APPLICATION TIPS

Using Automatic Valves to Determine System Pump Requirements

The pumps in most chilled water systems are over-sized for the head pressure. Trimming the pump(s) to match the requirements of the system can provide significant energy savings, but there are two prerequisites – the system must be balanced, and the amount of excess pump head pressure has to be determined.

Griswold Controls automatic flow limiting valves make it a breeze to meet these demands. First, the system is automatically balanced. Second, if the pump is perfectly sized, when every branch in the system is flowing as designed, the head loss across the flow control cartridge in the index or highest head loss circuit should be close to the cataloged head loss (our literature contains this value for every cartridge/valve).

For example, an Isolator R valve at 2-32 psid only requires 7.4 feet of head. For the valve in the index circuit, any head loss over 7.4 feet is extra and not required. If the head loss across the Isolator R is measured during commissioning and is 20feet then the excess pump head is (20 – 7.4) or 12.6 feet.

After making an allowance of a few feet for clogging of strainers, etc., the pump can be accurately trimmed. Not only will it save energy, but the reduced differential will improve the authority of every modulating control valve in the system.

In systems with variable speed pumping the pump control system should be automatically trimming the pump to match the system requirements, but measuring the pressure drop across the our valve can be used to check the set points for the pump control system are correct. Since pumping systems typically account for 10 to 20 percent of the total energy used in the chilled water system, end users can save considerable energy by accurately trimming their pumps.

Questions about this application? Contact info@GriswoldControls.com, call 949.559.6000 or fill out the contact form on this page.

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