

# Pressure Filtration Technology



Industrial Filters

# Industrial Filters

Industrial filters are designed for protection of industrial devices in pressure installations. It is most economic and energy effective method of liquid purification

## Application:

The task of the filters is to protect the devices which enter into the composition of installation against mechanical pollutions and reduction of load the pollutions in medium. The application of filters and filter inserts is recommended especially in new installations directly before devices and systems which we want to protect against pollutions. The application of filters allows to prolonging the time of failure-free work of installation and decrease costs of its exploitation.

## Examples of filters applications:

- ▶ in installations for drawing of river water from lakes and canals,
- ▶ in installations of municipal water, steam and condensed product,
- ▶ in closed circulation of technological water,
- ▶ in technological lines for juice production, concentrates, pastes, gels,
- ▶ in technological installations for homogenization of yoghurt masses,
- ▶ in utilization lines of overworked oils and animal fats.

## Systems and devices protected by filters:

- ▶ water treatment stations – before micro-filtration stations, heat exchangers,
- ▶ radiators of air compressors,
- ▶ measuring systems,
- ▶ pumps, regulating valves, reductive valves,
- ▶ systems powered of burners by fuel,
- ▶ devices in utilization installing of liquid waste.

We can meet our filters already in the following industrial branches:

- ▶ **power industry of**
  - technological water, lubricant water of main pumps,
  - water powered of boiler, installations of condensed product,
- ▶ **heat engineering**
  - in installations of municipal water, technological water
  - power of boiler, in fuel systems of boiler,
- ▶ **metallurgic**
  - protection of sprinkler nozzles in technological sequence of the steel production,
  - protection of cooling system for burners,
  - protection of radiators for air compressors,
- ▶ **pharmacy**
  - in technological lines for masses homogenization,
- ▶ **chemical**
  - in technological systems and supporting systems
  - in water installations for cooling of radiators the oil from air compressors,
  - in installations of powder recuperation, resins and lubricants filtration,
- ▶ **oil refineries**
  - protection the pumps of technological water
- ▶ **paper**
  - in systems of technological water,
- ▶ **farming**
  - protection of watering systems,
- ▶ **food**
  - protection of technological lines for juices and yoghurts production,
- ▶ **sugar**
  - purifying of diffusional juice,
- ▶ **industrial and municipal sewage treatment plant**

## Range of production:

### A. Fettingling-cumulative filters:

for the industry from the range of nominal diameters DN 80 up to DN 300 (for individual solutions up to DN 800),

B. For the food industry from the range of diameters DN 25 up to DN 150 in sanitary design

C. Fasket filters

D. Felf-cleaning filters for water

E. Fpecial filters

F. Filter inserts

Fabrication of filter housings according to requirements of PED 97/23/EC

## SETTLING-CUMULATIVE FILTERS

**Range of nominal diameters from DN 80 up to DN 300  
(for individual solutions – up to DN 800)**

## Working and design of settling filters:

The tasks of settling filters are intercepting of pollutions from flowing factor and also accumulating them inside the insert. They are characterized by compact design. They consist generally of housing, filter insert, inflow and outflow nozzle, technological nozzles for bleeding and emptying and of measuring system of pressure difference. Cleaning of the insert is manually and requires opening the filter.

## Work parameters:

- ▶ selectivity from 0,3 mm,
- ▶ standard fabrication of the body for working pressure: up to 10 bar,
- ▶ working temperature: up to 158°C
- ▶ material of the body: carbon or steel,
- ▶ material of the screen: stainless steel.

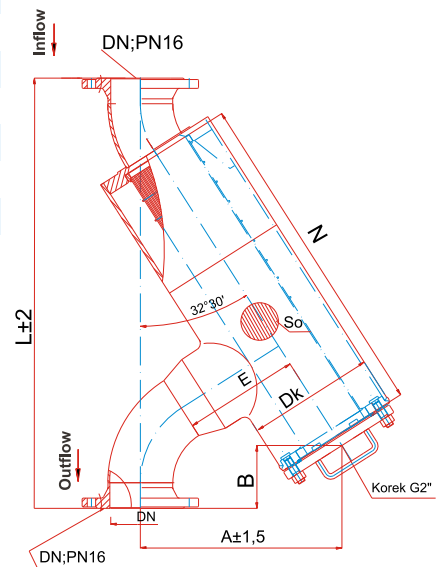




Main dimensions/ given capacity for the water and for the insert from slot screen

DN	L	N	A	E	Dk	B	CAPACITY	MASS
							m <sup>3</sup> /h	kg
			MILLIMETERS					
80	660	450	295	188	219	110	40	50
100	825	600	380	238	219	130	75	67,5
125	925	700	440	248	273	120	130	95
150	1200	925	570	269	324	197	160	162
200	1365	1025	710	380	406	160	270	230
250	1365	1025	710	350	406	160	320	300
300	1625	1025	710	385	406	160	420	350

Industrial solutions of settling filters type STRAINER DN 80-300 for individual solutions up to DN 800:



Range of diameters from DN 25 up to DN 150

food industry, sanitary design

#### Working and design of settling filters:

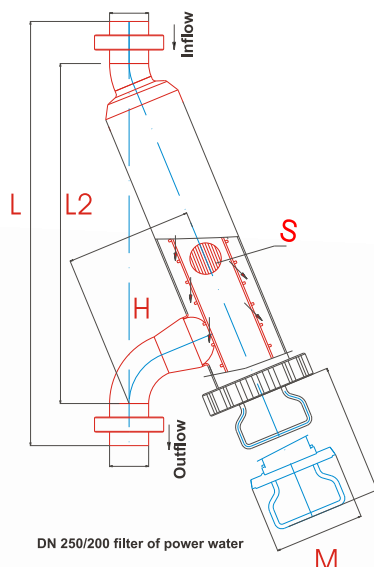
The tasks of settling filters are intercepting of pollutions from flowing factor and also accumulating them inside the insert. They are characterized by compact design. They consist generally in housing-body, filter insert-from slot screen, inflow and outflow nozzle. Cleaning of the insert is manually and requires opening the filter. Characteristic feature of the filters in sanitary design is using of connections which allow to fulfillment of requirements referring to installation sterilities.

#### Work parameters:

- ▶ selectivity from 0,1 mm,
- ▶ standard fabrication of the body for working pressure: up to 8 bar,
- ▶ working temperature: up to 80°C,
- ▶ material of the body and screen: acid-resistant steel,
- ▶ working medium: yoghurt masses, juices



Solutions for food industry; filters type STRAINER DN 25-DN 150 in sanitary design



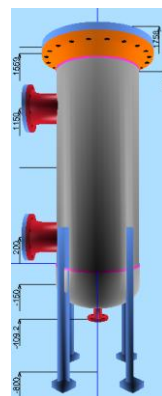
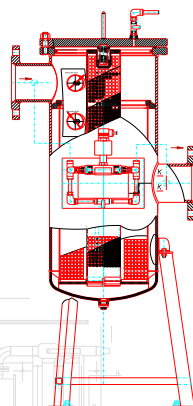
DN 250/200 filter of power water

DN	dzxg	Industrial Filters					
25	31x2,5	350/305	112	Smin. 0,1 for determining at the order	400/102	3	6,9
32	37x2,5	425/325	120		400/102	7	7,2
40	43x2,5	435/332	125		400/102	15	7,5
50	55x2,5	565/452	168		500/120	30	9,6
65	72x3	745/620	210		670/150	50	18,2
80	87x3	788/640	238		730/150	75	20,5
100	106x3	870/695	245		760/175	115	27,6
125	132x3,5	1028/892	305		910/225	150	47,3
150	157x3,5	1095/945	340		910/225	200	51,1

Table 1. Main dimensions: /given capacity for water/

# Basket Filters

The basket filters' design allows to the accumulation of suspensions on a developed filter surface from a woven sieve. They have a system for pressure differences measurement with signaling of exceeding threshold of maximum pollution. The insert cleaning requires revisory opening of the filter's vessel. Filters selectivity – from 0,050 mm. The range of nominal diameters – from DN 25 to DN 150. Working pressure up to 10 bars, working temp. up to 120°C.



## Basket filter

## Self-Cleaning Filters

## Design

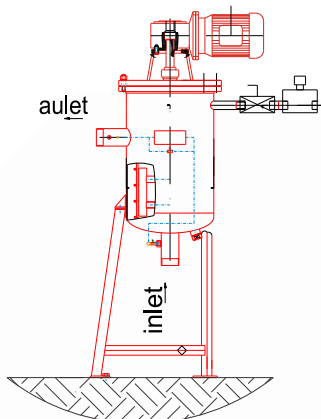
The filter consists of pressure housing, filter insert, nozzle system for screen cleaning, driving system, steering and measurement of pressure difference system, drop valve for the pollutions.

### Working of self-cleaning filters:

Medium, flows through the filter insert, leaves on it the suspensions. Cleaning process of filter insert is initiated automatically. The steering system starts a cleaning cycle of the filter, runs a sucking nozzle drive and opens the drop valve. Cleaning of the screen is realized by backward flow of the filtered medium without stopping the filtration. The pollutions, gathered from the screen surface in every cleaning cycle, are being removed by the drop nozzle outside the filter. Steering system controls work of the filter. In the option of filter design is possible to install additionally a brushes system in order to improve the cleaning effectiveness.

The cleaning process runs selectively with a reversal separation of the cleaning area. Technical solution was reserved with patent.

Self-cleaning filters with manual drive – winch are used alternative for settling-cumulative filters.



Self-cleaning filter DN 50 of technological water

### Working parameters:

- ▶ range of nominal diameters from DN 50 up to DN 300,
- ▶ working pressure up to 10 bars,
- ▶ working temperature up to 80°C,
- ▶ selectivity up to 0,1 mm,
- ▶ minimal required pressure of the medium during the drop of the pollutions – 2 bars.



Self-cleaning filter DN 200



Self-cleaning filter for technological water DN 100 with manual drive



**PATENTED**

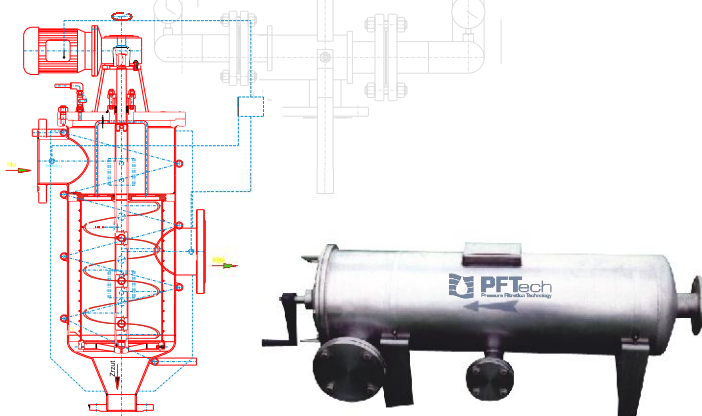
## Special Filters

The filters designed for filtration on the level from 0,3 mm in technological installations of power supply the burners, lubricants production, utilization of dangerous liquids.

- 1.filter of heavy fuel,
- 2.overworked oils,
- 3.lubricants,
- 4.polyester resins.

### Working

The filter design allows to cleaning the filter insert by a spiral brush during running of the installation. Pollutions are accumulated at the bottom of the tank and from here can be periodical removed through the open drop valve. Connections systems allows to periodic washing of the filter by external media without necessity to take out the insert from the body. The filter has complete equipment allowing to tightness control of barrage and regulating fittings in washing installation and measurement system of pressure differences. The filter is equipped with a heating installation. The filters design in option with the drive presents the schema of filter construction. This solution allows to effective cleaning of the filter screen without stopping filtration process in completely automated cycle.



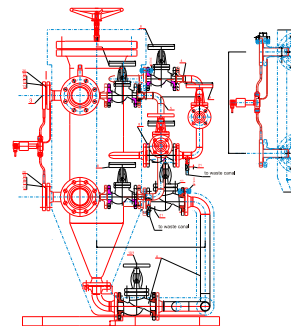
### Filter design

The basic elements of the filters are pressure housing – body with connection nozzles, filter slot insert, driving unit of cleaning system the screen, system of technological nozzles supplying of washing media with barrage fittings and control for leak location, steering system. The filter has a heating installation.

Filters with a spiral cowcatcher with nominal diameters from DN 25 to DN 300 and selectivity from 0,3 mm also found the application in installations of purifying and utilization of overworked oils and animal liquid oils in technology of burning them in the stoves. Filters of this design are working also in installation for washing powder recuperation in plants of production of domestic detergents and in sugar-factories in installations for cleaning of diffusional juice.

### Working parameters of fuel filter-Gudron:

- ▶ working pressure: 2,5 MPa,
- ▶ working temperature: 220° C
- ▶ filtered factor: heavy fuel-Gudron
- ▶ capacity: 30 t/h.



Self-cleaning filter DN 100 of heavy fuel – gudron with cleaning system by external media

## FILTER INSERTS

### Inserts from slot screen

- ▶ Inserts used in systems of power, municipal and technological water in the industrial installations.
- ▶ Inserts produced on the basis of slot screen in the range of nominal diameters from DN 50 to DN 500 with individual solution of a construction of fixing in pipelines.
- ▶ Slot screens used in insert design are characterized with a considerable resistance for the load what prolongs several times their time of exploitation in comparison to inserts made from the woven sieves and equaling to inserts from perforated sheet metals.

### Inserts made from woven sieve and perforated screen

The design of filter inserts to industrial applications allows for working out individual constructional solutions of inserts with using the screens.





We kindly ask for possible detailed and readable fill with print of fields in the following form. Obtained information will allow us to realize the inquiry/order precisely as soon as possible.

**(INQUIRY) / ORDER**

**Please fax or e-mail to:**  
**Fax: +48 48 618-20-82**  
**lisekwr@pfttechnology.eu**

**Subject:** ..... **Date:** .....

#### Contact data

**Company:** .....  
**Technical Person:** ..... **Trading Person:** .....  
**Address/Street:** ..... **Zip code:** ..... **City / Country:** .....  
**Tel/Fax:** ..... **E-mail / Website:** .....

#### Basic information

**Preferred device:** ☐ Rotary drum screen with internal inflow ☐ Pressure filter  
☐ Rotary drum screen with external inflow ☐ Static screen

**Filter's selectivity [mm]** .....

**Filtered medium:** ..... **Date of sending the sample to examinations :** .....

**Character of pollutions** ..... **Suspension on the inlet to the filter [mg/dm<sup>3</sup>]:** .....

**Cleaning system:** ☐ Run by the operator ☐ Device's protection: ☐ No  
☐ Full automatic of steering ☐ Yes (Kind of protection) .....

**Device using currently :** ☐ Not required ☐ Selectivity of using device .....

**Pump in installation :** ☐ Not planned  
☐ Yes (parameters) .....

#### Description of the filtration's problem

#### Medium parameters and conditions of buildings

Flow capacity [m <sup>3</sup> /h]:	Min: ..... Max: .....	Inlet :	Diameter [mm]: .....	Kind of material: .....
Working pressure [BAR]:	Min: ..... Max: .....	Outlet :	Diameter [mm]: .....	Kind of material: .....
Working temperature [°C]:	Min: ..... Max: .....	Ventilation pipeline:	Diameter [mm]: .....	Kind of material: .....
Surrounding temperature [°C]:	Min: ..... Max: .....	Overflow pipeline :	Diameter [mm]: .....	Kind of material: .....

#### Constructional and exploitation requirements

**Material of filtration insert:** ☐ Carbon steel  
☐ Stainless steel  
☐ Other (kind of steel) .....

**Material of filter housing:** ☐ Carbon steel  
☐ Stainless steel  
☐ Other (kind of steel) .....

Date / authorized person's signature / company's stamp

\*I agree to teleaddress data processing for marketing and trading purposes.