

# Screen Pack Selection

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The first job is to select the correct screen to achieve the desired final filtration level. Typically, screens are defined by the number of wires per inch or "mesh," and this screen mesh is determined by trial and error, until the final product is considered clean. One thing to be aware of is that all meshes are not created equal. For instance, the space between the wires (which determines the size of contamination filtered) for a 100-mesh screen can vary from 0.005" to 0.0078", depending on the wire diameter used. When changing screen suppliers or reordering screens, make sure the wire diameter of the new screen is the same as the one being used. Another point is that smaller wire diameters typically give a higher open area, so a higher mesh screen, with smaller wire, may have the same space between wires as a lower mesh screen. With more holes per inch and higher open area, the finer screen would perform better, with lower pressure drop and longer life. For example, a 200-mesh screen with a 0.0021" wire diameter has 0.0029" holes and is 34% open, where a 230-mesh screen, with 0.0016" diameter wires has 0.0028" holes and is 40% open. With more open area and with almost 13,000 more holes per square inch, the higher mesh screen will hold more contamination and last longer between screen changes.

Now to design the screen pack. The screens between the finest screen and the breaker plate have two functions: to support the finer screens, and to space them from the breaker plate to improve polymer flow through the screens. The screens in front of the finest screen are used to catch the larger particles to extend the life of the screen pack and to make the screen pack more rigid. A 20-mesh screen is typically used for the outside of the pack and can support up to a 150-mesh screen, depending on the extrusion pressures. Finer screens will need an additional support screen to avoid screen "blowout," which is where the wires separate under pressure, allowing larger particles to get through. Packs can be spot welded together from the supplier and a symmetrical pack is recommended, so it cannot be installed backwards into the screen changer. With a finest screen of 250-mesh, a typical pack would consist of the following screens: 20/100/250/100/20 mesh. A properly selected screen pack can help insure the quality of the end product, while minimizing the operator attention required to change screen packs.

- Dana Darley LCI Corp.

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