TEAM UP FOR ENERGY SAVINGS

Fans and Pumps

Saving the environment and saving money can be as easy as replacing a worn-out drive belt. That means you're on the front line for energy-saving opportunities. Team up with co-workers to spot ways to reduce the energy your fans and pumps use – it's good for the environment and good for your bottom line.

Get moving with energy savings

Check out your fans and pumps. Proper maintenance will save energy by ensuring that air or water flows efficiently through your systems. Pump up the savings even more by properly sizing electric motors and drives. To conserve energy and cut costs, consider three main areas:

1. Housekeeping

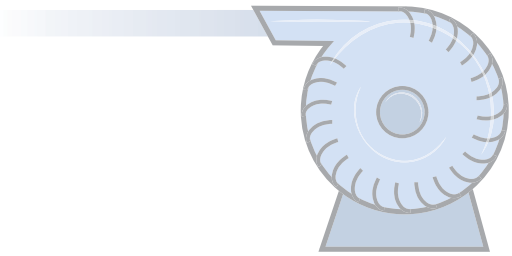
- Inspect and maintain fans and pumps. Implement a program of inspection and prevention maintenance to minimize component failures.
- Check and adjust belt drives regularly.
- Clean and lubricate fan components.
- Correct excess fan noise and vibration.
- Clean or replace air filters regularly.
- Clean ductwork, and fix duct and component leaks.
- Maintain clearance tolerances at pump impellers and seals.
- Clean pump impellers, and repair or replace them if eroded or pitted.
- Shut down fans and pumps when they aren't needed.

2. Low-cost opportunities

- Streamline air-duct connections to reduce losses.
- Optimize airflow, by balancing dampers in their maximum open positions for balanced air distribution.
- Replace packing-gland pump seals with mechanical seals, which require far less pump power.
- Trim the pump impeller to match system flow rate and head requirements.

3. Retrofits

- Install variable speed motors and drives so the flow of air or water can be adjusted to changing requirements.
- Replace outdated units with more efficient and correctly sized equipment.
- Consider decentralizing a major system into sub-systems that serve their own specific requirements.
- Consider controlling the ventilation system with ultrasonic occupancy sensors – this saved one manufacturer 50 percent of operating costs.
- Consider installing a computerized energy management control system.
- Consider installing variable voltage, variable frequency inverters to allow motor speed to be continuously varied to meet load demand – power savings range from 30 to 60 percent. For more information on variable frequency drives, see Natural Resources Canada's Variable Frequency Drive video at: oee.nrcan.gc.ca/industrial/equipment/vfd/vfd-video.cfm.



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Evaluate your fans and pumps

1. Are drive belts on all fans and pumps in good condition and adjusted to the correct tension?

❑ Yes Check regularly.

❑ No Replace worn belts, using matched sets in multiple-belt drives. Adjust tension correctly.

Done by: _____

Date: _____

2. Do any fans or pumps produce excessive vibration or noise?

❑ Yes Find and fix the problem as soon as possible.

❑ No Check regularly.

Done by: _____

Date: _____

3. Are air filters clean?

❑ Yes Check regularly.

❑ No Clean or replace clogged filters as soon as possible.

Done by: _____

Date: _____

4. Are there any design flaws in the conveying system, such as bottlenecks that restrict flow?

❑ Yes Consider hiring a consultant to evaluate the system.

❑ No No action required.

Done by: _____

Date: _____

5. Do air or water flow requirements vary?

❑ Yes If flow rates vary consistently, consider using variable speed drives or motors.

❑ No If flow rates are consistently lower than your pump and fan capacity rates, consider using lower-capacity equipment.

Done by: _____

Date: _____

6. Are any pumps fitted with packing-gland seals?

❑ Yes Consider replacing these pumps with new units with mechanical seals.

❑ No Inspect seals often for leaks; replace leaking seals as soon as possible.

Done by: _____

Date: _____

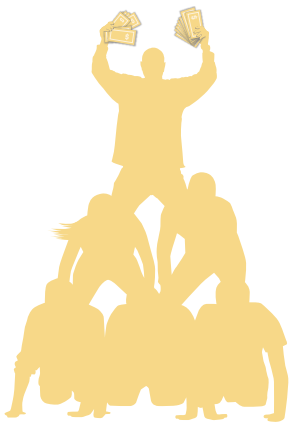
7. Are the drives on large fans and pumps low-efficiency?

❑ Yes Consider replacing low-efficiency drives with new, higher-efficiency ones.

❑ No Watch for equipment improvements and update drives when it makes sense to do so.

Done by: _____

Date: _____



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