

Elevator calculations



Elevator calculations

Belt speed in m/sec (v)

$$v = \frac{\text{Diameter pulley (m)} \times 3,14 \times \text{Rotations per minute}}{60}$$

v = belt speed in m per sec

Elevator calculations

Capacity in kg per hour (Q)

$$Q = a \times V \times \text{sg} \times v \times 3600 \text{ sec.}$$

Q = capacity in kg per hour

a = buckets per meter

V = bucket volume in liters

sg = specific weight of the material (see table)

v = belt speed in m per sec (see above equation)



Elevator calculations

Power in Kw (P)

$$P = \frac{Q \times H \times 9,81}{3600 \text{ sec.}}$$

P = power in Kw

Q = capacity in 1000 kg per hour

H = conveying height in meters

g = gravity 9.81 m/sec²

