

HVAC: Adjusting Belts

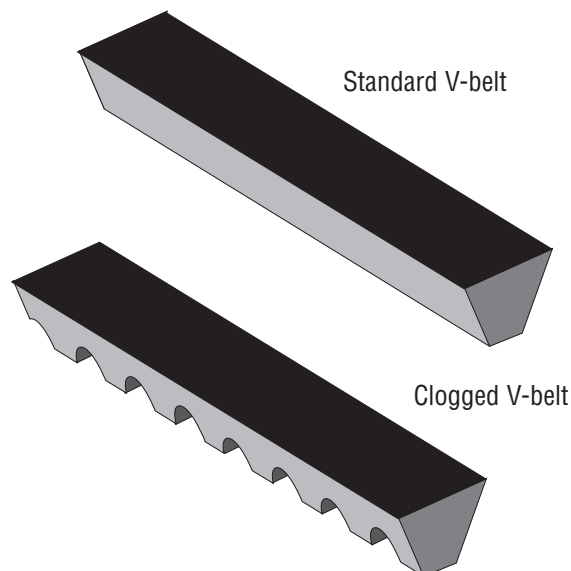
Improperly adjusted belts rob the drivetrain of power, create noise, and require replacement sooner than well-adjusted belts. Loose belts slip on the pulley wheels, causing torque loss and rapid wear. Belts that are too tight put an excessive load on the motor and fan shaft bearings, causing early failure of the bearings or belts. Belts should be aligned with a straightedge to prevent lateral wear. Proper belt tension can be achieved with a deflection strain gauge, but most technicians are familiar enough with the proper tension to adjust it simply by pressing on the belt with a finger. Either method works well if performed consistently.

Some technicians advocate belt changes once or twice a year, whereas others simply let belts run until they break. It makes sense to forestall breakage with periodic replacement, given that a typical belt set for a 10-ton unit's supply fan costs about US\$5 to US\$10, and a service call to replace a broken belt costs \$65 or more. Experts recommend securing one old belt inside the cabinet to use as an emergency spare.

An easy upgrade that can improve drivetrain efficiency by 2 to 8 percent is to switch from standard to cogged V-belts (**Figure 1**). The cost premium for cogged V-belts is about 20 percent.

Figure 1: Cogged V-belts

Specifying cogged V-belts is an easy way to improve supply fan efficiency by 2 to 8 percent. Cogged belts run on conventional smooth pulleys, but the notches on the inside of the belt reduce internal bending losses and improve gripping action.



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