

# Calculations for Screw conveyors

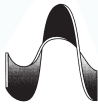
## Calculations for screw conveyors

### Belt speed in meters per second

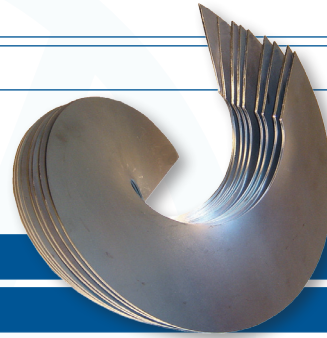
$$v = \frac{\text{Screw diameter (in meters)} \times 3,14 \times \text{Rotations per minute}}{60}$$

v = speed in meters per second

Right hand pitch



Left hand pitch



## Calculations for screw conveyors

### Capacity in m<sup>3</sup> 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\*

$$Q \text{ (kg/u)} = 47,1 \times (D^2 - d^2) \times s \times n \times i \times sw$$

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 °.

## Calculations for screw conveyors

### Power in Kw (P)

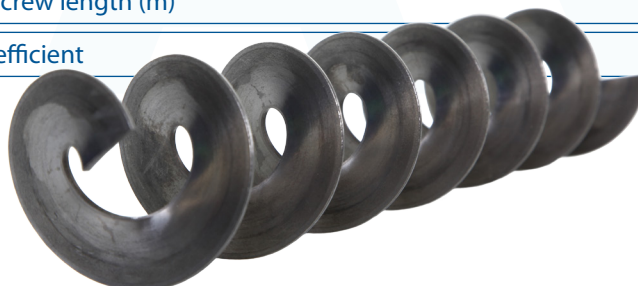
$$P = \frac{Q \times L \times K}{3600 \times 102}$$

P = power in Kw

Q = capacity in 1000 kg per hour

L = conveyor screw length (m)

K = friction coefficient



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