

RKSfluid[®]

Proven Technology - Superior Features
Legendary Value

PSS-CF Pneumatic Scraper Type Self-cleaning Filter



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

Pneumatic Scraper Type Self-cleaning Filter



Pneumatic Scraper Type Self-cleaning Filter by mechanical scraping ways to automatically remove the particulate impurities of filter element surface, and it is a continuous online single-filter filtration, no consumable, no frequent manual cleaning job, be suitable for a filtration of general or high viscosity liquid.

It is easy to be blocked when the traditional manual filter is used for the filtration of viscous materials and soft impurities, the customers are forced to select a large filter or frequently backwashing, the cost of investment is large, heavy workload, and a serious waste of materials. Pneumatic scraper type self-cleaning filter can easily solve such these problems, and, it can always keep the filter element clean, a high impurity for exhausted slag liquid, the waste material is small.

Pneumatic scraper self-cleaning filters are replacing traditional manual filters in many fields because of their significant technological advantages and low life-cycle cost. Such as vibrating screens, bag filters, basket filters, and some backwash self-cleaning filters, etc.

Operating Principle

Process of Filtration

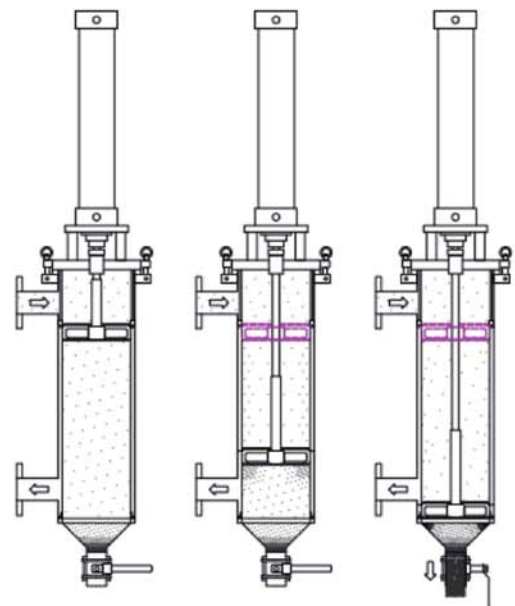
Liquid inflow from the inlet, with a disc-shaped scraper blade close to the inner surface of the filter element, stopping at the top filter element, the liquid medium outflow from the inner surface to the outside surface of the filter element, the impurities are trapped in the inner surface of filter element, the liquid medium outflow from the outlet. As time goes by, the impurity increases gradually, the pressure difference rises, the control system send a demand by the differential pressure transducer (or Timer) to the pneumatic actuator which will drive the scraper to finish cleaning.

Process of Self-cleaning

Pneumatic actuator drive the scraper to clean the filter element backwards and forwards from up and down, when the scraper move down, impurity is pushed the bottom of the filter by the scraper, a large proportion of the impurities is collected in collection chamber. When the scraper moves upward, the impurity is scratched and pushed to the top of the filter element. The impurity is washed away by the flowing liquid. Need the same action multiple times to finish a whole cleaning, then, Cleaning process is finished. And then, The system restore its original status to finish new process, the flow is not interrupted.

Blow-down Process

After some cleaning period, a certain amount of impurities is collected, the control equipment open the sewage valve regularly, accumulation of impurities to a certain amount of equipment to open the sewage valve on a regular basis, discharge the high concentrations of impurities, if necessary, can be recycled. recycledrecycledrecycled.



Filtration

Cleaning

Sewage

Configuration Instructions

V-SLOT Filter Element



A design of the long slit-type mesh screen, the gap of mesh screen is a V-shape, not easy to be blocked by the impurities, maintain a stable flow in long term. The width of gap on the internal surface of mesh screen, is just the filtration precision. uniform gap, accuracy range of 50-1500 microns. The Scraper is scraping along with the gap direction, be suitable for conventional filtration requirements. Smooth inner surface, accurate roundness, good scraping effect. solid structure, durable service. Mesh screen material is 316L, excellent corrosion resistance, Some troublesome impurities can also be filtered, such as: sludge type impurities, soft caking impurities

Precision	Mesh Num.	300	200	150	120	100	75	60	50	40	30	20	15	10
	micron (um)	50	75	100	125	150	200	250	300	375	500	750	1000	1500

ACS series Self-Cleaning Control System

About the PSS-CF Series Filter, we have developed two special types of ACS control system, divided into two types of economic and High configuration, based on Siemens PLC design, running our proprietary programs to keep a high-efficiency filtration, fully meet the various of requirements in control.

Economy Type with a timer, cleaning period and the discharge cycle are all set according to the time period designed, no differential pressure gauge.

High-configuration type with a differential pressure transducer and timer, both the two types of cleaning mode, the pressure difference indicated the status that the internal surface of filter element is blocked or how is the filter cake. The Self-Cleaning Control System will begin to run when the pressure difference is reach to the set value, the self-cleaning process will be operated, it is recommended to clean when the pressure difference is 0.05MPa, and, it can be adjusted in the 0.01-0.1MPa range according to the operating conditions. The timer can be set between 0 and 24 hours. If the pressure mode is disabled, the time mode is still active and can be used as the final protection. The cleaning cycle should be set to the average period of differential pressure cleaning mode.

High-configuration type reserve three connection port, reflect respectively the power status, cleaning status and fault feedback. Fault feedback includes the differential pressure overload, the valve switch failure, the scraper is stuck, troubleshooting by a real-time monitoring, to avoid equipment damage, and to avoid blow-down valve failure result in material waste and pressure fluctuations.

Differential pressure gauge has two options: a single differential pressure transducer or two transducers in combination monitoring. Can output real-time pressure value, characterized by high sensitivity, high reliability.

In addition: explosion-proof level can be specified in accordance with customer design, all instruments and control cabinets in line with explosion-proof requirements. Can be customized based on the Siemens S7-200 PLC control system: DCS configuration can also be customized to support Profibus-DP or Modbus communication protocol.

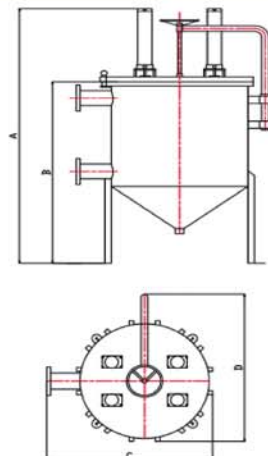


Technology Specification

Filter Type	P07	P22	P41	P71	P213	P284
Filter Area (m ²)	0.07	0.22	0.41	0.71	2.13	2.84
Qty of Element	1	1	1	1	3	4
Volume (L)	~4	~24	~42	~175	~620	~760
Inlet/outlet Size	DN25-DN50	DN50-DN80	DN65-DN100	DN80-DN125	DN100-DN150	DN150-DN250
Drain Outlet	DN50					
Suitable medium	Water, Viscous liquids (<800.000 mPa.s), impurities <1000ppm					
Filter Precision	50 – 2000µm					
Design Pressure	1.0MPa (highest pressure can be customized)					
Design Temp.	0 – 200°C (Depending on sealing materials)					
Differential Pressure	50–100K Pa (Depending on the viscosity of the liquid)					
D.P.Gauge	Pressure transducer / Differential Pressure transducer					
Connection Std.	Flange, HG20592–2009 (Design Std.), HG20615–2009 (Compatible to ANS IB16.5) DIN1185 Round threaded union					
Filter element	V-SLOT					
Shell materials	304, 316L, CS					
Piston Rod Material	316L					
Scraper Material	PTFE					
Sealing (Shell)	NBR, EPDM, VITON/, Silicone Rubber, FEP(Lined Silicone Rubber)					
Sealing (element)	NBR, EPDM, VITON, Silicone Rubber, FEP(Lined Silicone Rubber)					
Sealing (Piston Rod)	NBR, PU, VITON					
Blow-down Valve	Full bore Pneumatic Ball valve, single-acting or double-acting, 304, 316L					
Other Demand	220V AC, 0.4-0.6Mpa, Clean and dry compressed air					
Customized Design	Jacket design, hot oil or steam is used to heat, maintain the fluid temperature and mobility Explosion-proof design, including instrument and control systems, safe filtration of flammable liquids Food grade design, safety and health, more easy to clean					

Equipment Demension

Type	P07	P22	P41	P71	P213	P284
A	1190	1530	1920	2600	2500	2500
B	530	760	1030	1360	1640	1640
C	300	370	570	780	1100	1220
D	220	300	370	560	1100	1220



Application

Application Areas: Petrochemical, Fine chemicals, Paper Industry, food and beverage, Water treatment Suitable for liquids: Waxes, Kerosene, Polymers, Citric acid, Fermentation broth, Cosmetics, Agarose (gel), Silicone solutions, Soaps, Sorbitol, Steroids, Syrups, Wetting agents, Binders, Pigments, Lubricants Paint, Resin, Latex, Ethanol, Mixed oil, Edible oil, High temperature oil, Fruit juice, Diesel oil, etc.