Calculations for Screw conveyors

Calculations for screw conveyors

Screw conveyor speed in m per sec

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

v	=	speed in m per sec

Calculations for screw conveyors

Capacity in m^2 per hour (Q)

$$Q\ (m^3/h) = 47{,}1 \times (D^2 - d^2) \times s \times n \times i$$

Capacity in kg per hour (Q)

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

D	=	screw outside diameter in meter
d	=	screw inner diameter in meter
s	=	pitch in meter
n	=	rotations per minute
sg	=	specific weight of the material (kg/m^3)
i	=	degree of trough filling (eg. 30%: i=0,3)

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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