

RKSfluid[®]

Proven Technology - Superior Features
Legendary Value

MDS-CF Series
Modular Self-Cleaning Filter



RKS Environmental Science & Technology (Shanghai) Co.,Ltd.

Modular Self-Cleaning Filter



Modular self-cleaning filter Based on the concept of modular design, a certain number of standard filtration unit to composed into a full automatic filtration system. The system has a high safety factor and can flexibly increase the quantity of online filtration units according to the requirements of low rate. Full automatic operation, need not manual cleaning, the equipment has a good scalability, external high pressure backwash fluid can be used, low differential pressure working, backwash thoroughly, the loss of backwash water is less. The modular self-cleaning filter is designed to purify the fluid, protect the key equipment behind it, and also recycle the expensive solid particles by backwash liquid that be discharged from the drain outlet. The equipment is also suitable for the low viscosity liquids, such as: raw water, sewage, gasoline, heavy coking gasoline, diesel, residue and so on.

The filter has four products series, MDS-CFR series, automatic backwashing type by the filtrate; MDS-CFV series, automatic backwashing type by external clean fluid (liquid or gas), MDS-CFT series, manual backwashing type by the filtrate; MDS-CFG series, manual backwashing type by the external clean fluid.

Operating Principle

The liquid inflows from the inlet of main pipe, and flow into the inlet of each filtration unit. The liquid flows from the outside surface of the filter element to internal surface of filter element, and outflow from each outlet of filtration unit, and then, collect to the outlet of main pipe and flow out. The impurity is intercepted on the outside surface of the filter element and form the filter cake. The control system start the backwash processing one by one for each filtration unit when the differential pressure is reach the set value (Usually 70-130Kpa) or cleaning time period, When a filter unit is starting the backwash processing, the other filter units are still normal filtering process. According to different backwash liquid, the backwash processing is divided into: backwash type by clean filtrate and external clean liquid. Operating principle of Backwash is as follows:

Backwash type by clean filtrate

Filtration process: Open the valve of inlet and outlet, close the valve for backwash.

Backwashing process: Close the valve of inlet in a filtration unit by the control system. At the same time, open the valve for backwash process. Because of the differential pressure between the inside of the filter element and the outlet of the backwash (normal atmosphere), a part of the filtrate from the other filter units flows into the filter unit and finish the rapid backwash for the filter element, the impurity of outside surface on the filter element is washed away and discharged from the main pipe for backwash process, then, close the valve for the backwash and open the valve of inlet to continue the filtering operation; At this time, the control system will execute next backwash process for other filtration unit until all the filter units have been flushed one by one.

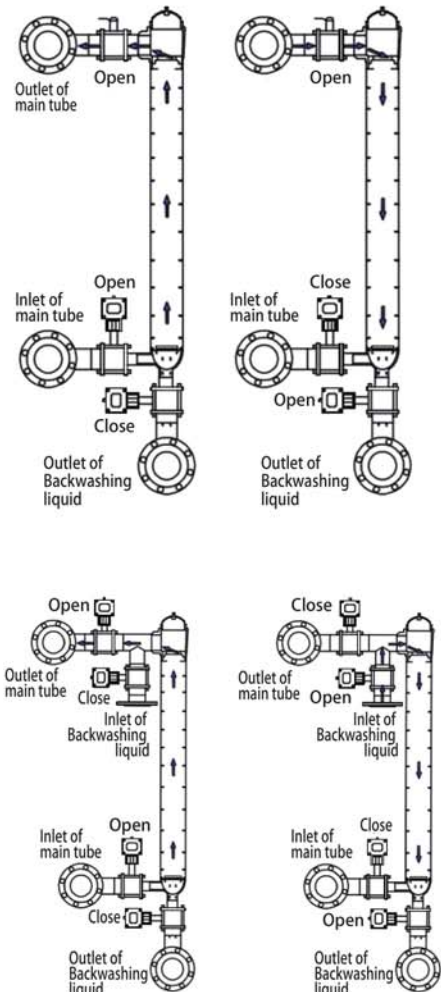
A backwash type by clean filtrate, be suitable for water and low viscosity liquid, the pressure requirements of inlet is more than 0.3Mpa (Depend on the accuracy, viscosity, there are some differences).

Backwash type by external clean liquid

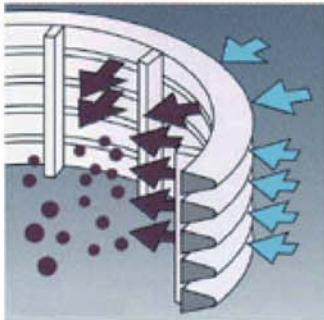
Filtration process: Open the valve of inlet and outlet, close the valve of inlet and outlet for backwash process

Backwashing process: Close the valve of inlet and outlet in a filtration unit by the control system. At the same time, open the valve of inlet and outlet for backwash process. Use the external clean liquid or gas to backwash the filter element, the impurity of outside surface on the filter element is washed way and discharge by the main pipe of backwash process. And then, close the valve of inlet and outlet for backwash process, at the same time, open the he valve of inlet and outlet and continue the filtration process; the control system will execute next backwash process for other filtration unit until all the filter units have been flushed one by one.

A backwash type by external clean liquid, be suitable for high viscosity liquid or the pressure requirements of inlet is less than 0.3Mpa (Depend on the accuracy, viscosity, there are some differences).



Configuration Instructions



V-SLOT Filter Element

MDS-CF series filters are equipped with top quality V-SLOT filter element, there are two optional types: A type, The filtration area is 0.267m²; B type, the filtration area is .314m²; B type is suitable for the filtration that the filtration precision is less than 100um; A type is suitable for the filtration that the filtration precision is more than 100um. it has the following outstanding advantages:

- ◆ V-shaped gap, not easy to be blocked by the impurities, maintain a stable flow in long term
- ◆ Be suitable for a filtration of microfiber, sludge type impurities, soft caking impurities
- ◆ high-strength structure, the mesh screen is not deformed
- ◆ can wear the high-intensity positive and negative pressure
- ◆ Accuracy range 25-500 microns
- ◆ Accurate gap width, the tolerance is less than 5 microns
- ◆ The material of body is 304,316L, excellent corrosion resistance
- ◆ The outer surface is smooth, the impurities is easy to scrape and clean

Optional Precision	Mesh (mesh)	600	500	400	300	200	150	120	100	75	60	50	40	30
	Micron (um)	25	30	37.5	50	75	100	125	150	200	250	300	375	500

ACS series Self-Cleaning Control System

ACS series Self-Cleaning Control System, based on Siemens PLC design, it can control our MDS-CF filter to run in a high-efficiency. If it is necessary, it can be customized to achieve DCS remote real-time monitoring. The control system reserve three connection port, and it can feedback the running status, backwash status, high differential pressure alarm.

Execute with the backwash function of differential pressure and timing, differential pressure mode for most occasions, is the most efficient mode, the pressure difference reflects the accumulation of filter cake on the outside surface of filter element, when the set value is reached, the self-cleaning process will be executed, suggested differential pressure to clean is 70Kpa and can be set at a range of 50 ~ 200Kpa . The timer mode can be set from 0 to 24 hours. If the pressure difference mode is disabled, the timing mode is still active. The cleaning cycle period setting should be close to the average period in a differential pressure cleaning mode.

There are two types of differential pressure execute (differential pressure transmitter, differential pressure switch), differential pressure transmitter can output real-time pressure difference value, high sensitivity and reliability, be convenient for DCS remote real-time monitoring; the other one Transmitter - Differential pressure switch with high sensitivity and long-term reliability, with two differential set points, the accuracy of set point is ± 5 Kpa, one for the cleaning pressure value (such as 70KPa), the other can be used as abnormal pressure difference is used to alarm (for example 0.2MPa), can be connected to DCS remote monitoring.



Technology Specifications

Type	MDS-CFR Filter	MDS-CFV Filter
Backwash medium	Clear solution filtered	Clear solution or gas from outside
Suitable viscosity	<50cps	<100cps
Impurity content	<300ppm	
Min Pressure demand in inlet	>0.3MPa	No special demand, <0.3MPa suitable
Installation location	Back of Pump	Front or Back of the pump
Filter precision	50-500um	25-500um
Pressure rating	1.6MPa, 2.5MPa, 4.0MPa	
Max Temperature	0-250°C (Depend on the sealing materials)	
Qty of filter unit	3~24	
Size of Inlet /Outlet	DN50 (2") , Max flow 25m3/h ; DN65 (2-1/2") ,Max flow 42m3/h	
Size of Backflushing valve	DN50 (2") ; DN65 (2-1/2")	
Filter Area /per unit	Type A : 0.267m2 ; Type B : 0.314m2	
Differential pressure of Backflushing	70KPa-130KPa	
Differential pressure of Alarm	200KPa	
Size of Inlet /Outlet (Main pipe)	DN65-DN400	
Flange type of Inlet/outlet (Main Pipe)	Loose flange, Carbon steel or Galvanized Flange	
Connection Standard of Inlet/Outlet (Main pipe)	HG20592-2009 (Standard, Compat DIN) ,HG20615-2009 (Compat ANSI B16.5)	
Material of element	V-shaped gap element, Material 304、 316L	
Material of shell	304、 316L	
Material of Sealing	NBR (Standard) 、 VITON (FKM)	
Control valve	Pneumatic Ball valve, IP Code:IP65, Seat:PTFE	
Power Source	220V AC, 0.4-0.6MPa Clean dry compressed air	
Control System	Simens PLC, Working voltage 24V, IP55	
Differential Pressure Transducer	Differential pressure Switch (Std.) or Transducer	

Note 1 : Max flow / inlet/outlet for each filter unit, Should be considered filtration precision, Viscosity and impurity content

Application

Application areas: Raw water treatment, Water treatment systems, Refrigeration systems, Power, Iron & steel industry, Paper, Mining, Petrochemical, Municipal water treatment facilities. Low pressure spray water, Sealed water, all kinds of raw materials oil (such as diesel, gasoline, naphtha, residual oil , etc.), Cooling liquid of Iron & Steel industry and so on.