

Lower Pump Energy Costs

AIR AND DIRT PROBLEMS:

Water is one of the most efficient heat transfer mediums. Hydronic heating and cooling systems depend upon water for effective heat transfer efficiency. Air and dirt issues are common problems in many hydronic systems.

Without an effective means to eliminate the air and remove the dirt the systems heat transfer efficiency and pumping efficiency can be greatly reduced. Pumps operate by utilizing pressure differential, as the fluid pressure is lowered in the pump air is released.

Released air in the pump reduces pumping efficiency and causes noisy cavitation, pitting on the impeller and increases wear on all system components. Research has shown that only 2% air by volume in water will reduce pump capacity by 10%. While 4% air by volume in water will reduce pump capacity by 43%.

Noticeable issues include bouncing pressure gauges, leaking pump seals, gravelly sounds from pump cavitation and vibrating pumps.

BEST PRACTICES:

Traditional methods of air removal are often ineffective and obsolete. Filters removing particles (or “dirt”) treat the corrosion symptoms rather than the root cause (air) and are maintenance-intensive. Properly handled, upgrading to the current “best practice” in air and dirt removal is an exceptionally attractive financial investment with Simple Payback Periods less than one year in most scenarios evaluated.

The Spirotherm Spirovent® Air & Dirt Separator removes all visible air bubbles, up to 99.6% of dissolved air, and particulates down to the size of dust particles (~ 5 µm) in closed hydronic cooling and heating systems. The effective removal of these substances allows systems to operate air and dirt-free as designed and to be unhampered by the efficiency and performance robbing air and dirt that plague most systems.

ENERGY SAVINGS:

Spirotherm customers have documented significant system-wide improvements following Spirovent installations. Some of the case study results include decreased chilled water (CHW) pump speeds by 22% and pump motor HP's by 50%+.

Other notable observations include a reduced CHW system differential pressure sensor set point by 10 psig.

For additional information, contact your local Spirotherm Representative
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