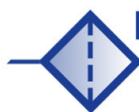


A Buyer's Guide To Liquid Process Filters



European Filter Solutions Ltd

Filter solutions for Industry

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A Buyer's Guide To Liquid Process Filters

When it comes to selecting a filter, it's vital to ensure you not only choose the proper type of filter for the removal of contamination from your liquid stream but also make sure that it meets the various requirements and needs of your system.

The type of filter you require will vary depending on the industrial application you're using it for. Proper filtration selection includes assessing the size of particles to be captured, the media and the operational costs that will be involved. While there are multiple brands who manufacture filters, including Pall, PTI, Eaton, and our own European Filter Solutions, there is very little difference between premium brands such as these.

Liquid cartridges and bag filters are specially designed to be placed in a filter assembly - or housing - in order to remove contamination from the fluid. There are various types of liquid filters to choose from and ultimately it is a matter of finding the technology best suited to the performance needs and operating budget of your application.

To select the most cost-effective filters for your application you will need to gather some basic system information such as:

- Flow Rate
- System Pressure
- Temperature
- Fluid Viscosity (a fluid data sheet would be ideal)
- Current fluid contamination level
- Cleanliness level required

This information will assist you in making an informed decision as to the type of filtration which is best for your system.

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For this guide we are concentrating on 3 different types of filter housing types and the type of filter medias they use.

- Liquid cartridge filter housings
- Liquid bag filter housings
- Self-cleaning filters / automatic backwash filter assemblies

Liquid Cartridge Filter Housings and Filter Elements

The cartridge housings can be made from a wide variety of materials including carbon steel, stainless steel, plastics, polypropylene and super alloys such as Inconel. They can be designed to house either just one filter element or several elements.

The filter cartridges that fit into the housings also have a wide range of medias and micron ratings available; the media could be nylon or mesh, for example, and micron ratings start from sub 1 micron. The elements can be disposable or if made from mesh, can be removed, ultrasonically cleaned and then re-used, dependent on the filter element micron rating.

Liquid Bag Filters

These are very similar to the cartridge filters - the housings can be manufactured from the same materials, fitted with one filter bag or several filter bags and the bag filter itself can be made from the same wide range of filter medias. The bag can either be disposable or re-usable; although due to the low cost of some bag filters, these can be used in high contamination fluid streams.

Self-Cleaning Filters

The perfect choice for applications requiring little interruption or maximum uptime, self-cleaning filters are ideal when you have high disposal costs and filter media replacement, valuable process fluids, and/or there are concerns over exposing your process liquids to workers and the environment.

Self-cleaning filters come with a few choices, including mechanically cleaned filters which physically wipe away particles from the media using a scraper, or backwashing systems which use a reverse flow over a permanent filter media to regenerate.

Automatic Backwashing Filter

Automatic backwashing filters are used in systems that have a very high solids loading. They work most effectively with process streams of liquids with a high viscosity like that of water and flow rates that are between several hundred and several thousand gallons per minute.

Mechanically Cleaned Filter

There are a lot of industries that work best with mechanically cleaning filter systems. In particular, systems that include high concentrations of solids or higher viscosities will benefit from mechanically cleaned filters. They usually have a lower capacity, where flow rates are concerned, than their backwashing unit counterparts and will operate best if used with retentions of at least 25 microns.

All technologies using self-cleaning filters operate through the use of pressure filters. This means that a certain level of pressure is required to operate them and that they will generate a waste stream that will need to be accommodated through either disposal or reprocessing. That said, a mechanically cleaned system will generally create a lower volume of waste as a percentage of your total process flow rates.

Summary

Disposable media filters offer systems that utilise cartridge- or bag-style filters which are available for a wide range of media compatibility. The filter micron ratings have a wider range than backwash filters and disposable filters allow more control at the lower-end cleanliness levels.

Both cartridge and bag filters are roughly comparable in terms of price, while systems that are self-cleaning come with higher costs initially. However, it is important to consider the overall operating costs of your filtrations system, including running costs, maintenance costs, downtime costs.

Still unsure on which filter is best for your system?

Why not give us a call so we can discuss and advise!

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