

Quality Filtration Made Simple.

The JONELL “W” Pleat is a fully automated variable pleat positioning technique which can drastically increase effective surface area, optimize path of flow, and increase solids holding when correctly applied. Although it is not a new concept in pleating, few filter manufacturers have the required equipment capability, and an even smaller number of element design engineers know how to properly apply it.

As requirements grow for larger filtration capability in smaller equipment sizes, and demands of the filtration industry evolve, JONELL continuously strives to lead the way in filter innovation. Multiple styles JONELL “W” Pleating upgrades are available today. Contact Jonell today to learn if your application is a candidate.

DESIGN BACKGROUND

As shown in Fig 1.1, traditional pleated filter elements usually consist of a single layer of rated media in which the height of all pleats are equal. This design is very functional in many cases, but can also restrict the amount of surface area which can be placed into some filters. The cause of this restriction is simple geometry. As pleat height increases, the difference in internal circumference and external circumference also increases:

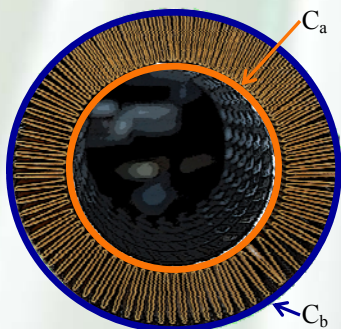


Fig 1.1 - Traditional pleating scheme

Example 1.1 ► Circumference = $\Pi * \text{Diameter}$, ($D_a = 3''$, $D_b = 6''$)

$$C_a = \Pi * 3'' = 9.4'' \quad \blacksquare \quad C_b = \Pi * 6'' = 18.8''$$

By using common ID/OD dimensions of 3” and 6” respectively in the above example, we find the inside of this cartridge has approximately one half the available area for pleat support as in the outside of the element. New cartridge designs are moving to larger diameter elements, taller pleat heights, and thicker new hybrid or multi-layer filtering medias.

This equates to a huge difference in circumferential area on the ID vs. OD of the element. Therefore, in a traditional pleating configuration, it is easy to surmise that the surface area and solids handling capability is ultimately dictated by the element inner diameter.

THE “W” PLEAT ADVANTAGE

Why Upgrade to “W” Pleated Cartridges ?

- Increased effective surface area.
- Increased solids holding.
- Decreased flow resistance. By varying pleat height, a reduction in pleat density on the element inside diameter creates more open flow channels reducing flow resistance. This equates to comparatively lower pressure drops across the element support plate during operation.
- Increased consistency in mean pleat density from the inside diameter to the outside diameter. Even pleat density results in more even void space distribution. By controlling void space, solids or “cake” formation is more evenly distributed on the porous wall of a pleated filter, reducing unused filter media and further increasing capacity for solids retention.



Fig 1.2 - Basic Single Tier “W” Pleat

The fully automated “W” Pleating process allows for 100% consistency in product reproducibility. To further insure superior product quality, JONELL implements the ISO-9001:2008 quality management system into our every day manufacturing activities.



CUSTOM PLEATING
VARIABLE PLEAT CONTROL

JONELL, INC.

Telephone: 254-559-7591

Fax: 254-559-9863

Email: sales@jonellinc.com

www.jonellinc.com