

Backwash Drum Filter





Scope of Delivery



The New Definition of **Purity for Your Medium**



flow rate

flange

River Water

Cooling Water

Sea Water

Sinter and Scale Separation

Emulsions

Process Waterr

Mussel / Mussel

Larvae Separation

Pumps



Micro Filtration

¹⁾ 80 m³/h to 4,000 m³/h filter fineness ≥ 5 µm operating pressure 1.5 to 63 bar 0.1 to 0.3 bar pressure loss with clean filter ²⁾ DN 100 to DN 1,000 – 10 to + 110 °C temperature automatic backwash \checkmark

voltage 230 V or 400 V	•	
voltage 110 V to 690 V		Δ
Pressure Equipment Directive (PED)	•	
ASME		Δ
explosion protection		Δ
differential pressure gauging	•	
differential pressure as 4 - 20 mA - signal		Δ
automatic filter control	•	
self-medium backwash	•	
external medium backwash		Δ
backwash with suction pump		Δ
electric or pneumatic backwash valve	•	
signal exchange with PLC	•	
electrical cabling incl. connectors	•	
documentation	•	
certificates	•	Δ
functional test at manufacturer's works	•	

included in the scope of delivery ٠ available at extra charge Δ

	standard design	sea water resistant design	special design
filter housing	steel, stainless steel	stainless steel, GRP,	GRP
filter element	stainless steel	stainless steel	stainless steel

¹⁾ for smaller flow rates the RTF-S is applicable

²⁾ for smaller flange dimensions the RTF-S is applicable

Our Filter Systems Protect

Plate Heat Exchangers

Spray Nozzles

Piping Systems

Mechanical Seals

Filtration Process

clean water outlet

Mode of Operation

The raw water enters the filter through the inlet flange and passes through the filter drum from inside to outside. The solids in the raw water are retained in the segment-like openings of the filter drum's inner part on the inside of the filter element surface. The cleaned water leaves the filter through the clean water outlet.

raw water inlet

Backwash Process

A differential pressure measurement between raw water inlet and clean water outlet determines the degree of pollution on the filter element. At a defined differential pressure the backwash process is activated.

clean water outlet

Additionally an adjustable time lag relay in the electric control permits the start of the backwash process. The filter cleaning starts off with the opening of the motor driven backwash valve. This leads to atmospheric pressure in the backwash pipe and the quill shaft in the filter housing. Due to the overpressure on the outside of the filter drum the solids retained on the filter element's inside are now compulsorily backwashed to atmosphere contrary to the filtration direction. The rotating quill shaft with attached backwash-shoes guarantees 100 % cleaning of the filter element's surface. After 15 - 20 seconds the backwash process is finished and the backwash valve closes automatically.

During backwashing the filtration process is not interrupted.

raw water inlet

backwash water outlet

Fig. 2



≥5µm

Fig. 4

Filter Element

The Slotted Sieve

- on the basis of welded stainless steel triangular support rods
- very sturdy design
- manufacturable in different stainless steel qualities
- filter fineness ≥ 30 µm

The Wire-Cloth Screen

- the cloth is clamped in sandwich structure by two supports
- better utilization of the net filter area
- manufacturable in different stainless steel qualities
- filter fineness ≥ 5 µm



Filter Drum

The filter drum consists of two rigid supporting cages, one in another. The filter element is placed between these cages. Because of their conical construction all three parts can be precisely fixed and screwed together. Even rougher parts can be retained in the segment-like openings of the filter drum's inner part. During backwashing these are then flushed out of the system.



Venturi Nozzle and Backwash Valve

The venturi nozzle is dimensioned according to the conditions at site for regulating the necessary backwash water amount and for avoiding pressure fluctuations in the piping system. As standard the backwash valve is equipped with an electric or a pneumatic drive.



Differential Pressure Gauging

Consisting of:

- optical inlet-pressure indicator
- optical indicator of the differential pressure
- 2 adjustable micro-switches
- start filter backwash
- alarm signal



Range of Application



Fig. 8 cooling water filtration in plastics industry



Electric Control

The backwash process is started off time and / or differential pressure controlled and allows for a fully automatic filter operation.

The standard control includes the following signal exchanges with the customer's control system (PLC):

- collective fault indication
- ready for operation
- filter is backwashing
- external starting of the backwash process
- external release of the backwash process

Performance Chart for 400 µm filter fineness

Fig. 9



Process Diagram



Fig. 12



Fig. 13

Advantages

- high backwash speed (4 10 m/s)
- 100 % cleaning of the whole filter surface
- small water loss for backwashing
- robust construction
- crushing of coarse particles
- fine filtration \geq 5 µm possible
- insert of slotted sieve or wire-cloth screen
- tested unit with ready-made cabling



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