### Calculations for Screw Conveyors

#### Belt speed in meters per second

\[
v = \frac{\text{Screw diameter (in meters)} \times \pi \times \text{Rotations per minute}}{60}
\]

\[v = \text{speed in meters per second}\]

#### Capacity in m³ per hour (Q) for horizontal transport*

\[Q (\text{m}^3/\text{u}) = 47.1 \times (D^2 - d^2) \times s \times n \times i\]

#### Capacity in kg per hour (Q) for horizontal transport*

\[Q (\text{kg}/\text{u}) = 47.1 \times (D^2 - d^2) \times s \times n \times i \times \text{sw}\]

- **D** = screw outside diameter in dm
- **d** = screw inside diameter in dm
- **s** = pitch in dm
- **n** = rotations per minute
- **i** = degree of trough filling (eg. 10%: i = 0.1)
- **sw** = specific weight of the material (see table)

*With a slope, about 1% capacity loss can be calculated per degree*.

#### 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

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All information is subject to printing and typing errors and act as a guideline. Therefore no rights can be derived from this.