Calculations for Screw conveyors

### Belt speed in m per sec

| \( v = \) screw diameter (in meters) \( \times 3.14 \times \) Rotations per minute \( \frac{1}{60} \)
|---|

\( v = \) speed in m per sec

### Capacity in m³ per hour (Q)

\[
Q = 47.1 \times (D^2 - d^2) \times s \times n \times i
\]

### Capacity in kg per hour (Q)

\[
Q = 47.1 \times (D^2 - d^2) \times s \times n \times i \times sg
\]

- \( D \) = screw outside diameter in dm
- \( d \) = screw inner diameter in dm
- \( s \) = pitch in dm
- \( n \) = rotations per minute
- \( sg \) = specific weight of the material (see table)
- \( i \) = degree of trough filling (eg. 30%: \( i = 0.3 \))

### Power in Kw (P)

\[
P = \frac{Q \times L \times K}{3600 \times 102}
\]

- \( P \) = power in Kw
- \( Q \) = capacity in 1000 kg per hour
- \( L \) = conveyor screw length (m)
- \( K \) = friction coefficient