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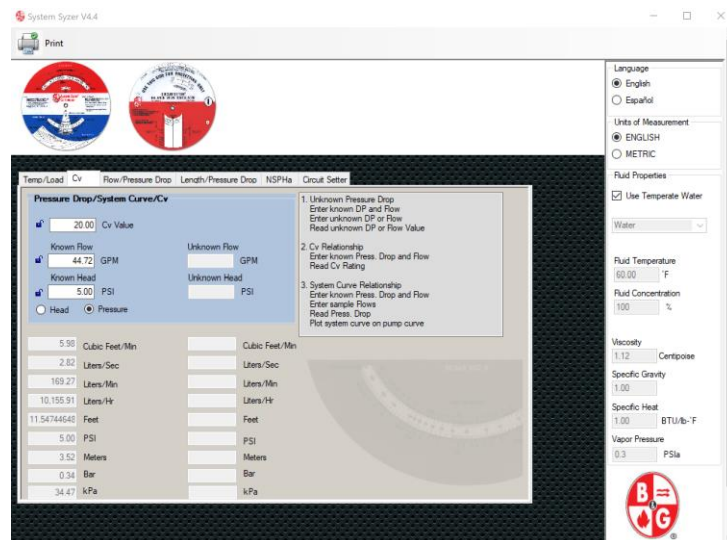
The Bell and Gossett System Syzer® – Using Flow, Pressure Drop and Cv

Monday Morning Minutes | by R. L. Deppmann

The Xylem Bell and Gossett System Syzer has a Scale 5 which may be used to determine pressure drop in a hydronic system when the Cv (called C sub V) of a valve or device is known. The Cv is the water flow, in gallons per minute (GPM), which causes a 1 PSI pressure drop.

If a hydronic control valve has a Cv of 20, then the valve will have a pressure drop of 1 PSI when 20 GPM flows through it. So, the units of Cv are GPM. Let's use Scale 5 on the B&G System Syzer® to find the flow rate if we have 5 PSI pressure drop across this valve that has a Cv of 20. Remember, in field measurements, the Cv was determined with the device fully open. Any field measurements where you are using Cv, you should have full possible flow. That means you'll want the controls to drive the valve to fully open when measuring.

Rotate the scale so that the Cv line, in the blue area, is lined up with 20 in the white section. Now you can look at any flow rate in the white area and find the pressure drop in feet above it and PSI below it. In our example, with 5 PSIG pressure drop across the valve, we see the flow rate will be about 47 GPM.



Conversely, if you know the flow and head of a device and you are asked about the Cv, you can use Scale 5 to find it. Let's assume you know a coil has a pressure drop of 6 feet at 200 GPM. What is the Cv of the coil? You guessed it! Take scale 5 and rotate until 200 GPM in the white section lines up with 6 feet above it in the blue area. Make sure you don't mix up feet and pounds. Now read the Cv in the white area. It is about 122. The electronic version of the System Syzer will give you exact numbers.

Next week we will use scale 5 of the System Syzer in a pumping application.

If you would like to download the electronic system syzer, click [here](#).