



## **Proper Sizing of a Regulator**

To properly size a regulator you must first know the following four parameters:

**Inlet pressure:** (Sometimes called P in) This is important in order to select the proper pressure rating of the valve as well as being necessary to determine the allowable pressure drop across the valve. Here in the United States, Pressure is commonly expressed in Inches of Water (" wc) for low pressure applications and Pounds per Square Inch (PSI) for higher pressure applications. (Note: 1 PSI equals 2.8" wc.)

**Outlet pressure:** (Sometimes called P out) This is necessary to select the proper spring range of the regulator along with the other piece in the puzzle for determining the allowable pressure drop. The smaller the allowable pressure drop is the bigger the valve must become, and vice versa. An application with a large drop across the regulator will have a much smaller regulator size.

**Flow:** This coupled with the allowable pressure drop (P out minus P in) and determines the actual size of the regulator body and valve orifice. The flow is commonly expressed in CFH or CFM (cubic feet per hour or minute respectively) for gaseous applications and GPH or GPM (gallons per hour or minute respectively) for liquid applications. When dealing with combustion or plumbing & heating, it is also very common to speak in BTUH, which is British Thermal Units per hour, or MBH which is thousands of BTUs per hour. Any of these can tie your flow back to a specific rate of gas flow.

**Application:** It is important to define the application with all of its special expectations. The materials of construction in a High Pressure Steam application would differ significantly when compared to a Low Pressure Natural Gas application. Also, if you're locating the regulator in the wall next to your boss's office, noise may be a consideration. Is it indoor or outdoor? Issues like that are worthwhile considering in defining your needs.

The important part is to provide your supplier or the engineer who is going to size the regulator with the above criteria. Anyone who advises you that this information is NOT necessary is misinformed and mistaken.

Please feel free to contact your Local Bryan Donkin Distributor or call 866-4 MY REGS for additional support in sizing and selecting your regulator.