



Belt Drive Monthly
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How Should I Incorporate V-Belt Drives Into My Facility Energy Audits And Efficiency Upgrade Projects?

V-belt drives are often areas that are overlooked or not fully explored in energy audits. However, significant efficiency improvements may exist depending on condition of the drive components, maintenance practices, and even the type of v-belt being used. A simple Three step process will ensure optimal efficiency and performance.

✓ STEP 1 - Upgrade From Wrapped To Notched Style V-Belts

Many technicians, maintenance personnel, facility managers, and building owners are simply unaware how easily and quickly they can improve v-belt efficiency. For example, the average big box store can upgrade from a wrapped style v-belt to a notched v-belt and instantly gain about 3% efficiency. At an electricity rate of 12.8 cents a kWh, that's a payback of about 13 days!

Special Note: The U.S. Department Of Energy (DOE) recommends replacing wrapped style v-belts with Notched/cogged v-belts to improve efficiency. (DOE/GO-102005-2060)

Save the Green®



Check out our Save The Green video at www.regalpts.com or visit us on YouTube* at Channel "Thepowertransmission"

i Notched v-belts are an energy responsible substitute for wrapped style v-belts

NOTCHED BELTS | UPTO 98% Efficient



WRAPPED BELTS | UPTO 95% Efficient



Based on independent test results

REGAL™

✓ STEP 2 - Replace Worn Sheaves

Worn sheaves (sometimes called pulleys) are a frequent source for efficiency loss. Over time friction between the sheave and the belt erodes sheave material no differently than water would erode a rock in a stream. When sheaves become worn the sides of the sheave angle start to cup and have a concave appearance and the belt has less area of contact with the sheave and slips (see figure 1). Energy efficiency is then quickly eroded. A 6% loss in efficiency due to belt slippage for a single 20HP drive operating 7 days a week 24/7 at 12.8 cents a kilowatt hour translates to approximately \$511.92 in added electricity charges.

Heavily worn sheaves are quite visible to the eye and even to the touch as you run a finger in the groove wall. However, many sheaves can appear acceptable, but actually are worn. When a straight edge or groove gauge is placed in them it becomes more apparent. In order to maintain efficiency sheaves should be replaced once $1/32''$ or more of wear is visible. (Typically after every 5-7 annual belt changes).

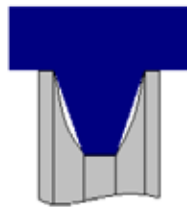
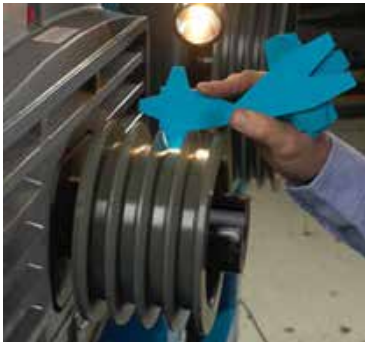


Figure 1

Worn Sheave



Browning Sheave Gauge
Part #2695179



Figure 2

Acceptable Sheave



A 10-minute installation and website maintenance video is available to view on our web site www.RegalPTS.com

Video location path:

- Go to www.RegalPTS.com
- Click Search/Download from the Product Literature tab on our homepage
- Click the dropdown arrow and select Video's
- Click Submit
- Double Click on V-belt installation and tensioning video

✓ STEP 2 - Properly Tension Your V-Belt Drive

V-belt drives function as a result of friction, which occurs as the belt sidewall is wedged into the sheave groove. As tension is placed on the belt, it wedges itself down into the sheave groove and creates friction. Insufficient tension on a v-belt will cause it to slip. This slip can often be heard at motor start-up as a chirp or squeal. Slipping belts erode efficiency, generate added heat, alter the driven shaft speed, and can prematurely fail.

More Information...

The following paths will lead you to additional
information helpful in facility energy audits

- U.S. Department Of Energy – DOE/GO-102005-2060
www.eere.energy.gov
- Save The Green energy responsibility flyer. (form #'s MCF08073 and MCF08024) – offers energy responsibility in three easy steps.
- Save The Green energy video. www.youtube.com The powertransmission channel or Browning Save The Green
- Belt Efficiency Calculator - iPhone* App downloadable at the App Store* for iPhone, iPod Touch*, and IPAD*.
- On Line - Belt Efficiency Calculator. Available at www.RegalPTS.com – allows user to quickly calculate the savings benefit of converting from wrapped style v-belts to cogged or “notched” style v-belts.
- Belt drive maintenance and installation video. Available at www.RegalPTS.com or on CD by request.
- Sheave Wear Technical Bulletin (#1007) – offers explanation of groove gauge usage and sheave wear dynamics. Available from Application Engineering.
- Belt Drive & Bearing Reference Guide (Form #8932E) – offers basic product information, installation information, preventive maintenance, and troubleshooting tips in a pocket size format



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Future article ideas or questions can be
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