Updated Monday, July 22, 2024

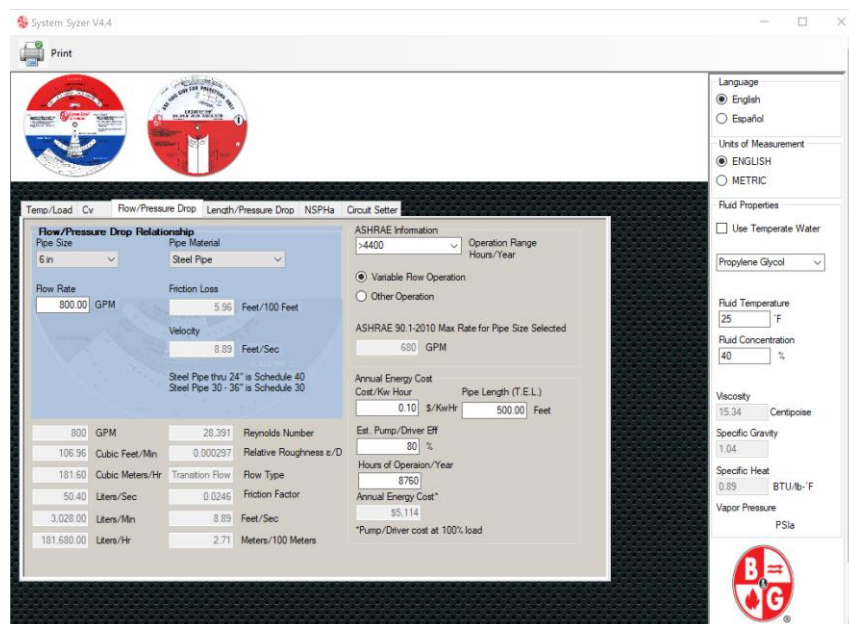# The Bell and Gossett System Syzer® – Fluid Correction Factors

Monday Morning Minutes | by R. L. Deppmann

In the last two MMM articles, we used examples of pipe selection for water and other fluids. Using the PC version of the Xylem Bell and Gossett System Syzer, we found our example of 800 GPM in 6" pipe produced a pressure drop of 4.03 feet/100 feet for water and 5.04 feet/100 feet for 50% ethylene glycol/water at 40°F.

We can use this valuable tool for another purpose. When using a fluid other than water in hydronic systems it is often necessary to correct a water pressure drop of a piece of equipment to the pressure drop for the fluid.

The Xylem Bell and Gossett manual TEH-176 Hydronic Antifreeze Design (no longer available, but ask your RLD sales rep for help) describes some approximate correction factors for 50% ethylene glycol. The manual indicates the correction factor for 40°F – 50% ethylene glycol is 1.22 in a heat exchanger. What happens if you need a correction factor for other fluids? The System Syzer can help!

Example: Let's assume our 800 GPM fluid is now 40% propylene glycol/water at 25°F. Using the methods described in the last MMM, we correct for the fluid type and find the pressure drop is now 5.96 feet/100 feet. Since the number was 4.03 for water, we can take 5.96 ÷ 4.03 = 1.48 and use it for our correction factor. This is an approximate correction since it changes with the Reynolds number and velocity throughout the system.

An engineer may find a situation where the system pressure drop is based on water and he or she is looking for a quick correction factor to change to another fluid. This method gives a quick multiplier to approximate the pressure drop change.

Next week we will look at the Cv portion of the System Syzer.

If you would like to download the electronic System Syzer, click here.

And a reminder that you can download a user's manual for the hand wheel here.