

Automatic Self-cleaning Filter

Introduction

The automatic self-cleaning filter has functions of automated cleaning and drainage. It can be controlled by pressure difference or time and manual operation. There are many advantages, including high filtration accuracy, short self-cleaning time, low cleaning water consumption, and small pressure loss. It can provide reliable quality assurance for your water system.

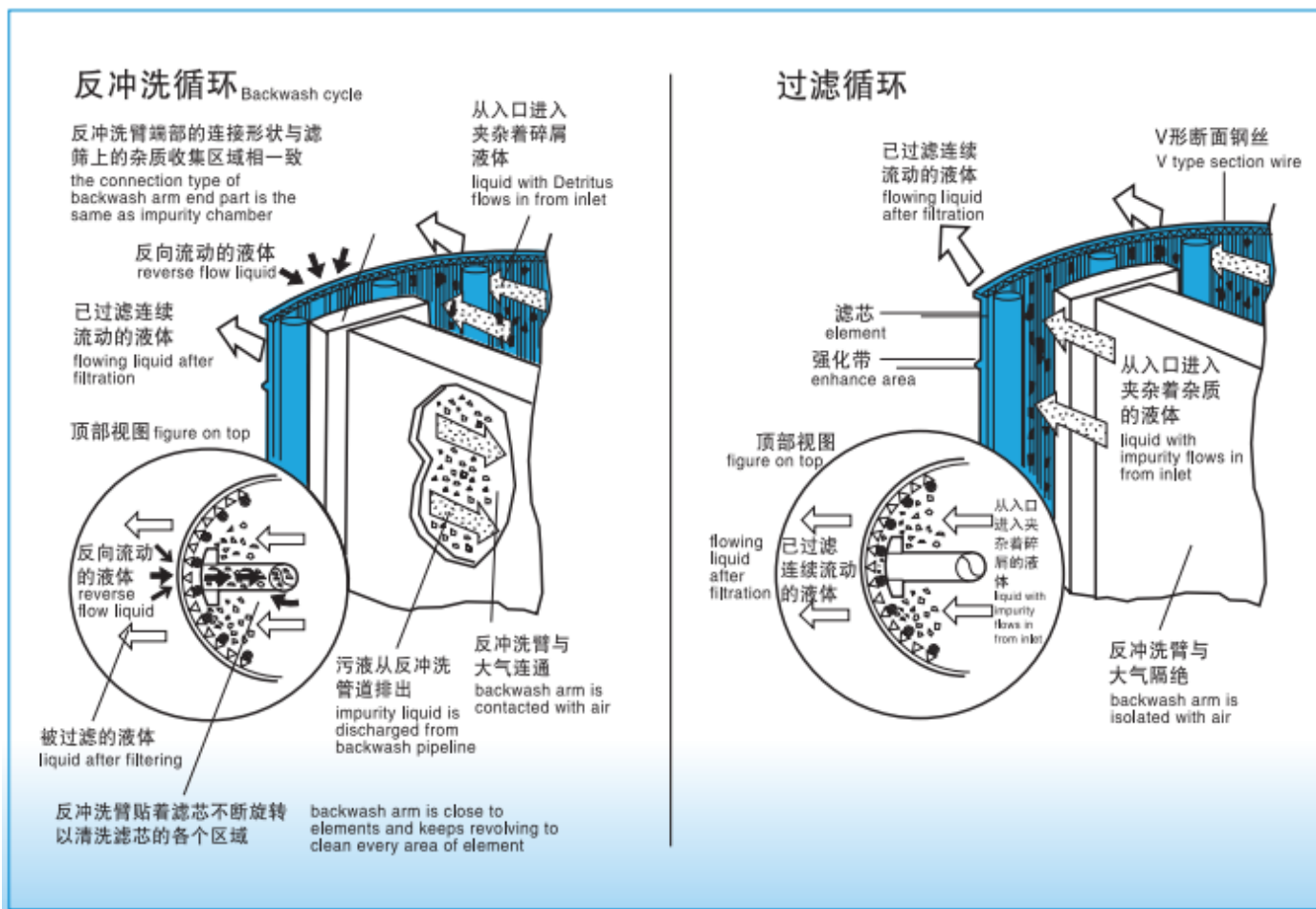
Working Principle

When liquid with impurities flows into the bottom of the filter casing, the liquid flow rate will slow down, and the liquid will flow upward in the direction of 90°. The impurities filtered down will be stopped in the shell, and the cleaning fluid will continuously flow outside of isolation elements, then finally flowed out from the outlet.

The Backflushing process is completed by the difference between pipeline pressure and atmospheric pressure. A hollow cleaning device extends the whole element's length; it rotates slowly inside the filter and then discharges impurities from the drain valve. The end face of the cleaning device is very close to the filter element. Its opening and impurity collector is of the same height. The impurity collector is made up of circle round



and vertical pipeline tubes. In the whole countercurrent washing cycle, the primary fluid will not be stopped, and the filtration process is going on.



Technical Parameters

Flow Rate	4000m ³ /h
Filter Rating	40-4000um
Cartridge	Perforated screen (800-4000um) Woven wire screen (20-800um) Wedge wire screen (50-1000um)
Working Pressure	0.18-1.6 Mpa (solenoid diaphragm valve)
Working Tem.	≤95 °C
Turbidity	≤60mg/L
Power Supply	380V/50Hz or as required by the customer
Voltage	AC24V or as required by the customer
Cleaning Mode	Brush
Cleaning Time	10-200s, adjustable
Control Mode	Pressure difference/time/manual/PLC

Material of Construct

Housing	Carbon steel, SS304/316/316L, nickel, titanium alloy
Filter Element	SS304/316/316L
Brush Frame	SS304/316/316L
Blowdown Valve	Cast iron, copper, stainless steel
Controller	PVC, aluminum
Sealing Ring	EPDM
Cleaning Brush	Stainless steel, nylon

Filtration Accuracy Conversion

Micron (μm)	10	25	30	40	50	80	100	120	150	200	400	800	1500	3000
Mesh	1500	650	550	400	300	200	150	120	100	80	40	20	10	5

Brush Type Automatic Self-cleaning Filter

Introduction

Brush type automatic self-cleaning filter is a kind of filter that is suitable for the wrong environment. It can be equipped with 50 microns – 3500 microns mesh and 8-36 pipeline diameter for different user requirements. The cleaning process is started by a differential pressure switch, which monitors the inlet and outlet's additional pressure. Usually, the default value of the pressure difference switch is 0.5 bar (7psi). With the advantages of continuously fluid flow, safety operation, and simple maintenance, this filter is widely used in all industries.

Working Principle

When the inlet and outlet's differential pressure reaches the preset value, the filter will start the self-cleaning process. The whole self-cleaning process contains two steps: open the drain valve on the filter's end cover. The motor drives the two stainless steel brushes in the filter mesh, then the impurities captured by the filter mesh will be brushed down by the steel brush and discharged from the drain valve. The whole cleaning process takes about 15 to 60 seconds. During this time, the filtration system does not stop, and a control box controls the entire operation process.

Application

Water and sewage, Pulp and Paper, Chemical, Petrochemical, Steel, Nonferrous metal, Plastic extrusion processing, Machine coolant filtration, Construction field, etc.

Advantages

1. Continuously water supply: water consumption in the cleaning process is less, nearly 5% of filter water yield. The flushing time is 2 ~ 15 seconds.
2. High filtration precision: the filtering precision can reach 20 microns.
3. Large filtering area: The standard filter screen's effective filtering area is 7 ~ 40 times of the inlet area.
4. Reliable cleaning types: there are many kinds of control modes (manual, differential pressure, timing, PLC program logic control, and other control modes for choices).
5. Simple and economical installation: diversified structure, suitable for installation in all kinds of site conditions, and does not affect the running effect.
6. Long service life: Normally, it will be more than ten years, according to the requirements, different specifications can easily replace the stainless steel mesh.



General Parameters

- ◆ Operation flow rate: 20-5000m³/h;
- ◆ Min working pressure: 2bar;
- ◆ Max working pressure: 10bar/150psi;
- ◆ Filtering area: 3000cm²-20000cm²;
- ◆ Inlet/outlet diameter: 50/80/100/150/200/250/300/350/400 /500/600/800mm;
- ◆ Max working temperature: 50°C

Cleaning Parameters

Drain valve Size:25mm/50mm/80mm; Cleaning time:30-60S; Cleaning water consumption(every time):≤1%.

Model

Model	Pipe Diameter (mm)	Flow Rate (m3/h)	Flow Area(m2)	Drain Valve(mm)	Filtration Rating(mm)	Motor Power(KW)
JXBTA-219	50	20	0.27	25	0.01-5	0.55
JXBTA-273	80	50	0.25	25	0.01-5	0.55
JXBTA-325	100	150	0.35	25	0.01-5	0.55
JXBTA-426	200	300	0.66	50	0.01-5	0.55
JXBTA-530	250	500	1.6	50	0.01-5	0.55
JXBTA-630	300	700	0.85	80	0.01-5	0.75
JXBTA-720	350	1100	1.3	80	0.01-5	0.75
JXBTA-820	400	1500	1.4	80	0.01-5	0.75
JXBTA-920	450	1700	1.8	80	0.01-5	0.75
JXBTA-1020	500	2000	2.2	80	0.01-5	0.75

*Flowrate is based on the media type and filtration rating.

Automatic Backwash Filter

Introduction

This filter provides fully automatic backwashing cleaning operations, and it can continuously separate impurities from water and other liquids. The maintenance and operation of this kind of filter are effortless. Even in severe operating conditions, it also can continue to keep running in good condition.

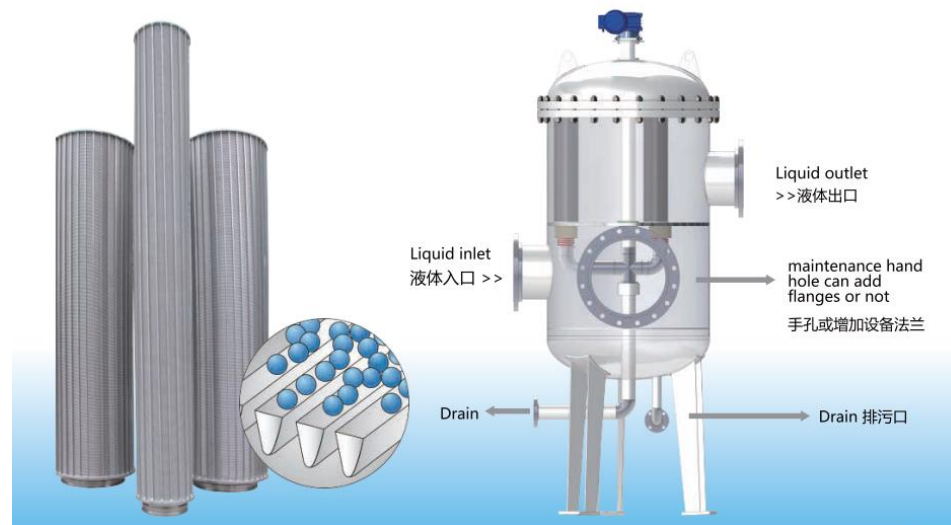
XF-F series filter can be equipped with different amounts of elements to provide maximum filtering area in each filter housing, making the filter have the smallest pressure loss when working.

The filter body's pressure design is usually based on the chemical pipeline filter and steel pressure vessel design standards. The filter also can adapt to the particular requirements of other design criteria. Simultaneously, we can also provide unique materials such as titanium, pure nickel, etc.



Working Principle

The water that needs to be filtered flows into the shell through the lower bottom of the filter and enters the filter element's lumen through the rotary table from bottom to top, and drained out through the filter element. The filtered clean water flows out from the upper outlet of the filter. Solid impurities are trapped in the filter element's inner side—no need to cut off the water flow when the filter is in the backwashing process. The motor drives the filter wheel rotating, and at the same time, the drain valve was opened. The filtered clean water will backwash each filter element in turns. The pressure difference between the water pressure in the filter and the atmospheric pressure can reversely make filtration liquid flow. The intercept impurity on the inner face of the filter element can be removed. After the wheel rotates around, the backwashing process is over. Then the backwashing valve closed, and the drive motor stops.



Technical Parameters

Flow Rate(m ³ /h)	Filter Rating (um)	Working Pressure	Valve	Filtration Standard	Filter Element MOC	Valve MOC	Seal MOC
1-5000	25-3000	0-10	Motor or Pneumatic	GB150, HG/T21637/ASME	SS304/316 Hastelloy	CS, SS304/316 Hastelloy	Buna-N, EPDM, Fluorous rubber

Model

Model	Inlet/outlet	Drain	Flow Rate at 100um (m3/h)	Motor Power (KW)
XF-F-300	DN100	DN40	180	0.37
XF-F-400	DN150	DN40	290	0.37
XF-F-500	DN200	DN40	420	0.37
XF-F-600	DN250	DN50	620	0.55
XF-F-700	DN300	DN50	730	0.55
XF-F-700	DN350	DN50	1230	0.55
XF-F-800	DN350	DN50	940	0.55
XF-F-800	DN400	DN80	1400	0.55
XF-F-900	DN400	DN80	1600	0.55
XF-F-900	DN450	DN80	1900	0.55
XF-F-1000	DN450	DN80	2070	0.55

XF-F1 Conical elements

XF-F1 series element cleverly uses the traditional wedge wire filter elements to design an innovative cone filter element. The filter element has materials of SS, Duplex SS, and alloy steel, etc. A wedge gap filter element can effectively filter the fluid with less sticky material and be applied to the coarse filtration field.

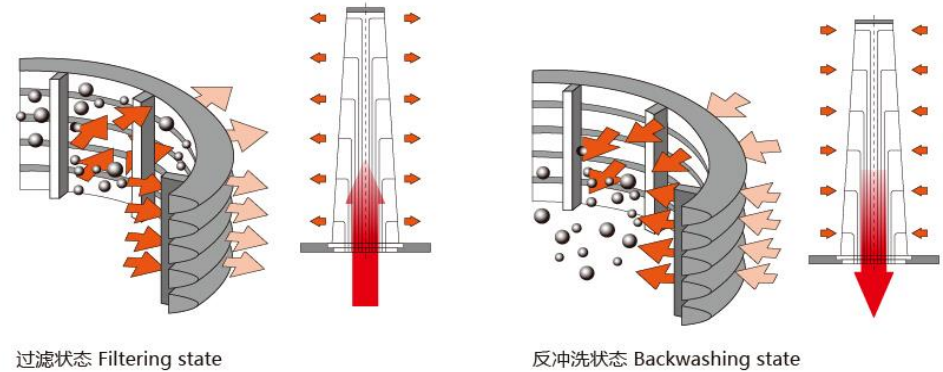
Advanced mesh shape can help stop the medium, causing obstruction, but this obstruction occurs when using standard wedge wire components.

The filter situation will get better with the new advanced mesh shape.

The wedge filter element is particularly suitable for the filter with a higher differential pressure filtration.

The size of the wedge gap filter element is associated with the required filtration precision. The V shape can be designed to follow the direction of flow and be against the flow.

The wedge wire filter element's aperture is from 25um to 1000um, and some long-life components can be used for more than 20 years in the filter.



XF-F2 Swell-shrink type filter

When the filter condition is difficult, JX Filtration recommends the swell-shrink element type filter.

After extensive research and development of the non-metallic components, JX Filtration designs the polypropylene filter element, which obtained a patent. It's an innovative way of filtering.

We have successfully conducted a filter test to show the sewage filtering capability of swell-shrink element filtering. XF-F2 filter can filter sewage into daily-using recycle water.

The swell-shrink element can produce a filter seam in the backwash process to avoid being struck by the hard dirt. The solid material left in the filtering process is trapped inside of the filter element. (As shown in figure 1.)

When backwashing begins, the direction of flow is reversed (from outside to the inside of the components).

Backwashing expands the space of filter element in a concise period (As shown in figure 2.)

F4 series sucking backwash filter uses multi-layers mesh as elements structure. Therefore, the filter has the features of a maximum filtering area and high backwashing efficacy. Combined with the unique laser welding technology, this filter series is especially suitable for offshore platforms and marine ship applications.

The filter is designed to meet the standard flow rate, but it also has a set of additional spare filter cartridges; when it needs washing, the extra filter starts working not to affect the pipe resistance.

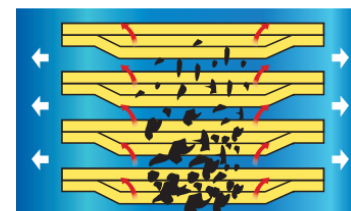


图 1 figure 1

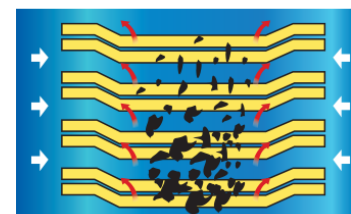


图 2 figure 2

The cleaning components move in, sucking up and down. It can clean impurities in the shortest time with a maximum clean level.

Application

Water and wastewater, pulp and paper, chemicals, petrochemical, iron and steel, nonferrous metal, plastic extrusion, machine coolant filtration, engineering, etc.

Advantages

- ◆ Smooth surface with low blockage risk
- ◆ High open ratio
- ◆ Low-pressure difference
- ◆ Large flow rate
- ◆ High mechanical strength
- ◆ Easy to clean



Scraper Self-cleaning Filter

Introduction

Scraper type self-cleaning filter is the ideal choice of filtering liquid with high viscosity, high corrosion, and high pressure.

It is a self-developed type. This new generation of mechanical self-cleaning filter has reached the world advanced technology level. Unlike a backwashing self-cleaning filter, a scraper filter is used for water filtration. It is widely applied in filtering solvents, acid-alkali, polymer, coating adhesive materials, etc. It has higher efficiency and precision of range 30-1500microns. It can filter liquid viscosity up to 800000 centipoises.

The scraper type self-cleaning filter operates fully automatically. The high filtration precision, stable, and reliable performance makes it an efficient choice to replace a traditional manual filter or dumping type material filter. It can replace the conventional cartridge filters, bag filters, basket filters, and vibrating screen filters in many areas.



Material of Construct

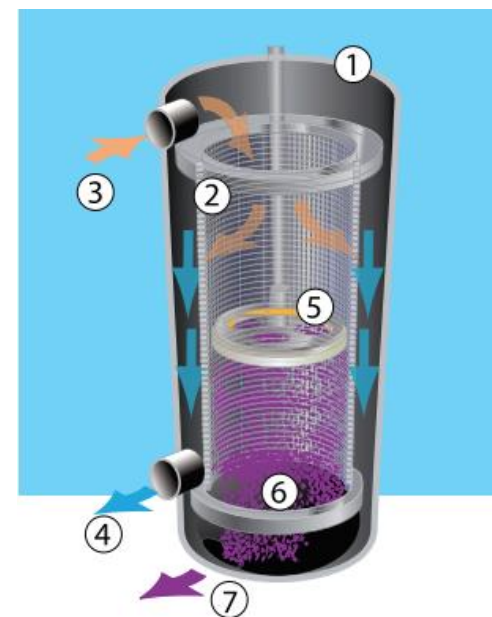
Housing	Carbon steel, SS304/316/316L
Filter Element	SS304/316/316L
Driveshaft Seal	PTFE Teflon (suitable for all kinds of solvent, acid, or alkali liquid, the highest temperature: 230°C) NBR acrylic rubber (applicable to most of the neutral and oil liquid, the highest temperature: 120°C) VITON fluorine rubber (resistant to acid and alkaline liquid and the majority of solvent, the highest temperature: 230°C)
Sealing Ring	EPDM
Scraper	SF (super water-resistant composite material) SS (wear-resistant stainless steel)
Tripod	SS304

Application

Water treatment, petrochemical, metallurgy, electric power, chemical, paint, printing ink, paper, food and beverage, pharmaceutical, metal processing industries, etc.

Working Principle

Scraper self-cleaning filter's operation principle is very simple: Install the filter screen ② in a stainless steel cylindrical shell①. When unfiltered liquid flows into the shell from the inlet ③, solid impurities were leached and deposited on the screen's inner surface. Filtered fluid flows out from the outlet ④. When the filter screen needs cleaning (depending on the time, pressure differential, or manually choose), a clean dish tightened with spring scrapes the mesh inside the surface back and forth continuously and removes solid material deposition. When the debris is separated from the filter screen gap, the wash dish will send the dirt into the bottom of shell ⑥ and be discharged through the flow channel⑦.





Mode of Drive

Pneumatic cleaning plate drives through air pressure (60-80 psi @ 5 CFM). S-01 and S-02 filter's main characteristic is that a single cylinder or double cylinder can cause them. The smaller S-01 model is only equipped with a cylinder.

Major Components of the Scraper System

1. Drive motor, differential pressure controller, differential switches, indicator light, valves; alarms, timers, and display screens as an option.
2. Circuit breaker for overload protection.
3. PLC-based control system for control the time of scraper and sewage discharge.
4. Differential pressure controller protection and monitoring system.
5. Drain valve driving: electric/pneumatic.
6. Pre-installed and tested for easy installation.

Inner Scraper Type Self-cleaning Filter

Introduction

Liquid enters through the water inlet and flows up to the bottom, and then flows out through the filter elements' surface. When the impurities on the filter element's surface accumulate to a certain amount, the scraper, driven by electric machinery and equipped with correctors, will rotate near the filter elements to scrap off the impurities. Then the impurities will be collected in the collection chamber. When ordered to a certain amount, the automatic drain valve opens and drains out the liquid containing a high impurities concentration. The fluid after filtration would be recycled or discharged.

Ps: Inner-scraper: scraper is inside the filtering element; outer-scraper: scraper is outside the filtering part.

Major Components

1. Drive motor, differential pressure controller, differential switches, indicator light, valves, alarms, timers, and display screens as an option.
2. Circuit breaker for overload protection.
3. PLC-based control system for control the time of scraper and sewage discharge.
4. Differential pressure controller protection and monitoring system.
5. Drain valve driving: electric/pneumatic.
6. Pre-installed and tested for easy installation.

可选型 Control Options

- A** 120V 230V 380V 400V
460V 480V 575V
1PH or 3PH 50 or 60Hz
电力系统
- B** Custom built to integrate into local control center system allowing for control or supervision of other
客户定制集成本地控制系统或者高级个性化要求
- C** Several options for local/remote indication, switches, timers, touch screen controls
可选：本地/远程控制，开关，计时器，触摸屏控制系统
- D** Remote supervision: dry contacts, PLC based, 4-20mA, audible alarms, DH-485, digital/analog
远程高级功能：干式接触，PLC控制单元，4-20mA，声音报警，DH-485，数字/模拟量。

刮刀自清洗过滤器 self-cleaning Scraper-strainer



Model

Model	Pipe Diameter (mm)	Flow Rate (m3/h)	Flow Area(m2)	Drain Valve (mm)	Filtration Rating (mm)	Motor Power (KW)
JXS2-273	80	50	0.25	25	0.01-5	0.55
JXS2-325	100	150	0.35	25	0.01-5	0.55
JXS2-426	200	300	0.66	50	0.01-5	0.55
JXS2-530	250	500	1.0	50	0.01-5	0.55
JXS2-630	300	700	1.2	80	0.01-5	0.75
JXS2-720	350	1100	1.5	80	0.01-5	0.75
JXS2-820	400	1500	1.8	80	0.01-5	0.75
JXS2-920	450	1700	2	80	0.01-5	0.75

Outer-Scraper Type Self-cleaning Filter

Introduction

Liquid enters through the water inlet and flows up to the bottom, and then flows out through the filter elements' surface. When the impurities on the filter element's surface accumulate to a certain amount, the scraper driven by electric machinery and equipped with correctors will rotate near the filter elements to scrap off the impurities. Then the impurities will be collected in the collection chamber. When it is managed to a certain amount, the automatic drain valve opens and drains out the liquid containing a high impurities concentration. The fluid after filtration would be recycled or discharged.

Ps: Inner-scraper: scraper is inside the filtering element; outer-scraper: scraper is outside the filtering part.

Major Components

1. Drive motor, differential pressure controller, differential switches, indicator light, valves; alarms, timers, and display screens as an option.
2. Circuit breaker for overload protection.
3. PLC-based control system for control the time of scraper and sewage discharge.
4. Differential pressure controller protection and monitoring system.
5. Drain valve driving: electric/pneumatic.
6. Pre-installed and tested for easy installation.



Automatic Cleaning Filter Screen

It uses the speed reducer to drive the cyclotron scraper and clean the dirt attached to the mesh to keep the cartridge filtration function. The unique design keeps flowing unblocked forever. Precision scraper pressure and angle design ensure zero damage to mesh in a short time, and it is durable and can be changed quickly.

Wedge Filter Screen Working Pressure Option

1. Wedge filter screen 1mm is suitable for working pressure lower than 16kg/cm²;
2. Wedge filter screen 1.5mm is ideal for working pressure lower than 16-30kg/cm²;
3. Wedge filter screen 1.8mm is suitable for working pressure higher than 30kg/cm²
(standard for Φ 85mm).

Standard Size

1. Filter screen OD: 85mm, 168mm, 268mm;
2. Standard filter screen length 600mm.

Advantages

1. With the leading outer-scraper filter type, this filter extends the filtration time under the same filter area and reduces the waste of material;
2. Adaptive adjustment of miscellaneous equipment ensures that the filter will not be affected by the wear when working for a long time;
3. Filter elements are made by mold. The roundness deviation does not exceed 0.5mm to ensure the scraper will be fit entirely to the details;
4. Humanization design: the drain valve would open just when the impurity is collected to a certain amount after cleaning several times to reduce material waste.

Working Pressure of Wedge Wire Screen

◆◆◆ Wedge wire screen-1mm

Suitable for working pressure lower than 16kg/cm²

◆◆◆ Wedge wire screen-1.5mm

Suitable for working pressure between 16-30kg/cm²

◆◆◆ Wedge wire screen-1.8mm

Suitable for working pressure higher than 30kg/cm²

Tubular Scraper Type Self-cleaning Filter

Introduction

The tubular scraper filtering system can provide maximum filtering ability. At the same time, it makes material handling costs to be top-level.

Advantages

The number of filter sets of scraper filtration systems is designed according to the flow rate demand; the coating is sent to each filter's top via the main pipe. After injecting into the cone, entrance coating flows from outside to inside via the screen and placed sewage impurity fiber, blanket, and other impurities on the screen surface. After treatment, coating flow to the next process or storage tank from the filter outlet pipe.

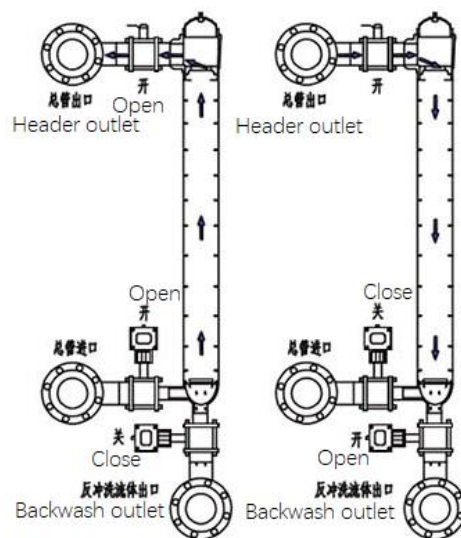


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The Material of Construct Common Filtering Media As Below

蜡	Wax	洗发精	Shampoo	橡胶	Rubber
煤油	Kerosene	硅树脂溶液	Silicone Solution	乙醇	Ethanol
单体	Monomer	肥皂	Soap	巧克力	Chocolate
聚合物	Polymer	梨醇	Sorbitol山	糖果	Confectionery
水处理	Water Treatment	类固醇	Stanols	奶制品	Dairy
维生素	Vitamins	固醇	Sterols	食用油	Edible Oils
柠檬酸	Citric Acid	谷物糖浆	Corn Syrup	高温油	Hot Fry Oil
发酵液	Fermented Broth	湿部助剂	Wet-end Additives	果汁	Juice
壳聚糖	Chitosan	粘合剂	Adhesives	加工用液	Machining Fluids
纤维素	Cellulose	化学药剂	Chemicals	冷却液	Coolant
化妆品	Cosmetics	颜料	Pigments	催化剂	Catalysts
青霉素	Penicillin	墨水	Inks	柴油	Diesel
药丸	Pill masses	润滑剂	Lubricant		
蛋白质	Protein	涂料	Paint		
琼脂糖 (凝胶)	Sepharose	树脂	Resins		

Schematic Diagram



Pipeline Type Self-cleaning Filter

Introduction

Pipeline type self-cleaning filter series are suitable for small flowrate filtration, 1-500m³/h. It has a simple structure, enabling the exchange between filtering and backflushing by just opening or closing the drain valve.

Technology Parameters

- ◆ Installation: horizontal
- ◆ One set flowrate: 1-500m³/h
- ◆ Min. Working pressure: 0.1Mpa
- ◆ Max. Working pressure: 1.0Mpa/2.5Mpa
- ◆ Filtration precision: 25-500micron
- ◆ Filter element: stainless steel wedge wire cartridge
- ◆ Control type: pressure difference/time/manual
- ◆ Cleaning time: 20-100s



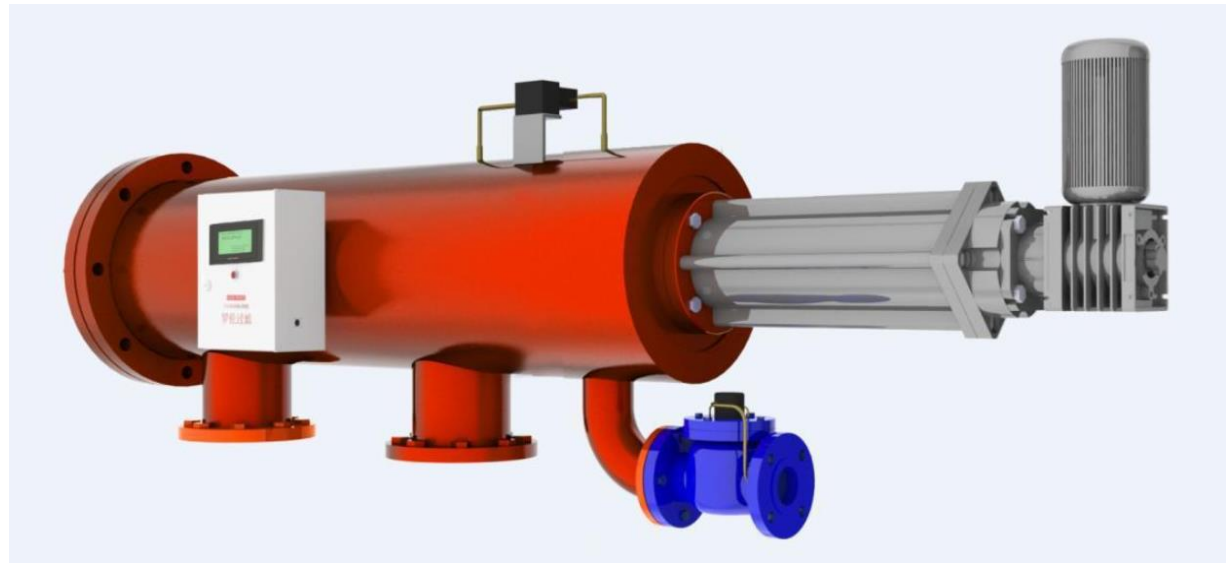
Horizontal self-cleaning filter

Working Principle

The water flows through the screen and the particles are retained on the screen of the filter element. The filtered water flows out through the outlet. When the particles accumulated to a certain number and the pressure differential increases to the pre-determined level, the flushing cycle starts.

It includes two steps: first, the automatic drain valve opens on the drainage outlet. Then the electronic motor drives the cleaning brushes inside the screen and the solids are expelled through the drain valve. Filters continue to supply filtered water when back washing.

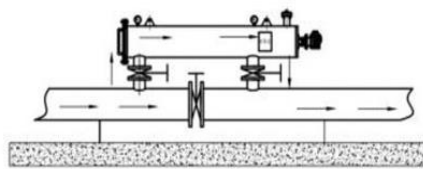
The whole working system is controlled by controller which has several control modes: pressure differential, time, manual and PLC.



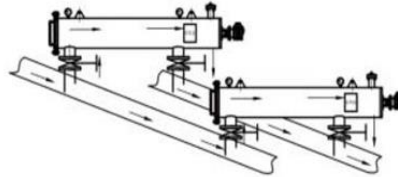
Material of Construct

Housing	Carbon steel, SS304/316/316L
Mesh	SS304/316/316L
Brush	SS304/316/316L
Drain valve	Casting iron, copper, stainless steel, nylon
Control box	PVC, aluminum
Sealing ring	EPDM rubber
Cleaning brush	Stainless steel, Nylon

Structure & Install Figure



Single filter 单台式



Parallel filters 并列式

注意：箭头所示为水流方向

* Note: the arrow in the diagram is the direction of flow.
Vertical or horizontal installation and multiple parallel are available.

支持立式、卧式或多台并列安装



1. Automatic drain valve 2. Electric motor 3. Water outlet
4. Water inlet 5. Screen 6. Cleaning brush

Technical Parameters

Flow Rate	4000m ³ /h
Filter Rating	20-4000um
Drilling	800-4000um
Max Working Pressure	≤ 16 bar (customized)
Min Working Pressure	≥ 1bar
Working pressure	≤ 85 °C
Power	380V/50Hz or as required by the customer
Cleaning Mode	Brush
Cleaning Time	10-200s, adjustable
Control Mode	Pressure difference/time/manual/PLC
Wedge	50-1000um

Model

Model	Connection	L (mm)	L1 (mm)	L2 (mm)	H (mm)	Drain outlet (mm)	Motor (KW)	Flow (m3/h)	Weight (kg)
JXFW-80	80	450	1338	2038	493	40	0.12	50	180
JXFW-100	100	450	1338	2038	493	40	0.18	80	198
JXFW-150	150	900	1705	2705	545	40	0.18	150	328
JXFW-200	200	900	1765	2765	617	50	0.25	320	375
JXFW-250	250	900	1845	2895	720	50	0.25	450	470
JXFW-300	300	1100	2442	3792	800	50	0.37	600	519
JXFW-350	350	1100	2442	3792	800	50	0.37	850	660
JXFW-400	400	1100	2792	4142	900	50	0.37	1200	708