



FILTERS AND ELEMENTS

DESIGN TERMS AND CHARACTERISTICS

Absolute Filtration Rating: The diameter of the largest hard spherical particle that will pass through a filter under specified test conditions. This is an indication of the largest opening in a filter element.

Beta Ratio (b-Ratio): The ratio of the number of particles greater than a given size in the upstream of influent fluid to the number of particles greater than the same size in the downstream of effluent fluid, under specified test conditions.

Bubble Point: The differential gas pressure at which the first steady stream of gas bubbles is emitted from a wetted filter element under specified test conditions. A form of filter element fabrication integrity test.

Bypass Valve (Relief Valve): A mechanism to assure system fluid flow when a pre-selected differential pressure across the filter is exceeded; the valve allows all or part of the fluid flow to bypass the filter element.

Cleanable: A filter element which, when loaded with contaminant, can be cleaned by a suitable process and returned to service with an acceptable percentage of its original dirt holding capacity.

Collapse Pressure: The maximum pressure that an element can withstand without permanent deformation.

Differential Pressure: The difference in pressure across any two points of a system or component.

Disposable: A filter which is intended to be discarded and replaced at the end of its service life.

Effective Area: The total area of the filter medium exposed to fluid flow.

Efficiency: The ability of a filter to remove a specified artificial contaminant at a given contaminant concentration under specified test conditions. Expressed as a percentage.

Element: The porous device that performs the actual process of filtration.

Filtration: The physical or mechanical process of separating insoluble particulate matter from fluid, such as air or liquid, by passing the fluid through a filter medium that will not allow the particulate to pass through it.

Fluid Compatibility: The suitability of the filtration medium and seal materials for service with the fluid involved.

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Housing: A ported enclosure which directs the flow of fluid through the filter element.

Indicator, Differential Pressure: A device that signals the difference in pressure between two points, typically between the upstream and downstream sides of the filter element.

Mean Filtration Rating: A measurement of the average size of the pores of the filter media.

Media Migration: Release into effluent fluid of actual components of the filter medium.

Medium: The porous material that performs the actual process of filtration.

Micrometre (mm): A unit of length. A micrometre is a millionth of a meter or 0.000039" (29 millionths of an inch). 25 micrometres are approximately equal to a thousandth of an inch (.001").

Multi-Pass Test: The test used to determine the beta ratio of an element.

Nominal Filtration Rating: An arbitrary micrometre value indicated by a filter manufacturer. Due to lack of reproducibility, this rating is deprecated.

Permeability: The relationship of flow per unit area to differential pressure across the filter medium.

Pleated: A filter element whose medium consists of a series of uniform folds and has a geometric form of a cylinder, cone, disc, plate, etc. Synonymous with "convoluted" and "corrugated."

Pore: A small channel or opening in a filter medium which allows fluid to pass.

Pore Size Distribution: The ratio of the number of holes of a given size to the total number of holes per unit area expressed as a percent and as a function of hole size.

Porosity: The ratio of pore volume to total volume of a filter medium expressed as a percent.

Rated Flow: The optimum flow rate for which a filter is designed.

System Silting: The agglomeration and settling of ultra-fine particles in a fluid system.

T-Type Filter: A filter in which the inlet and outlet ports are located at one end of the filter with the major axes of its ports in a straight line and with the filter element axis perpendicular to this line.

Thermal Lockout: A device that prevents the actuation of the signal button in a differential pressure indicator below a preset temperature. Used to prevent false indicator actuations during periods of high fluid viscosity such as experienced in starting a cold system.