Pumps and Fan System Check List

Energy Treasure Hunt

Best Practices

1.) **Turn off motors when not in use**

2.) **Size the motors correctly**

3.) **Use energy efficient motors**

4.) **Use cogged V belts or synchronous belt drives**

5.) **Trim impellers or use a VSD instead of using bypass or valves throttling (in cases of excess flow/oversized pumps)**

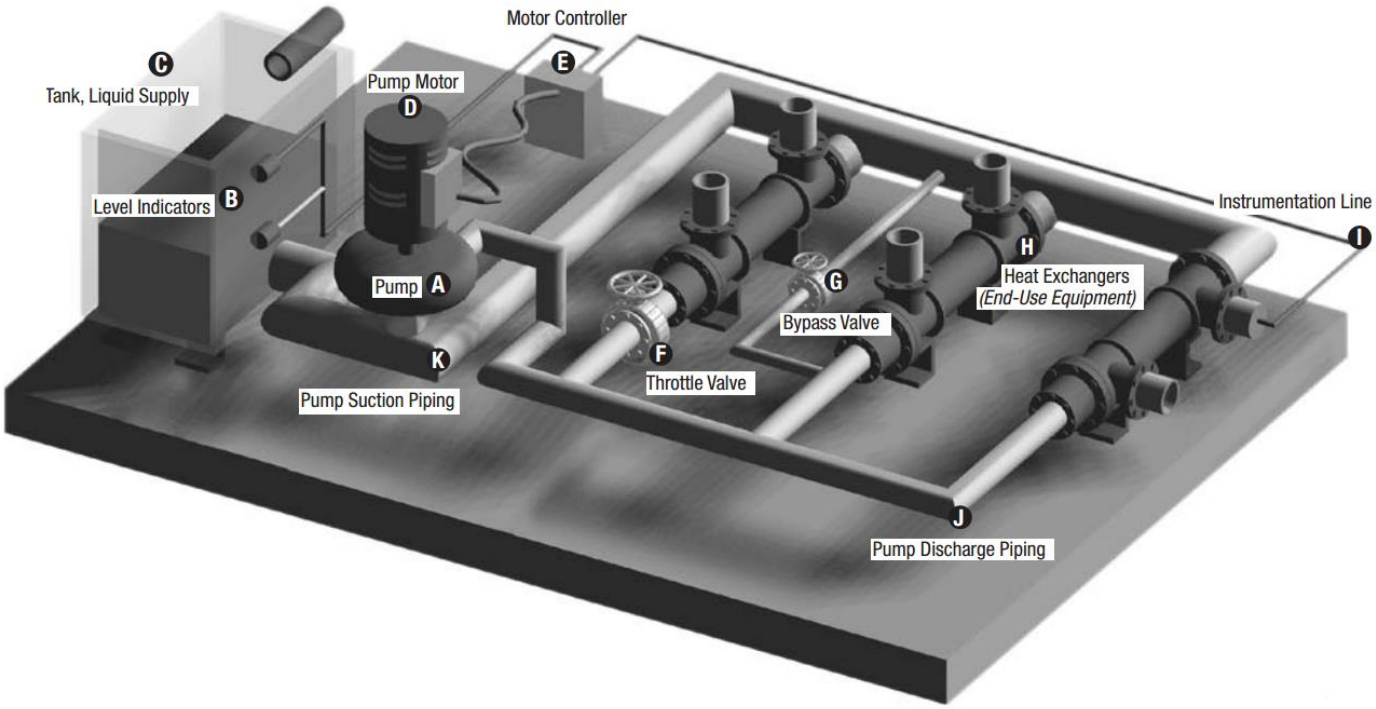
6.) **Use low head-loss fitting**

7.) **Reduce pipe/duct length and turns**

8.) **Reduce entrance/exit head loss**

9.) **Install variable speed drive (VSD)**

10.) **In intermittent operations, run motor slower and longer**



System	Things to Check	Comments
Pumps and Fans	• Opportunity with motor sizing	• Oversized motors consume more energy • Look into resizing the motor or apply variable speed control
	• Opportunity with motor efficiency	• Are NEMA premium efficiency motors used? • Are the motors the right type for the application, e.g. totally enclosed vs. partially enclosed?
	• Opportunity with motor control	• Is the equipment controlled for flow or pressure? Any throttling? • Is there more flow than required to meet system requirements? → Higher flow requires more energy
	• Opportunity with scheduling	• Can the fan / blower be turned off or down during low production times? • Can fan/pump be cycled with production throughput?
	• Opportunity with degraded motors	• Are the motors worn out/ eroded? → degraded equipment performance
	• Opportunity with optimizing pump flow	• Are pumps being run dead headed? • Suction problems – inadequate suction head, poor geometry, obstructions • Are there opportunities to reduce head? • Is re-circulation used instead of pump control?
System	• Opportunity with leaks	• Identify and fix air and water leaks
	• Are redundant units being run?	• Shut them down
	• Opportunity with optimizing duct/pipe sizing/ flow paths	• Are there any unneeded flow paths? → More work needed to overcome friction losses • Is there sufficient distance between fan and the first elbow tee? Fans need piping to be 3 x diameter of the fan blade before the first elbow tee to avoid system effect.