# BEVEL GEAR JACKS APPLICATION INFORMATION AND THERMAL GRAPHS

In many applications, Joyce Bevel Gear® jacks are more efficient and faster than wormgear driven jacks. To determine the suitability of a bevel gear jack for your application, use the steps below to calculate load, travel speed and duty cycle.

**Step 1** Determine load in pounds.

**Step 2** Determine velocity in feet / minute (fpm).

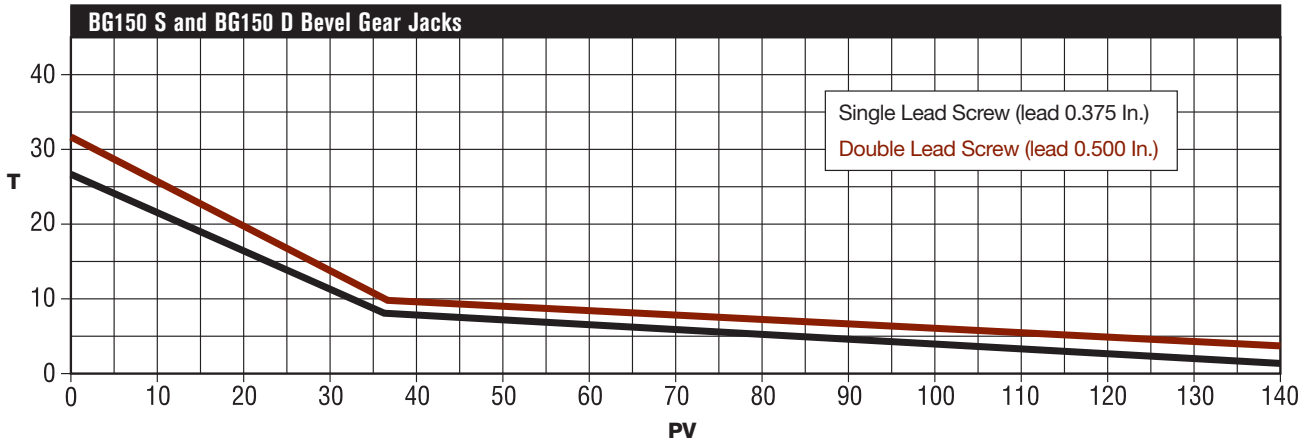
**Step 3** Determine duty cycle in terms of minutes operation / minutes resting (or time on / time off).

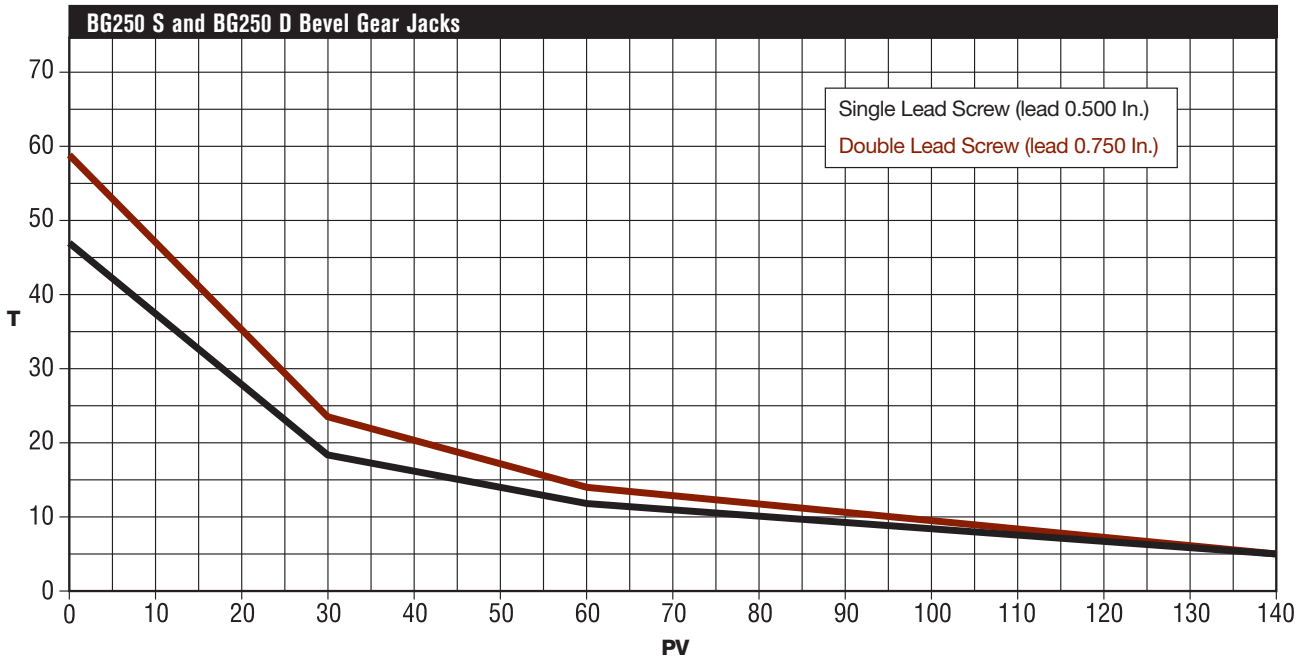
**Step 4** Calculate PV.
PV = (load x velocity in fpm)/1000

**Step 5** Calculate cooling time (T).
T = Cooling time (p. 151) x $\frac{\text{time on}}{\text{time off}}$

**Step 6** Plot the points for PV and T on the appropriate graph (below or on the next page). If the point falls below the line, the application is satisfactory. If it is above the line, recalculate T for the next larger size jack. Each jack size has a different cooling time (p. 151).

**Step 7** Calculate horsepower.
RPM = Velocity in fpm x 12 x input turns per one-inch travel (from chart on p. 151)
Horsepower = Pinion torque (from chart) x load x RPM




**Note: PV** = $\frac{\text{load x velocity (fpm)}}{1000}$ **T** = the maximum running time in minutes before a complete cooling time is required.