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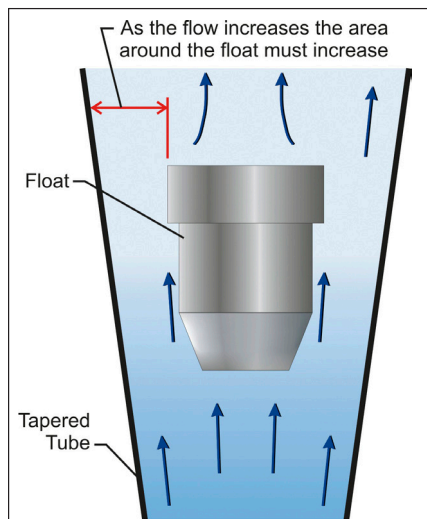
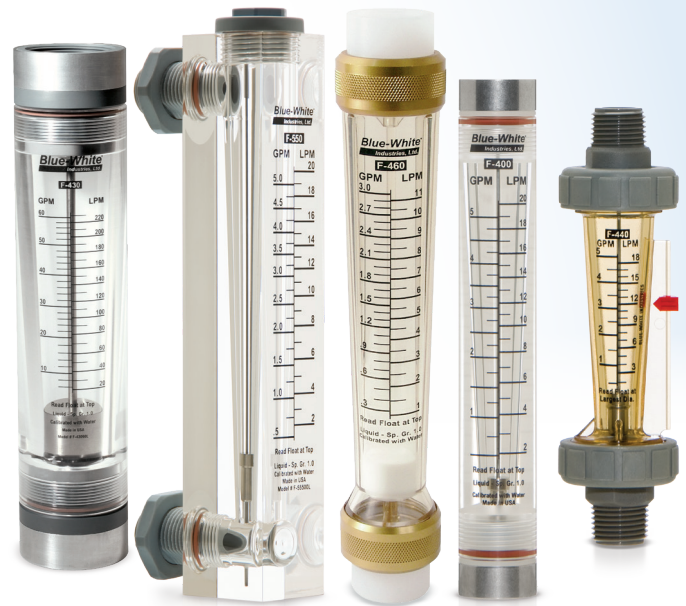
Variable Area Flow Meters Deliver Accuracy and Value

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Flow rate is a product of the velocity of a fluid and volume. Although flow meters may seem to be a modern development, basic types were evident as far back as the early Roman era. They were often used for measuring water flow to households, and the mathematical foundations of flow theory were evolved during the 17th century.

Today, there are many types of flow meters available: variable area; positive displacement; ultrasonic; and mass flow meters, to name a few. Each type has its special features, and there is no one, universal or perfect flow meter appropriate for all industries. The correct flow meter for the job is the one that will perform adequately and efficiently in the system where it is being used, and at a reasonable cost.

Variable Area style flow meters offer several advantages over some more costly and technical types, making them the flow meter of choice for many flow measurement applications.



How They Work

Variable Area Flow Meters utilize a vertically tapered tube through which the fluid to be measured passes, from the smaller diameter end of the meter vertically to the larger diameter. As the fluid flows through the tube it forces an indicator (float) upward. The clearance space (area) between the float and tube increases as the float approaches

the top of the meter. This increasing area requires a larger amount of fluid to force the float higher. By varying the taper of the tube, the mass of the float, and the length of the tube, different flow ranges can be calibrated.

The variable area flow meter must obviously be plumbed into a piping system properly: that is, with the narrow part of the taper at the bottom. In the case of Blue-White flow meters you will note that, printed directly onto the tube are the flow increments (scale). The flow rate is read by matching the increments on the tube with the edge of the float.

Competitively Priced and Suitable for Many Industries

In recent years, variable area flow meters have become very competitively priced, and because these meters offer such excellent value, more manufacturers of water treatment systems are including them as part of their standard package.

The makers of ultra filtration equipment (reverse osmosis systems) use flow meters to measure output through the membrane, and also to measure reject. The meters play a critical role in helping to monitor the efficiency of the system.

Flow meters offer an advantage over pressure gauges in filtration systems because they measure actual flow; as the filter becomes saturated (full), the flow rate drops, so, just a glance at the flow meter tells the operator if the filter needs cleaning, cartridges need replacement, or if there may be another problem, such as a tear in the filter material or a broken pipe.

Ultra pure water is used extensively in the manufacture of printed circuitry (cleansing of computer chips in particular. Flow meters are used both in the manufacturing and management of deionized water.

Solar-panel manufacturers recommend certain flow rates for optimum performance. Variable area flow meters allow the installer and operator to monitor flow economically, thus enabling critical process adjustments to be made.

Accuracy & Repeatability

Without proper knowledge of what these terms mean, it is easy to overbuy, or under buy a Flow Meter. It's important to understand the terminology used in the flow industry to avoid being misled. In plain terms accuracy really means error. Flow meter manufactures may simply state their flow meter is 2% accurate, you need to question that statement, 2% of what? Indicated flow? Or 2% of full scale? These two seemingly similar accuracies are very different and could be costing you extra money.

Repeatability is different than accuracy and in many cases more important to industry. Repeatability is the meter's ability to reproduce flow rates consistently under the same conditions. Repeatability is paramount in the processing industry where tracking flow changes is crucial.

Many circumstances can affect flow meter accuracy, for example, specific gravity ('weight') of the liquid will affect the flow meters' reliability and accuracy. Viscosity, the degree to which a fluid resists flow under applied force, also affects accuracy, as do elevated temperatures.

Compatibility

Be certain to check chemical compatibility. Don't rely on compatibility charts, do your own testing. Many flow meter manufacturers are willing to provide material sample kits to assist in conducting these tests.

Blue-White recommends you seek assistance from your supplier to ensure you select the correct flow meter for your particular applications' conditions.