Fluid Viscosity & Flow Capacity

In an effort to determine the flow capacity of filter it is important to consider the viscosity of the fluid being conditioned. Pressure drop (ΔP) produced by flow through a filter is directly proportional to the viscosity of the fluid. At a set flow rate, a fluid with a lower viscosity will produce less pressure drop (and greater flow capacity) than that of a fluid with higher viscosity.

Fluid Viscosity & Temperature

A fluid's viscosity is governed by its temperature. As a fluid's temperature increases, its viscosity decreases. Fluid manufacturer's viscosity charts should be used to determined the viscosity of the fluid at its normal operating temperature.

Estimating Pressure Drop (ΔP)

All pressure drop data found in this catalog is based on 150 SUS oil. If the fluid to be filtered in your application has a viscosity of 150 SUS and a specific gravity of 0.9 at the system's normal operating temperature, the pressure drop values can be taken directly off the graphs. For fluids that do not match, a quick estimate can be determined by the following:

$$\Delta P_{Estimated} = \Delta P_{Graph} \times \frac{\text{System Viscosity (SUS)}}{150} \times \frac{\text{System Specific Gravity (SG)}}{.9}$$

Filter Application Guidelines

Filter Type	Max. ΔP at Normal Operating Temperature	Max. Line Velocity (ft / sec)
Suction Strainers	1" Hg (1/2 PSI)	5
Suction Line Filters	≤50% of max. allowed by pump manufacturer	5
Return Line Filters*	≤50% of filter by-pass valve	15
Pressure Filters	≤50% of filter by-pass valve	25

* Return line filters should always include a by-pass valve. Flow intensification should also be considered.