Permanent Media with Drag Filtration

Ecoclean PMD

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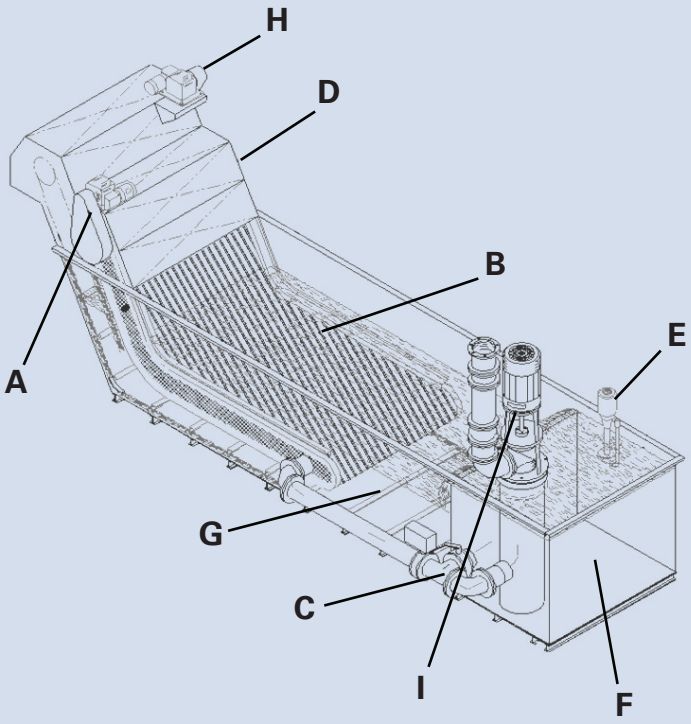
High-clarity filtration



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A. Filter belt drive assembly
B. Elevated vacuum box
C. 3-way vacuum break valves
D. Belt wash spray header
E. Belt wash supply pump
F. Clean tank
G. Full width drag
H. Drag drive assembly
I. Vacuum system pump

Technology

Ecoclean PMD filter unit combines the coolant filtration benefits of the Ecoclean SealTrack™ Endless Belt filtration in a filter tank equipped with an independent chain and flight drag conveyor. The independent drag conveyor assembly can be set up to run continuously or intermittently to remove chips that have settled to the bottom of the filter tank. The intermittent conveyor operation allows chips and swarf to sit on the inclined ramp of the tank for drainage of coolant.

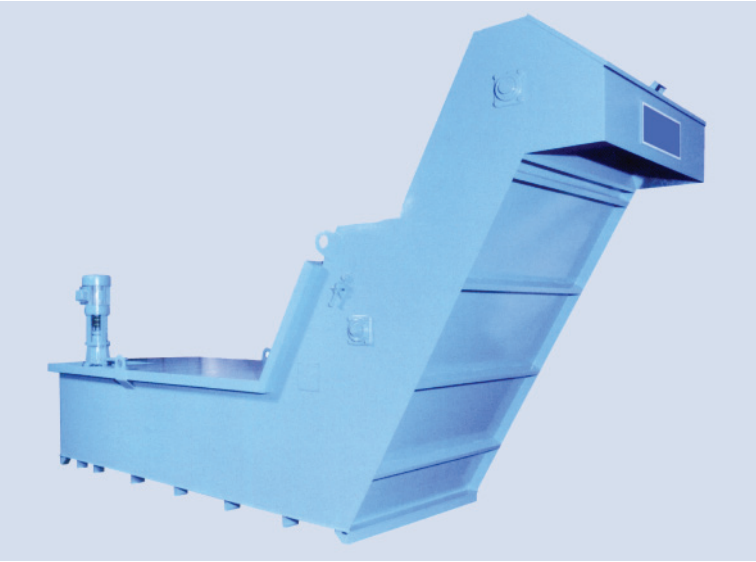
Process

A vacuum system pump draws coolant through the permanent endless belt media. As the fluid passes through the filter belt, particles collect on the surface and begin building a filter cake. As the cake continues to build, finer particles are captured improving the coolant clarity. This process continues until the filter cake begins to restrict the flow of coolant to the pump. At that time the filter commences an index cycle. The unit can also begin an index cycle according to a time limit or be manually indexed.

System operation

Filter mode

1. Contaminated liquid enters the filter tank inlet box.
2. Heavier particles fall to the full width drag conveyor while lighter particles stay suspended.
3. Flow is drawn through the filter belt by the vacuum pump which draws the finer particles onto the belt surface.
4. As these particles are drawn onto the surface they begin to build a filter cake.
5. As the cake increases it enhances the filtration process until it restricts the flow of fluid to the pump as sensed by the vacuum switch causing the filter to index.



PMD provides fluid filtration without the expense of disposable media

Index mode

1. Once the vacuum switch has sensed the pressure differential it opens the 3-way vacuum release valve.
2. As the valve to the vacuum box closes the valve to the clean reservoir opens allowing uninterrupted fluid supply to the vacuum pump.
3. After the vacuum is sensed to be released the belt drive is energized advancing a portion of new filter belt onto the vacuum box.
4. At the same time the belt drive is energized the belt wash supply pump is energized providing high pressure fluid to the spray header.
5. As the filter belt advances it passes the spray header cleaning it for reuse in the filter.

Capacity	
Flowrate	200 - 5,000 GPM
Filtration area	6 - 400 sq. ft. per unit

Many standard sizes of filter units are available and all are fully customizable to fit customer or application requirements. Systems can be installed above or below the floor and be sized to groups of machines, departments or entire plants.

Applications
Metal cutting industry: • filtration of water & oil based coolants • machining, grinding, lapping, honing & polishing
Stamping operations
Waste water

Permanent Media with Drag Filtration

Features

- Endless belt continuous filtration
- Patented positive mechanical seal on belt virtually eliminates migration even while indexing
- Full-width, independent drag conveyor handles heavy chip loads
- No risk of media cutting, tearing or wearing because conveyor does not ride on belt
- No manual fastening of belt for ease of installation/removal
- Shorter belt length saves replacement time and cost
- Belt returns inside the tank to minimize belt length and reduce drying which can shorten belt life
- In-tank belt wash station eliminates floor leaks/drips
- Quiescent belt wash area is ideal for removal of fines
- No special tools required for basic belt and screen installation

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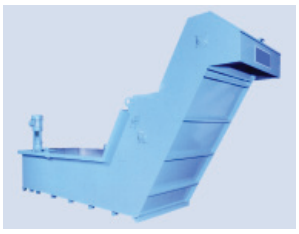

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