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Motor Sizing Tools > Ball / Lead Screw

Ball / Lead Screw Application

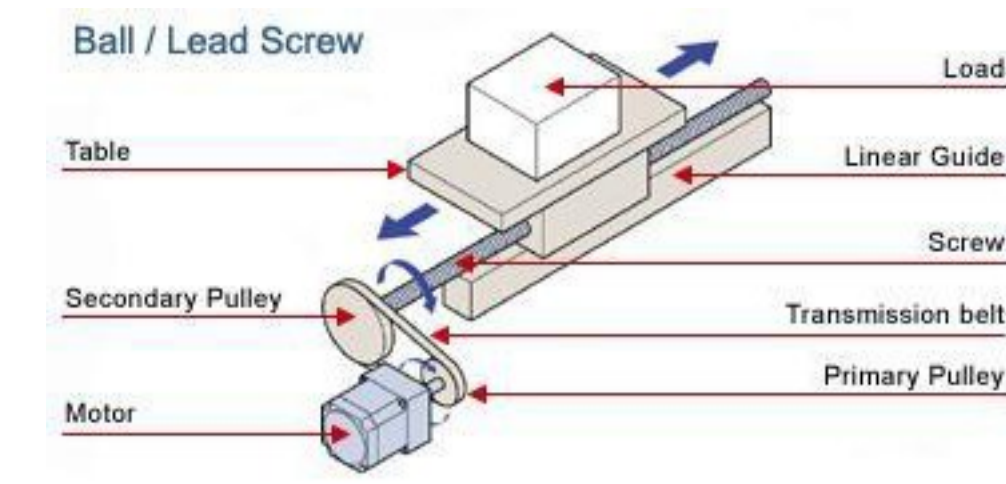
Unit

Select the unit Imperial Metric

Load and Linear Guide

Total mass of loads and table $m = 50$ kg

Friction coefficient of the guide $\mu = 0.5$



Ball / Lead Screw Specifications

Diameter $D_B = 26$ mm

Total length $L_B = 500$ mm

Lead (pitch) $P_B = 5$ mm/rev (Distance the screw moves in one rotation)

Efficiency $\eta = 80$ % ref: ballscrew 80 ~ 95%, leadscrew 30 ~ 70%

Material $\rho = Steel$

Breakaway torque of the screw $T_B =$ N-m

External Force

$F_A = 300$ N

Transmission Belt and Pulleys or Gears (Leave the fields blank if a direct coupling structure is used)

Primary pulley (gear) pitch circle diameter (PCD) or diameter $D_{p1} =$ mm

Secondary pulley (gear) pitch circle diameter (PCD) or diameter $D_{p2} =$ mm

Primary pulley (gear) mass $m_{p1} =$ kg

Secondary pulley (gear) mass $m_{p2} =$ kg

If you are not sure about the mass

Primary pulley (gear) thickness $L_{p1} =$ mm

Secondary pulley (gear) thickness $L_{p2} =$ mm

Primary pulley (gear) material $\rho_{p1} =$ Please select

Secondary pulley (gear) material $\rho_{p2} =$ Please select

Mechanism Placement

Mechanism angle $\alpha = 0$ °

Other Requirement(s)

It is necessary to hold the load even after the power supply is turned off. → You need an electromagnetic brake.

It is necessary to hold the load after the motor is stopped, but not necessary to hold after the power supply is turned off.

Operating Conditions

Fixed speed operation

Operating speed $V_1 = 150$ mm/s

Acceleration/Deceleration $t_1 = 0.1$ s

Variable speed operation

Positioning operation (Fill in the fields, if any)

Stopping Accuracy

Stopping accuracy ± 0.01 mm

Safety Factor

Safety factor 1.5

CLEAR ALL CALCULATE

The following is the estimated requirements. Please contact 1-800-468-3982 (from overseas 1-847-871-5931) for assistance or questions.

Sizing Results

Load Inertia	$J_L = 2.0887e-4$	[kg·m ²]
Required Speed	$V_m = 1800$	[r/min]
Required Torque	$T = 1.485$	[N·m]
Acceleration Torque	$T_a = 0.3937$	[N·m]
Load Torque	$T_L = 0.5963$	[N·m]
Required Stopping Accuracy	$\Delta\theta = 0.7200$	[deg]
Other Requirement(s)	Holding Torque	

To print the calculation report, click [Full Report](#)

To view the motor selection tips, click [Tips](#)

Unit Conversion

Length: [in.] = [mm]

Mass: [ozm] = [g]

Weight: [oz.] = [N]

Inertia: [oz-in²] = [kg-cm²]

Torque: [oz-in] = [N-m]

Speed: [RPM] $\times 1.8$ = [Hz]

* = For Stepper Motors input Step Angle

We're Here to Help

Business Hours:
Monday to Friday
8:30am EST to 5:00pm PST

Technical Support:
1-800-GO-VEXTA (468-3982)

Motor Sizing Services Available