

Bleach Filter System

The Powell self-cleaning filter system is a horizontal vessel of titanium construction manufactured to ASME specifications.

The unit consists of a gear-driven manifold, which is mounted horizontally and held in a packed gland in the rear dish. The gear drive is mounted on the rear platform and transmits power by chain and sprocket to the manifold.

The manifold holds the circular-shaped leaves, which are covered by 2 layers of filter cloth. A spray manifold carrying special two-way jets is mounted above the leaves. The unit is typically equipped with a bolted cover.

Operation

If your system permits an internally sluiced cake and a wet sludge discharge of the solids, then a self-cleaning filter is indicated. After precoating, the raw stock is pumped through the leaves and out the rear end of the rotatable manifold. Usually some form of body feed is required and after the cake space has been used up, the unfiltered heel is expelled to raw storage.

Cleaning

A combination of sharp liquid spray and a rotation of the manifold removes the cake. The cake on the leaves is in this way carried counter clockwise up and into the direct downward sluice from the sprays. This means that all sections of the filter surface receive the same impact, which action is impossible in any conventional vertical leaf, which happens to be equipped with an overhead sluice bar. In such an arrangement the sluice water tends only to erode the cake on contact, not slice it away. The spray header on the self-cleaning model is an integral part of the vessel, usually removable. Each jet requires 6 to 10 gpm, and rotation at 3 rpm usually cleans the vessel in five minutes.

Filter Plates

The filter contains grey polypropylene filter plates covered with white polypropylene filter cloth.

Clarity and Brilliance

A wide selection of filter-aids, such as diatomaceous earth and Perlite, is available to be used alone or in combination. Not too much stress, however, can be put on the many advantages of a well-blended precoat. All too often this valuable fiber is premixed with other filter-aids, destroying its prime function - that of protecting the life of the costly leaves.

Practically all liquids can be filtered with a uniformly high degree of clarity and brilliance by the proper choice of filter-aids. However, the best that any filter can do is provide a mechanically sound, leak-proof device to hold back the precoat and body feed powders with as little pressure drop and complication-free parts as possible.

Auxiliary Tanks

The precoat tank functions as a container for the mixing of the filter-aid and re-circulation while the precoat layers are being formed on the leaves. Sometimes it can serve as the body feed vessel also, but it is less complicated from the operator's point of view to keep the precoat fibers away from the feed pump for fear of clogging and also to be able to maintain a constant control and mix on the feed solution. A smaller vessel equipped with its own agitator and feed pump serves this purpose.

Pressure Drop

High flow rates at remarkably low pressures are obtained on a pressure leaf filter. A starting operational pressure drop from 2 to 5 psi is normal, climbing to 30 psi differential at the end.



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