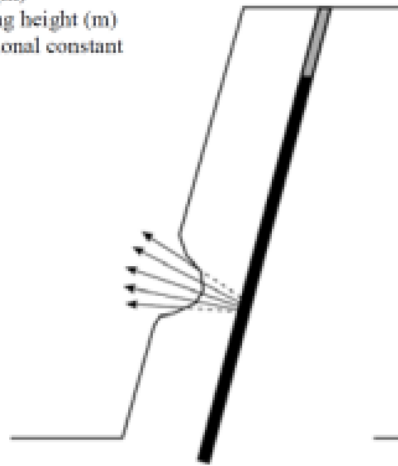
3rd model

Instructions

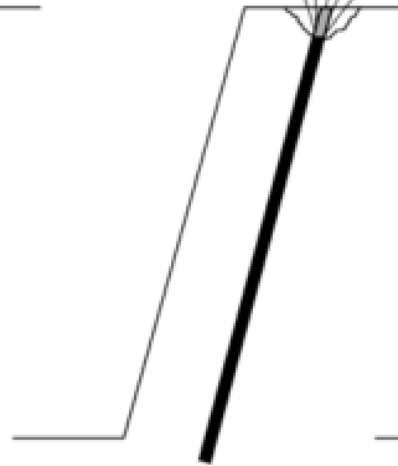


- θ = drillhole angle
- L = maximum throw (m)
- m = charge mass/m (kg/m)
- B = burden (m)
- SH = stemming height (m)
- g = gravitational constant

Face Burst



Cratering



Rifling



The three key mechanisms of flyrock

$$\frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{B} \right)^{2.6} \quad \left| \quad \frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{SH} \right)^{2.6} \quad \left| \quad \frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{SH} \right)^{2.6} \sin 2\theta_0$$



Ok

Based on hole inclination and stemming height.

Choosing critical value from the 3 models

θ = drillhole angle
 L = maximum throw (m)
 m = charge mass/m (kg/m)
 B = burden (m)
 SH = stemming height (m)
 g = gravitational constant

Face Burst **Cratering** **Rifling**

The three key mechanisms of flyrock

$$\frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{B}\right)^{2.6} \quad \left| \quad \frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{SH}\right)^{2.6} \quad \left| \quad \frac{k^2}{g} \cdot \left(\frac{\sqrt{m}}{SH}\right)^{2.6} \sin 2\theta_0$$

Navigation: < > Ok

O-Pitblast calculates the radius for all models and gets the **critical value** (the highest one).

Polygon area

Instructions ×

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Ok

Based on the highest radius, from the models above, O-Pitblast creates in each hole a circle with that radius.

And finally, a bigger polygon is created based on every hole radius.

Define your parameters

- Database
- Print
- Options
- Visible Options
- Help
- Exit

? Volume Calculation

By Holes Convex Hull Manual Polygon Theoretical | Use Bench | Use Subdrilling

Line aspect: **Solid Line**

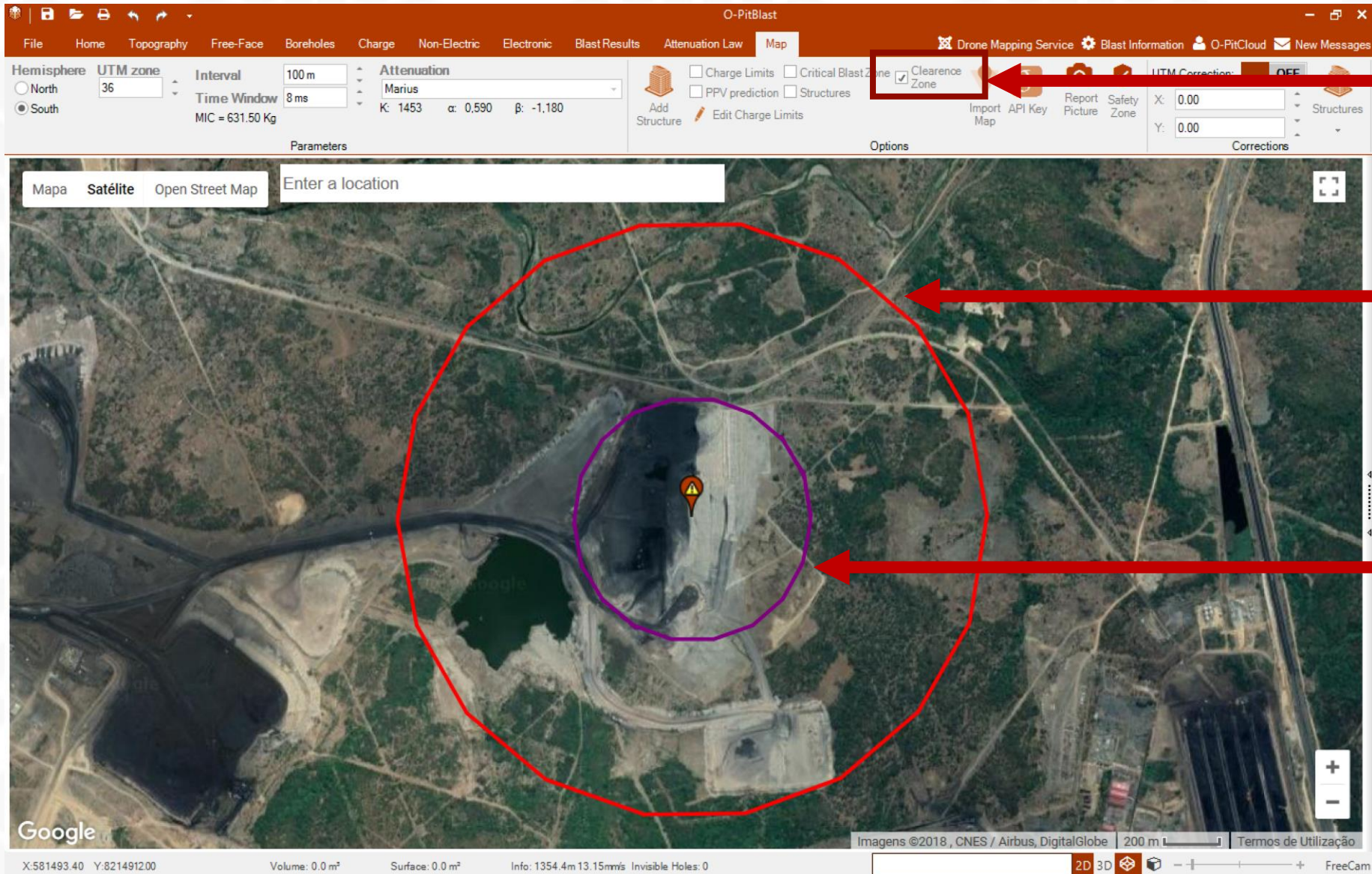
Empirical Constant K (Clearance Zone): 20.3 Safety Factor (personnel): 5 Safety Factor (equipment): 2 ?

Definition of empirical constant K
(Clearance Zone)

K = 13.5 soft rock
K = 20.3 medium rock
K = 27 hard rock

Definition Safety Zone Factor for equipment
and for personnel

Clearance zone: Map Module



Selection of
Clearance Zone

Clearance area
for personnel

Clearance area
for equipment