



# Formulas for calculations.

$$v_{(th)} = \sqrt{2gH}$$

$$H = \frac{V^2}{2g}$$

$$e = mgH$$

$$e = \frac{mV^2}{2}$$

$$v = \frac{d}{t}$$

$$F = ma$$

$$\text{System friction (\%)} = \frac{V_{(th)} - V_{(pr)}}{V_{(th)}}$$

Respectively where:

*a = acceleration (m /sec<sup>2</sup>)*

*e = energy (joules)*

*m = mass (kg)*

*F = Force (Newton)*

*H = drop height (m)*

*g = 9.8068 m/sec<sup>2</sup> (universal gravity constant)*

*V<sub>(pr)</sub> = practical velocity (m /sec)*

*V<sub>(th)</sub> = theoretical velocity (m /sec)*

*d = distance (mm)*

*t = time (milliseconde)*