

Flow Coefficients

The flow coefficient (C_v) represents the flow rate in gallons per minute (GPM) at 68°F for which there is a 1 psi pressure drop across the valve in the **fully open** position. These values are determined from an industry standard testing procedure which uses water as the flowing media (specific gravity of 1.0). K_v is the metric equivalent.

Flow rate and pressure loss for different fluids is calculated with the formula:

$$f = sg \times \left(\frac{Q}{C_v} \right)^2$$

f is the pressure drop (friction loss in psi)

sg is the specific gravity of the fluid

Q is the flow rate in GPM

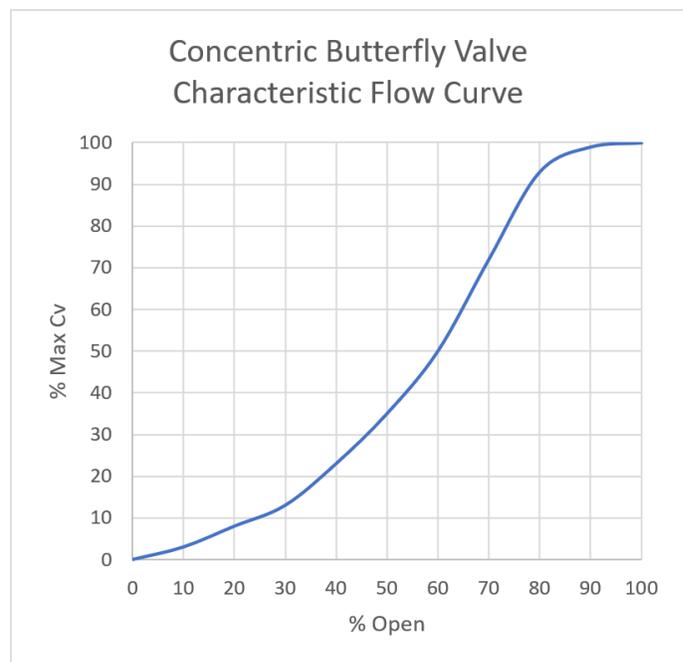
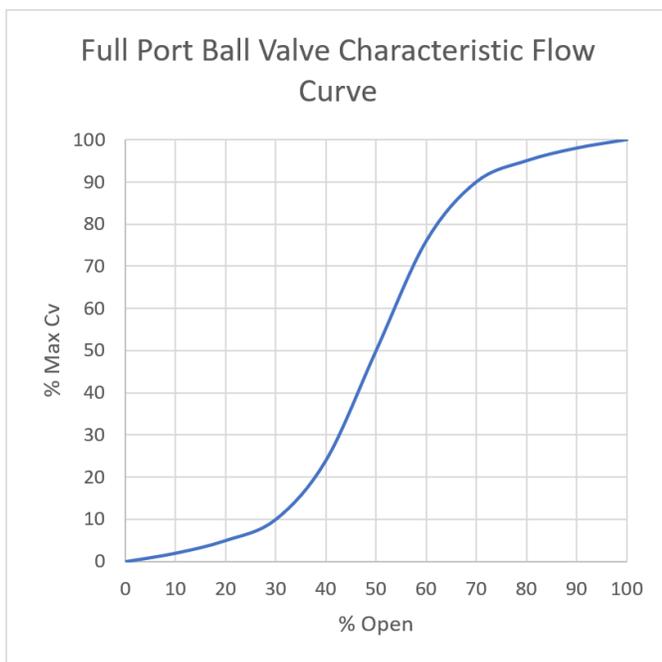
C_v is the flow coefficient

Flow Curve Charts

The following charts illustrate the theoretical interpretation of the C_v flow through the fully closed to fully open 90° cycle across our two major valve types. Valve-specific C_v information by size and type can be found in specifications/data sheets for each manual or actuated valve online. Manual valves may be set to any position between open and closed through the use of handles or gear operators.

Many valves are also available with positioners to allow users to automate the flow of their process media at any intermediate position shown.

Use the C_v formula and the charts below to help approximate the best sized valve for your application. Valve selection decision-making is solely the decision of a qualified purchaser. Actual flow characteristics when in operation may vary due to: end user's media selection, temperature or viscosity properties of the media, fluid boundary effect, or other variables - all of which could necessitate further refining to achieve desired results.



Note: % Open is the approximate percentage between 0% (fully closed) and 100% (fully open) of either: a ball valve's port, or the percentage a butterfly valve's % disc is open.