

Ball / Lead Screw Application

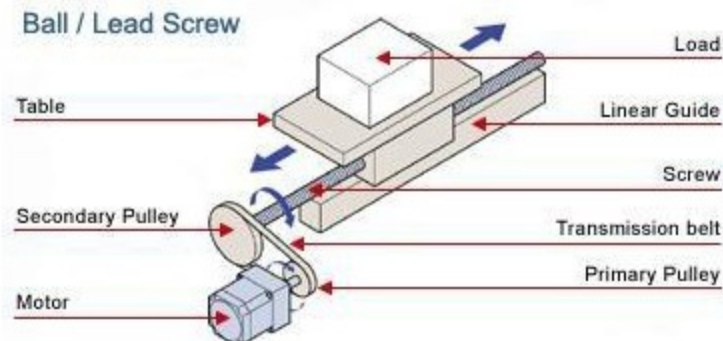
Unit

Select the unit Imperial Metric

Load and Linear Guide

Total mass of loads and table m = 15 kg

Friction coefficient of the guide μ = 0.1

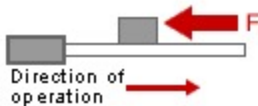


Ball / Lead Screw Specifications

Diameter D<sub>B</sub> = 10 mm  
Total length L<sub>B</sub> = 500 mm  
Lead (pitch) P<sub>B</sub> = 4 mm/rev (Distance the screw moves in one rotation)  
Efficiency η = 90 % ref. ballscrew 80 ~ 95%,  
leadscrew 30 ~ 70%,  
Material ρ = Steel  
Breakaway torque of the screw T<sub>B</sub> = 0.1 N·m

External Force

F<sub>A</sub> = 70 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 Secondary pulley (gear) pitch circle diameter (PCD) or diameter

D<sub>p1</sub> = mm D<sub>p2</sub> = mm

Primary pulley (gear) mass Secondary pulley (gear) mass

m<sub>p1</sub> = kg m<sub>p2</sub> = kg

If you are not sure about the mass

If you are not sure about the mass

Primary pulley (gear) thickness

Secondary pulley (gear) thickness

L<sub>p1</sub> = mm L<sub>p2</sub> = mm

Primary pulley (gear) material

Secondary pulley (gear) material

p<sub>p1</sub> = Please select p<sub>p2</sub> = Please select

Mechanism Placement

Mechanism angle α = 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<sub>1</sub> = 50 mm /s

Acceleration/Deceleration t<sub>1</sub> = 0.12 s

Variable speed operation

Positioning operation (Fill in the fields, if any)

Stopping Accuracy

Stopping accuracy ± 0 mm

Safety Factor

Safety factor 1.5

CALCULATE CLEAR ALL

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<sub>L</sub> = 9.9572e-6 [kg m<sup>2</sup>]

Required Speed V<sub>m</sub> = 750 [r/min]

Required Torque T = 0.2753 [N·m]

Acceleration Torque T<sub>a</sub> = 6.5165e-3 [N·m]

Load Torque T<sub>L</sub> = 0.1770 [N·m]

Required Stopping Accuracy Δθ = 0 [deg]

Other Requirement(s)

To print the calculation report, click Full Report

To view the motor selection tips, click Tips

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