

WATER AND MECHANICAL TECHNOLOGY S.R.L.

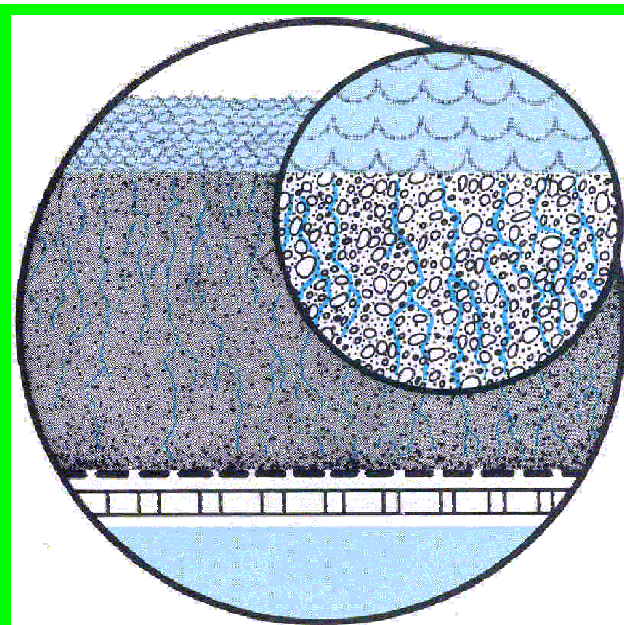


LIQUID VACUUM WEDGE WIRE

The Liquid Vacuum Wedge Wire (LVWW) is a filter designed to handle a wide range of applications, and meet exacting standards in each service. It can remove particles down to 1 μm size, and do it at flow rates up to 40,000 l/min. In an alternate mode of operation, the filter can de-water sludge or extract solids from process liquid where flow rates may be as low as 20 l/min. The Liquid Vacuum filter is uniquely designed to maintain a continuous flow of liquid, thus it can function as a self contained filtering package that save floor space and the cost of auxiliary equipment. Holding tanks are not normally needed, thus the volume of liquid required for closed loop systems is little more than the volume of the filter, plus the piping.

Only one system pump is needed to both pull vacuum in the filter and deliver a pressurized supply of liquid downstream. It is the vacuum operation of this filter that makes many Liquid Vacuum features possible, it allows the main tank to be open so an integral drag chain can be included to carry out large solids and permits at the filter to accept and discharge liquid continuously, with no interruption of system flow for filter index.

The system can use disposable or permanent media. It's simplicity is at the heart of its long-life and low-maintenance promise.



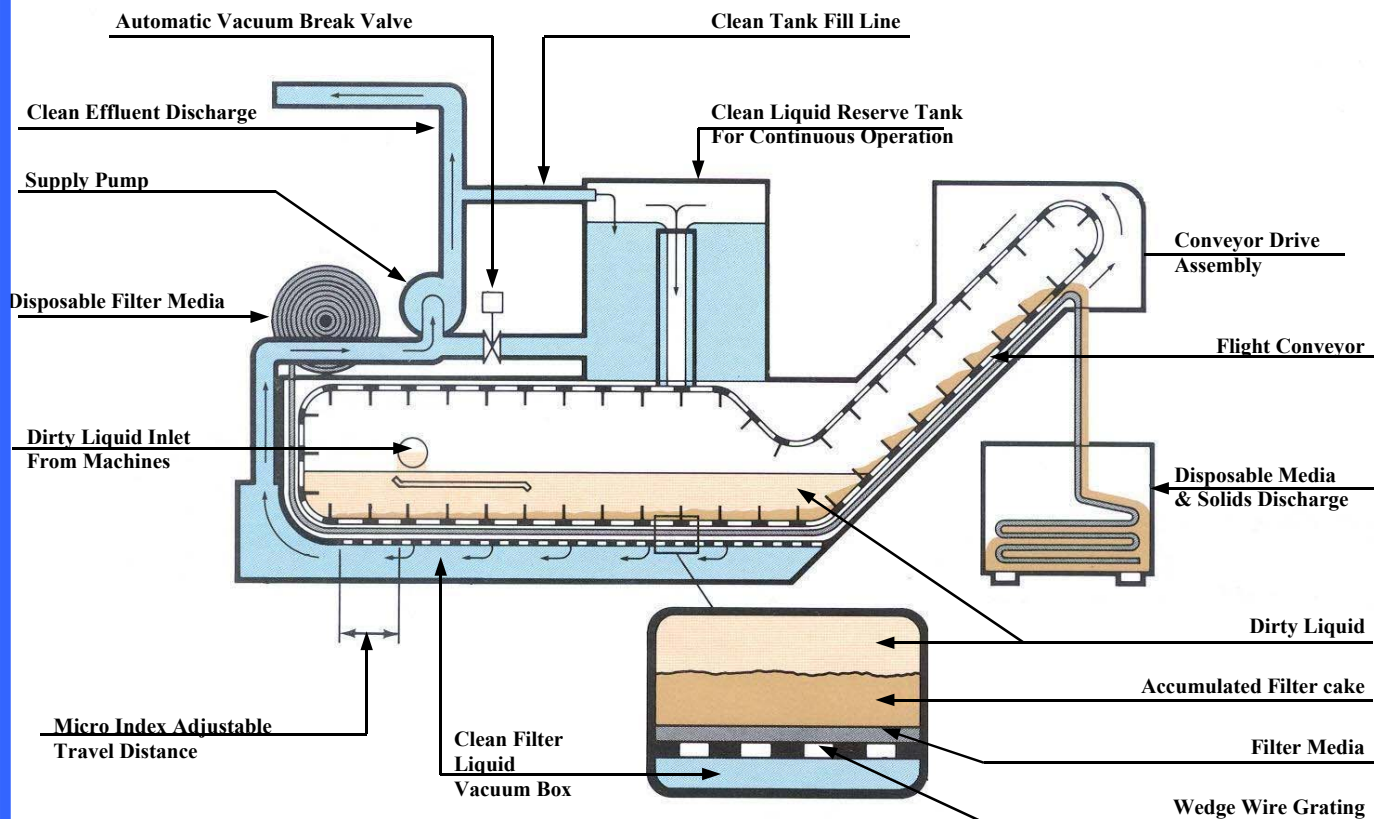
Consider briefly the part that filter cake plays in optimizing filter effectiveness. Good filter design almost always makes use of the accumulating cake of filtered out solids to tighten the clarifying effect of the basic filter medium. The cake gives a third dimension to the flat web of basic media, and smaller particulate is intercepted in this more intricate mesh.

Observing this scheme would state that if the cake can somehow be maintained near to the optimum thickness then average filter performance will remain very close to peak filter performance. During the installation and start up phases all the regulations will be made in order to obtain these results. The regulations should be tested after that all the system, Filter operation velocity flumes will be completely operative.

DUAL FILTRATION FOR CONTINUOUS OPERATION.

Liquid Vacuum system use a unique dual technique to filter and recirculate process liquid. As dirty liquid enter is drawn through the filter medium in the box from where it's continuously pumped to the machines. All the operations are PLC controlled. The filter index automatically starts when a preselected vacuum is reached, vacuum is eliminated by backflow of clean liquid into the vacuum chamber. The flight conveyor move a predetermined distance. When a permanent filter media (T.B.F.) is used, the backflow of clean liquid lifts retained solids from openings in the permanent media to prevent migration during indexing. During the short micro index cycle, clean liquid is drawn from a reserve tank to ensure a continuous supply to machines. Liquid Vacuum system built up a concentrated solids cake which enhances filtration. The micro indexing features permits retention of a concentrated solids cake on 90% of the filter area at all times. The filter's ability to develop greater vacuum differential as the silids cake ancreases maintains uniform flow through the media.

LIQUID VACUUM WEDGE WIRE. SCHEMATICS.

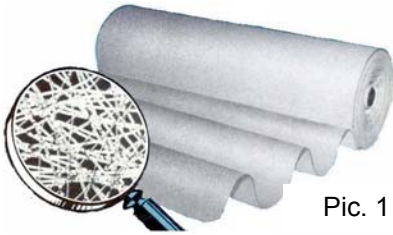


The above schematic suggest how this filter is especially suited for continuous duty as well as very fine filtration.

The filter never stops accepting dirty liquid at its inlet, and in never stops pumping clean liquid downstream. This performance stays steady because the filter employs a micro index for discharging solids. With this system, the flying conveyor and the media cloth travel forward only a few inches when solids loading calls for index. The index is so short and rapid that vacuum break is hardly more than a pause, and downstream flow is easily sustained from the reserve clean tank. The break of vacuum does occur, however, and that is important. It permits the cloth media to advance without damage. This vacuum break releases any particles trying to infiltrate the Wedge Wire grating slots, and aids the flights in sweeping the grating clean.

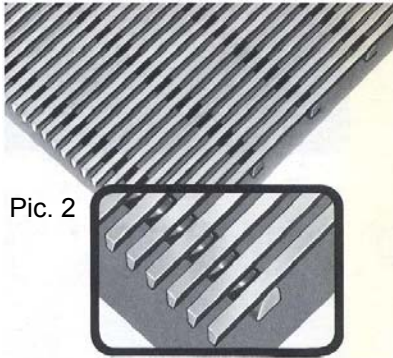
Micro index is also a reason for this filter's ability to hold back very fine particulate consistently. That is because micro indexing retains a mature filter cake on about 90% of the septum at all times. Furthermore the conveyor arrangement allows to create a skimmer type action to remove unwanted materials from the liquid surface. Note, also, how solids have ample time to drain and compact as the slowly move up the ramp prior to discharge.

FILTER MEDIA TYPOLOGIES



Pic. 1

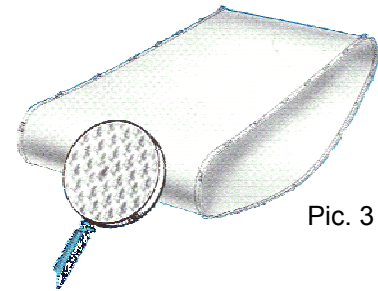
All Liquid Vacuum filters are equipped with Wedge Wire (from which the name Liquid Vacuum Wedge Wire) grating (Pic.2) that allows a right filter degree for all the operations in which a very fine filtration are no needed.



Pic. 2

When special operations need e very fine filter degree disposable media (Pic. 1) or permanent media (Pic. 3) can be use.

If the filter is equipped for the possible use of disposable media it can be work in a twice way: using only the Wedge Wire grating until the smaller particles (measured in P.P.M.) reach a warning value; using the disposable media to make a very fine coolant clarification.



Pic. 3

If the filter is equipped with permanent media it could also use the disposable one in breakage event of the permanent media to maintain a good coolant quality.

To make a correct economic balance on which media is better to use it is useful to consider that the permanent media life is between 6 to 24 monthes especially regarding the coolant condition. If there is a big value of bacteria pollution and/or tramp oil the media life is shorter with managing cost growing.

SERVICES



Some services complete our offered product range:

- Engineering and/or furnishing of coolant piping.
- Engineering and/or furnishing of chip conveyor, mechanic, hydraulic or mixed.
- Engineering and/or furnishing of chip treatment.
- Engineering and/or furnishing of Remote Installation Administration System RIAS®.
- Granulometric coolant analysis with CILAS 920 device



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