

Rotary Indexing Table - Sizing

Sample document with complete example values. It shows the report the purchased export produces for YOUR input - it is not itself a report for any part.

Project: Sample project

Part/Position: no real part

Prepared by: Sample, not released

Required design values: index angle 45 deg, angular acceleration 12.566 rad/s², peak angular velocity 3.142 rad/s, acceleration torque 25.13 Nm at an index rate of 40 rpm.

Note: M_a is the pure acceleration torque of the table inertia during indexing. Friction, load torques from the processing stations, and any gearbox between motor and table must be accounted for separately; the actual motor selection is made per manufacturer based on the torque-speed curve.

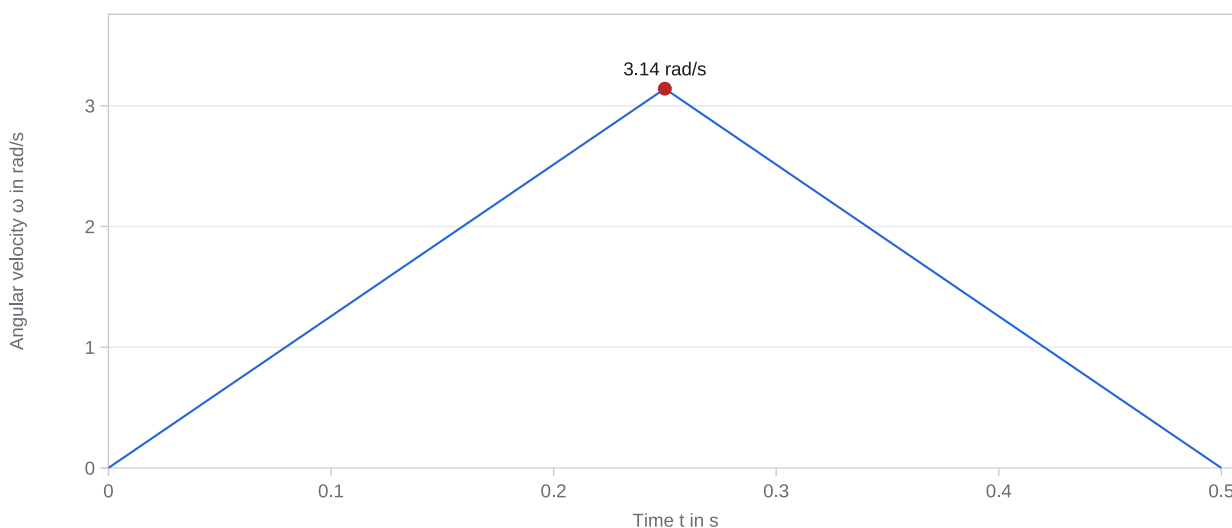
Input and cycle

Stations z	8
Total moment of inertia J _{total}	2 kg·m ²
Index time t _{index}	0.5 s
Dwell time t _{dwell}	1 s
Motion profile	Triangular (symmetric)

Design values

Index angle φ	45 deg (0.7854 rad)
Cycle time t _{cycle}	1.5 s
Duty ratio t _{index} /t _{cycle}	0.333
Index rate	40 rpm
Angular acceleration α	12.566 rad/s ²
Peak angular velocity ω_{peak}	3.142 rad/s
Peak speed n _{peak}	30 rpm
Acceleration torque M _a	25.13 Nm

Angular velocity during the index cycle



Calculation basis

The index angle per cycle is $\varphi = 2\pi / z$ (or specified directly). The angular acceleration follows from the index motion profile: for the symmetric triangular profile $\alpha = 4\varphi / t_{\text{index}}^2$ with $\omega_{\text{peak}} = 2\varphi / t_{\text{index}}$, for the trapezoidal profile 1/3-1/3-1/3 $\alpha = 9\varphi / (2t_{\text{index}}^2)$ with $\omega_{\text{peak}} = 3\varphi / (2t_{\text{index}})$. The acceleration torque is $M_a = J_{\text{total}} \alpha$. Cycle time $t_{\text{cycle}} = t_{\text{index}} + t_{\text{dwell}}$, duty ratio = $t_{\text{index}} / t_{\text{cycle}}$.

About this sample

All values on these pages come from a freely chosen example calculation and belong to no real part. The purchased export contains the same sections with your input, your header data (project, part, prepared by) and as searchable text. Pricing and scope: maschinenbaurechner.de/en/pricing

Note: The results are design and orientation aids. They do not replace independent verification, calculation and approval by a qualified person. The terms of use at maschinenbaurechner.de apply.