Lesser Time
Lower Cost
Simpler Operation

MacVital Automatic Backwash System

Automatic backwash system is a filtration system with filter, valve, instrument, pump, electric control and so on. The system is an important unit for liquid filtration, recycling, water treatment which is designed to replace traditional sand filter in various industries.

Applications

- **Food & Beverage**
  Beer, Wine, High Fructose Corn Syrup, Soft Drinks, Dairy, Juice, Bottled Water, Pre-RO.
- **Fuels & Chemicals**
  Chemical Plants, Refineries, Amines, Specialty Chemicals, Polymer, Oil Recovery, Petrochemicals, Film and Resins.
- **Microelectronics**
  Semiconductors, process chemicals
- **Energy**
  Nuclear, Cogeneration
- **Water Processing**
  Reverse Osmosis, Centralized Water Systems, Process Water, Municipalities, Desalination, cooling tower side stream filtration.

Features and benefits

- Special parallel filter connection. The system is good for continuous process. Filtration, backwash and drain process can perform at the same time.
- Automatic operation reduces manpower due to Less maintenance.
- The size of 60m3/h-260m3/h skid is only 5.6mx2.3mx2.2m, which can save a lot of space.

Sand Filter VS Automatic Backwash Filter

Filter Type	Sand Filter	Automatic Backwash Filter
Size for same design flow rate	2(sets)x3m(OD)x6m(H)	5.6m(L)x2.2m(W)x2.3m(H)
Filtration surface area	14m2	40m2
Disposal	Several tons of sands	52pcs cartridges, less than 50kg
Operation	Sand loss, channeling	Stable
Maintenance	Long shut down time	Easy and quick
Cost	High operational and maintenance cost	High capital investment with much lower operational cost
Filtration accuracy	15-20μm without flocculant	Up to 1μm
Backwash time	10 minutes, sand will loss at high backwash flow rate	Within 1 minute
Backwash Medium	Around 1.5% of total treated fluid	Much less due to small size

Multi-Media Filter VS Automatic Backwash Filter

Multi-Media Filter	Automatic Backwash Filter
Large diameter pipes, large tanks and large valves	Smaller size for same flow rate requirement
Division of the filtration area for several filters means more concrete walls and backwash channels	Can be designed without wall
Necessitating instrumentation to measurement and control the flow for each filter due to continuously changed hydraulic resistance	Much stable operation controlled by PLC
The BW flow is five times stronger than the normal filtration flow	Around 1.5% of total treated fluid
Underdrain structure is larger and more complicated	Easy discharge due to small backwash volume
Height of the standard pretreatment unit is approximately 5 m to meet requirement	2.3m only
Maintenance requires large amount of money and manpower	Simple element change-out

Equipment Data

Filtration rating	1~100μm
Dimension	5.6m(L)x2.2m(W)x2.3m(H)
Empty weight	4 tons
System inlet & outlet size	8" 150# SORF
Description	4 filters holding 13 cartridges each (40" cartridge). *The design is inclined to reduce height of system and ensure filtration performance.*

Technical Data

Flow rate	60-260m3/h
Design pressure	10bar
Design temperature	80℃
Backwash	Active By Pressure Drop or Time

Backwash pump

Pump Size	2x3 R	**Material**	SS316
Type	W-Centrifugal pump	**Power Rating**	30 hp
Speed	3500 rpm	**Impeller Size**	7 in
Voltage	230V/460V	**Frequency**	60 Hz

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