Liquid Filtration General Description

Definition
Liquid filtration is the removal of solids from liquids by flowing the contaminated liquid through a filter media that will retain the solids and allow only clean product to pass through.

Filtration Function
Using a surface filter medium to remove a volume of solids from a liquid requires that the medium should contain uniform pores smaller than the smallest particle to be removed. It should also be strong enough and possess sufficient area to hold the required volume of solids.

If a depth-type medium is used, the medium must contain an infinite number of small, irregular, continuous passages which give the solids a tortuous path to travel through. A depth medium of proper density will stop essentially all solids above a specified size.

The medium selected must withstand the manufacturer's required maximum allowable pressure drop and provide a margin of safety to cover both inadequate maintenance and line pressure surges commonly found in systems as a result of stops and starts. Facet uses both types of media in its product range.

General Applications
- Removing solids that may damage the aesthetic appearance of a product.
  Example: Solids in paint, bleach, liquid soaps, vinegar, plastic resin for use in plastic extrusion products.
- Removing solids which could affect chemical reaction of a product.
  Example: Catalyst fine in a refining process.
- Removing solids that could damage operating equipment.
  Example: Abrasive contaminant in hydraulic and lubricating oils.
- Removing solids that could affect a finished production item.
  Example: Contaminant in grinding and cutting oil of production equipment.
- Removing solids that could in some way affect the health of operating personnel.
  Example: Radioactive waste in primary coolant system on boiling water reactors and clean-up water in water reactor system.

Proper Selection Of Filters
Selection of media and vessel design determine the filter flow rate, dirt holding capacity, particle-size removal in one pass, overall cost of operation and initial investment.

Replaceable cartridge-type filters have wide usage and can be used in most any application. The two most important factors to consider when determining whether to use a replaceable cartridge-type filters are the **concentration of the solids to be retained by the filter and the required degree of filtration.**

Cost Of Filtration
One realistic method of determining the "true cost" of filtration is the cost per pound of solids removed from a liquid. The four factors that make up this "true cost" are:

1. Cost of media (cartridges)
2. Cost of service parts (gaskets, etc.)
3. Cost of maintenance labor
4. Cost of downtime to service or maintain (value of lost production)

By totaling these four factors, determine a unit base as cost per pound, per gallon, per barrel, per year, etc. Although the cost of new equipment may vary, the "true cost" to the user is based on a cost per pound of solids removed. However, the achievement of a specific standard of quality cannot be measured by cost alone and this is the true value of a filter.

Capabilities
Today, more than ever, quality-conscious customers expect, and efficient plant operations dictate, the removal of solid contaminants from liquid products or processes. Filtration of particles too small for the eye to detect is essential to protect and improve quality, assure customer acceptance, prevent malfunctioning of equipment and reduce wear on machinery.

Facet filtration equipment has been designed for easy maintenance. The many easy service features reduce downtime and labor cost in maintaining equipment. These costs are important in evaluating both initial and future operational expenses.

With nearly 60 years of constant research, product development and quality controlled production, Facet offers you maximum dependability, quality, innovative engineering and service.

Due to our continuing program of improvement, specifications are subject to change without notice.

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