



An inadequate guard on a small heating system pumps. The shaft is exposed on both the motor and pump sides of the coupling.

## Machine Guarding of Rotating Shafts

Rotating shafts on machinery are dangerous. Even slow moving or smooth shafts can cause serious injury or death. Even if located in locked mechanical rooms or pump stations, employees are exposed to the hazards of falling/stumbling into them or having clothing caught in them. Small motors can remove fingers and grab clothing, causing serious injuries. Any motor over 8 hp can haul a person through a very small opening, with horrible results.

In municipalities, motor driven shafts are commonly found in water and wastewater treatment plants, pumping stations and in building mechanical spaces. It is too common to find that guards removed for equipment maintenance have not been replaced.

Guarding of machine nips, points of operation, and power transmission equipment (such as shafts) is regulated by OSHA 29 CFR 1910 Subpart O. Some important considerations are:

- The guard must cover the whole shaft, to the degree that an open hand cannot slide in and touch the shaft.  
(Do not actually insert a hand unless the device is properly locked out!)
- The guard must be securely fastened in place with screws, bolts, or special clips.
- Do not forget the packaging gland area of a pump- there is an exposed shaft there too!
- Machinery must be locked out before removing guards and all guards must be replaced before removing lockout.

