Replace Standard Motor Belts with Notched V-Belts

All ECM content was independently developed and reviewed to be vendor, product and service provider-neutral.

Description

Installing notched V-Belts, also called cogged V-belts, will increase motor efficiency for motors used to drive various hospital heating, ventilation and air conditioning (HVAC) equipment.

Project Talking Points

- Standard belt efficiency for a motor is approximately 95% when new. However, slippage over time will bring efficiency closer to 92%. Notched V-belts operate with 97% efficiency, run cooler and last longer while using the same pulleys.
- Notched V-belts have shown to have paybacks in the six-month range.
- Engage those responsible for purchasing to avoid any confusion.
- Synchronous V-belts can also be considered, as they are even more efficient than notched V-belts. However, they may require a pulley change.

Triple Bottom Line Benefits

- **Cost benefits**: Notched V-belts are a low-cost item with a six-month payback.

- **Environmental benefits**: A reduction in energy and longer service life will reduce waste and decrease energy use.

- **Social benefits**: Reductions in hospital operating costs will result in a decreased cost to consumers and more funding for patient care. Longer service life will decrease maintenance burden and reduce interruptions to patient care.

Purchasing Considerations

Ensure new belts will not require a change in pulley as this could add significantly to the upfront cost. Update inventory logs and notify purchasing of the change. If the facility uses a computerized maintenance management system (CMMS), ensure this is updated to reflect the change.

How-To

1. Engage the stakeholders responsible for purchasing general maintenance items. If the facility changes their own belts, this could be the maintenance manager or the hospital’s purchasing department. It could also be an outside contractor if they are the ones performing the equipment maintenance.
2. Make a selection of the appropriate notched V-belt based on the specifications of the existing belt. This could simply be replenishing stock as existing stock of standard belts are used as not to waste current stock.

3. Replace existing V-belts with a notched version as needed.

Case Studies
- U.S. Department of Energy
  - National Renewable Energy Laboratory (NREL) Study on Notched V-Belts

Resources
- Midwest Energy Efficiency Alliance: Cogged V-Belt Pilot Program

ECM Synergies
- Practice preventive maintenance of major HVAC equipment.

ECM Descriptors

Energy
Category List:
- Building and maintenance
- Controls
- HVAC

ECM Attributes:
- Basic device upgrades
- System upgrades

Improvement Type:
- Retrofit/renovations
- New buildings
- Operations and maintenance (O&M)

Department:
- Engineering/facilities management