

NASH Vacuum Pumps & Compressors for Tray Filter Applications



Tray Filters

There are two basic types of tray filters. Both use indexing with the "vacuum on" during filtration and "vacuum off" during the short tray retraction time. The operation sequences of each are below:

Reciprocating Trays Type

When trays are in forward stroke, they are under vacuum and the filtration cycle takes place. The trays move together with the filter cloth and cake until they reach the foremost position.

On the return stroke, the trays retract very quickly while vacuum is off. The cycle then repeats.

Fixed Trays Type

With the filter cloth remaining stationary and the trays under vacuum, the discharge roll in the foremost position moves slowly backwards, so that the cake falls into the chute.

At the same time, the slack take-up roll is in its uppermost position and moves slowly down by gravity to keep the cloth tight.

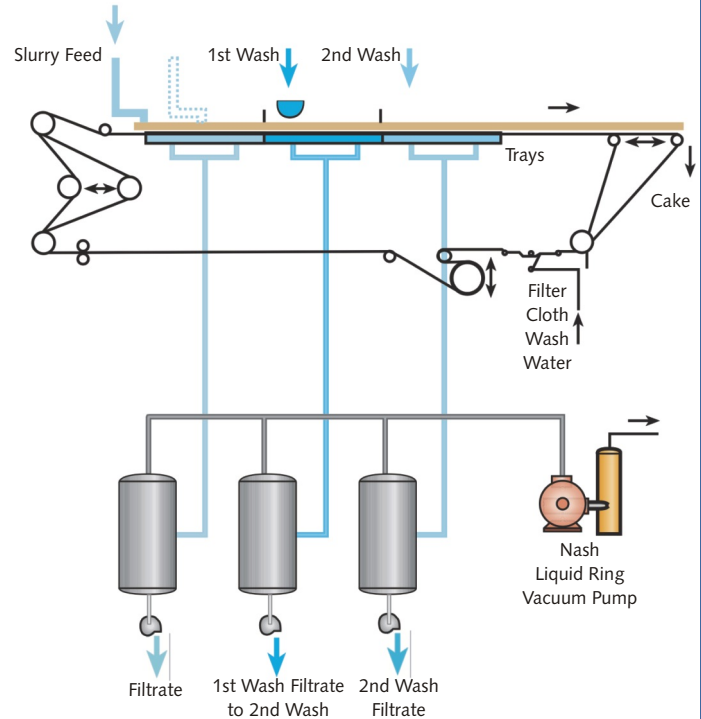
Also during this period, the solenoid valve opens the water to the wash manifold and the cloth is cleaned by high impact flat jet nozzles to dislodge any solid particles that are remaining in the cloth.

When the discharge roll reaches its backmost position, vacuum is turned off to enable the cloth to move one pitch forward.

Vacuum is cut off and the trays are open to atmospheric purge to allow the movement of the cloth. At this point, the discharge roll moves very quickly forward and pulls the cloth with its cake by one pitch. Also, a ratchet locks the cloth locking roll so that the cloth is kept tight by the upwards movement of the slack take-up roll.

Typical Applications

- Dewatering very dense or granular materials
- Sugar Cane
- Paper mills recausticizing



Selection Criteria

- Suitable for highly corrosive applications
- Sealing against loss of vacuum is simple
- Expansion is made easy by modular construction
- Separation of filtrates is sharp and accurate
- Better than rubber belt filters when two vacuum zones required
- Lower power consumption
- More likely to feature gas tight enclosures, compression rolls and blankets, thermal drying, vibrating trays, and chemical or ultrasonic cloth cleaning



Tray Filter Vacuum System

Photo courtesy of Larox



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