



Fleet and Heavy Duty TECHTIPS



Selecting the best belt tensioner

How Important Is Spring Technology?

Heavy duty automatic belt tensioners are designed to absorb accessory drive vibrations that lead to excessive belt wear and noise problems.

How does a belt tensioner reduce vibrations? One of the solutions is in the spring technology.

Aftermarket tensioners are available with either flat or round springs. Theoretically, the flat spring is just as effective in providing a constant force as a round spring.

Mechanically, however, there are major differences that affect performance and service life.

Fatigue failure: Flat springs have more stress points along the spring edges that can weaken and crack, and lead to fatigue failure. Round springs have no stress points because spaces between the coils eliminate metal-to-metal contact. They are also quieter.

Contamination: Flat spring design is subject to failure due to contamination when dirt and grit become trapped between the coils. The flat spring will eventually “lock up” or seize, resulting in loss of tension for the drive system. Round springs are not affected by contamination because of the spacing between the coils.

Coil interference: The coils of a close-wrapped, flat spring rub against each other as they vibrate. This increases heat build-up which leads to component wear and failure. Flat spring tensioners use PTFE tape as a lubricant to reduce friction between coil surfaces. However, heat, friction and contamination erode the tape over time. Round springs have no coil-to-coil contact. There is no friction and no noise.



Spacing between the coils of a round spring tensioner eliminates metal-to-metal contact, flex fatigue failure, noise, and contamination, which often causes a flat spring to “lock up” or seize the tensioner.



Flat spring designs trap dirt and grit between the coils. These contaminants wear away the PTFE separator tape and can seize the tensioner. Rust is often an early indication that the tensioner needs to be replaced.



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