

HARMSCO®

About Filtration

Selecting Filter Housings and Cartridges

Many factors must be considered when selecting the appropriate filter housing and cartridge element for new filter applications. The following is a list of basic reasons for considering filtration in your process:

**Clarification
Classification**

**Equipment Protection
Sterilization**

**Product Standardization
Re-use of Liquids or Solids**

**Energy Conservation
Pollution Control**

Cartridge Element Selection

► **1 - Determine the nature of the contaminant.**

First determine exactly what you want the filter to remove and whether the material is hard, fibrous or gelatinous. This is very important because some types of filters work better than others for each contaminant type. For example, you wouldn't want to use a screen filter to remove a gel because the gel would, under pressure, break apart or pass through the screen.

► **2 - Degree of filtration required.**

In general, the finer the filter the more it costs. Therefore, the most economical filter selection is accomplished by determining exactly what removal rating is required to do your filtration. In some cases, where the filters are protecting an operation or piece of equipment, this can be easily accomplished, but in most applications where filtration is used to refine a product, testing a variety of media is the best method for this determination. If this is the case, your local Harmsco® representative can help in the testing process.

► **3 - Compatibility of the filter element.**

Be certain to include the operating temperature, pressure and application in this determination.

► **4 - Overall cost of operation.**

Include labor and cost of disposal in this calculation. Sometimes the filter element that may cost a little more to purchase may be easier to dispose of or lasts longer. For example, one HC/170 Series Hurricane® cartridge is equal to 43 standard 9-3/4" pleated cartridges. The Hurricane® cartridges cost more to buy, but cost less to use, resulting in lower operating cost.

Filter Housing Selection

► **1 - Filter Housing Materials.**

Filter housing materials must be compatible with the process in which it is being used. Be sure to include operating temperature, pressure and regulatory requirements imposed by local, State and Federal agencies.

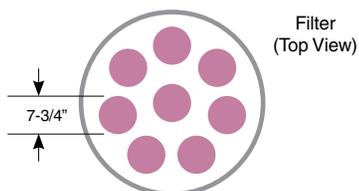
► **2 - Filter Housing Sizing.**

Flow requirements, solids loading, viscosity of the material being filtered and pressure drop requirements will determine the number (or size) of cartridges (surface area) needed and thus the size of the filter housing. Always oversize your filter housing by 25-30% allowing for future growth and efficiency.

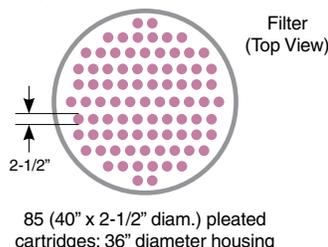
Surface Area Comparison

When filtering sediment, sand, grit or any other contaminant where "filter cake" can build on the cartridge media, it is Harmsco's view that pleated cartridge elements offer the lowest cost per filtered gallon. This is based on run time, pressure drop and efficiency. The following diagrams compare the Harmsco® Hurricane® System vs. standard housings with 2-1/2" diameter cartridges. Parameters below are based on 1,360 sq. ft. of media (surface area) at 840 gpm with a flow (flux) rate of 0.6176 gpm per sq. ft. of media.

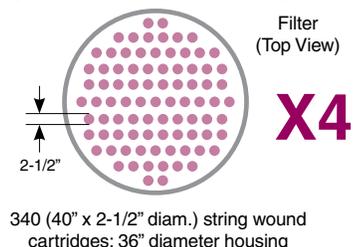
Hurricane® High-flow Pleated System



Competitive Pleated System



Competitive String Wound System



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