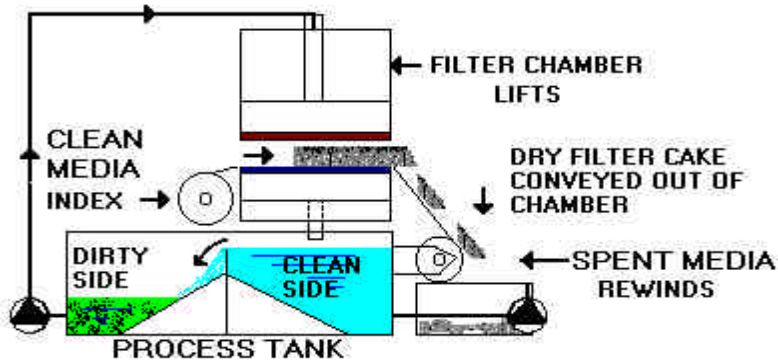


Pressure Filters



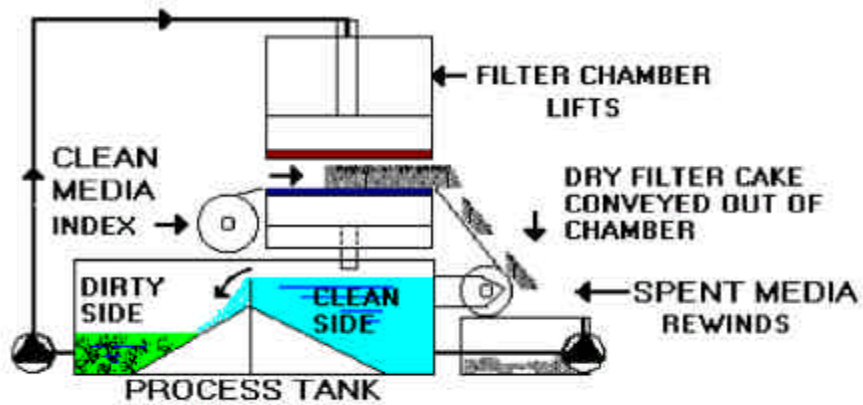
Principle of Operation:

Like vacuum filters pressure filters are easier to explain in a step by step logic. Unlike vacuum filters where coolant is sucked through supported media the pressure filter **pushes coolant through supported media at 35 PSI**. It is commonly known in the filter world that the filter media is only the initial barrier to begin the filtration process. As contaminants build on the media a permeable cake begins to form. In time the filter cake thickens to about two inches and that is when a true filter medium is at its optimum. The coolant in order to find its way out of the pressure chamber must past through deposited fines, wheel grit and a nonwoven barrier. As you can imagine any coolant making it through this torturous path will be fairly free of contamination. At the end of the filter cycle particle size has been measured at less than 5 micron and less than 200 parts per million. How does it work?

1. All pressure filters must have compressed air to operate. The air serves to provide for keeping the doors shut during the filtration cycle and to provide forced air during the blow-down cycle. Usually the air requirements are a minimum of 95 psi @ 15 cfm. Naturally 230 or 460 volts are required to operate pumps etc. Today most control packages are PLC based.
2. Contaminated coolant is usually pumped to the filter tank (the dirty side).
3. Most pressure filters have two sided sloped bottom tanks. This helps in preventing sludge build up in the tank and in directing dirt to the filter supply pump intake.

4. A filter supply pump pushes the contaminated coolant into the pressure vessel. The coolant is met internally with a diffuser which spreads the coolant and dirt evenly over supported media (supported by wire cloth). The support structure is called a platen.
5. The pressure filter operates on time or pressure. Usually the timer is a twenty four hour base. And the pressure read will operate at a range of from 5 psi to 50 psi. Generally pressure filters index at 35 psi. Beyond that pressure premature wearing of the filter supply pump is noticeable and in addition chamber fatigue can lessen filter life.
6. As the filtration cycle progresses eventually the media is blinded or unable to permit coolant to pass through it. At that time a pre set pressure differential switch reads a pressure drop and stops the filter supply pump. In the event the timer mode overrides a pressure set the same recycle procedure will occur.
7. Because filtration should never dictate manufacturing processes the tank design has a built in capacity to hold on the clean side adequate clean coolant to allow for as much a five minute blow-down.
8. Ok what's a BLOW-DOWN? As I mentioned earlier a benefit of pressure filtration is dry sludge. When all pressure conditions have been met or the timer has timed out. The pressure vessel not only has sludge in it but also is laden with coolant. A timed blow-down cycle is designed to force air into the chamber at about 90 psi or more to remove the coolant from the chamber and cake.
9. After the blow-down cycle is complete the chamber lifts the media indexes out of the chamber area (with the cake on top of it), the dried cake is separated from the media and falls into a tote box. The filter media rewinds on a motorized mandrel.
10. When the media index cycle ends the chamber door closes and the filter process begins again automatically.

PRESSURE FILTER IN INDEX MODE



Typical Applications:

- Grinding of all types. Centerless, Thru Feed, Cylindrical, Roll Grinding, Surface, Belt, Double Disc,
- Saws
- Plating
- Central Systems
- Saws
- Plating
- Central Systems

Coolants Used on Pressure Filters:

- Water Soluble
- Synthetic
- Semi-Synthetic
- Mineral Seal
- Water
- Straight Oil (viscosity over 100 @ 100°F)

Media Used on Pressure Filters:

- Regiment
- Composites
- Hydroguard
- Meltblown
- Polypoint
- Brigade

Note: Tensile strength plays a part in success of this media. The media is also the conveyer belt to remove the cake at the end of the cycle.