Screw Conveyor Design

Sample document - numeric values are only included in the purchased Pro export.

Project: _____ Part/Position: _____ Prepared by: _____

Overall assessment: PASS

Inputs

Screw diameter D	? ? ? mm
Shaft/core diameter d	? ? ? mm
Pitch S	? ? ? mm
Speed n	? ? ? min^{-1}
Fill level phi	? ? ?
Bulk density rho	? ? ? t/m^3
Conveying length L	? ? ? m
Conveying height H	? ? ? m
Resistance factor lambda	? ? ?

Throughput

Volume flow rate Q	? ? ? m^3/h
Mass flow rate ?	? ? ? t/h
Axial conveying speed v_ax	? ? ? m/s

Drive

Drive power P	? ? ? kW
Drive torque M	? ? ? Nm
Incline angle	? ? ? °

Evaluation criteria

Criterion	Value	Limit	Status
Fill level phi (<= 0.45 guideline)	? ? ?	? ? ?	● PASS
Critical speed n·sqrt(D/1000) (<= 45 guideline)	? ? ?	? ? ?	● PASS
Incline angle (<= 20° guideline)	? ? ? °	? ? ? °	● PASS

Notes and calculation basis

Trough screw conveyor for bulk material, design per Roloff/Matek Fördertechnik / close to DIN 15262. Calculation path: volume flow rate from the helix cross-section (annular area from the screw diameter and shaft diameter), pitch, speed and fill level, mass flow rate via the bulk density, drive power from a friction component (conveying length x resistance factor) and a lift component (conveying height), drive torque from power and speed, and the axial conveying speed from pitch and speed. Simplifications: starting/breakaway torque, screw material strength and trough wear remain manufacturer-specific and are not part of this calculation; critical speed and the incline limit are material-dependent guidelines, not a strength or load-capacity verification.