

# Automatic Backflush Filter

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## Series FMA 2000



## Data-Sheet

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**DN 80 (3") – DN 350 (14")**

Stand 03.2018



## General

The filtration can be considered like the process of eliminating solid particles of a liquid or a gas, going through a porous system. In our case the liquid will generally be water, and the filtering system will be a metallic screen of stainless steel. On the other side the ideal filter is the one that is able to retain a large number of particles and never filled up to the brim, even when in reality, it will be the one that is able to prevent the overfilling by a self-cleaning system, each time it is needed.



## Equipment

<b>Filter housing:</b>	Carbon Steel (Epoxy coated)
<b>Cleaning Mechanism:</b>	AISI-304 Stainless steel
<b>Fine screen:</b>	AISI-316 Stainless steel
<b>Filtration degree:</b>	10, 20, 25, 50, 80, 100, 125, 200, 300, 500, 1000 µm
<b>Working Pressure:</b>	min. 2 bar / max. 10 bar / PN 10
<b>Working temperature:</b>	50°C
<b>Suction nozzles:</b>	with <b>brushes</b> for better cleaning



## Options

- Voltage supply also with 12V
- Pressure PN16 or PN25
- Filter housing in SuperDuplex
- High temperature 95°C
- Seawater resistant design



## General safety instructions



- To prevent accidents, the installation, connection and commissioning of the electrical components may only be carried out by authorized and qualified personnel.

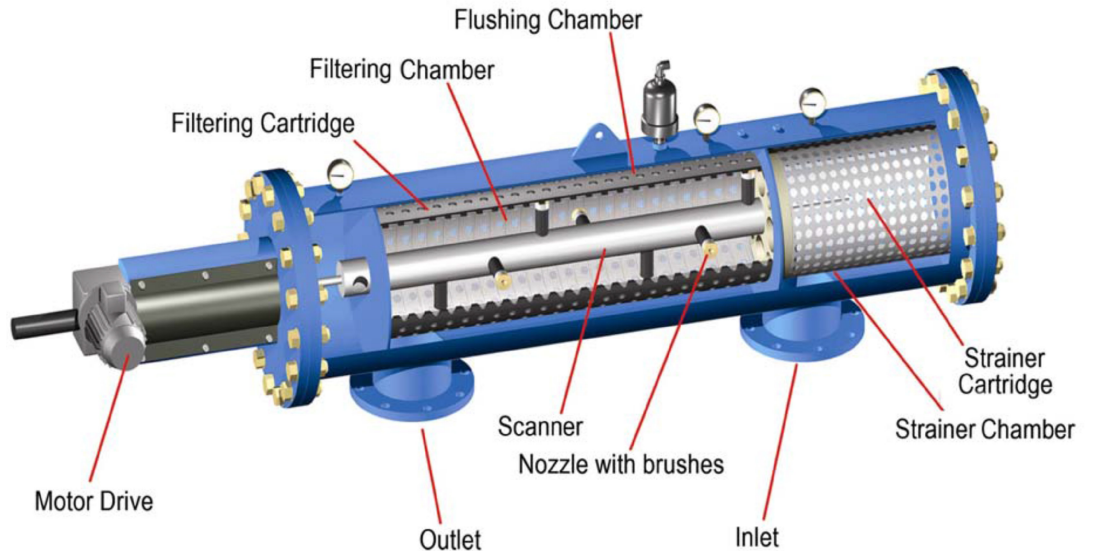


### Note:

1. The flush volume is added to the flow volume.
2. The backwash pipe is to be laid against loss and pressure-free.
3. When installed in open air, the filter must be protected from frost.

## Function of the filter

The filter has a body with three different chambers. A first **strainer chamber** at the inlet of the water to the filter that is used as a gross filtration. The movement of the water through the screen in this chamber goes from outside to inside. Once the water is inside this strainer chamber, it is



entering in the second chamber, the **Filtering chamber**, where there is the real filtering element: THE FILTRATION SCREEN. In this chamber the water passes through the screen from the inside to the outside. The solid particles are staying in suspension (dirt), and are retained inside the filtration element, the screen. The dirt, that is being retained, is forming a cake on the screen and it is generating a gradual head loss in the system pressure. The cleaning of the filter is carried out in a third chamber, the **cleaning chamber**, whose outlet is connected to an exhaust valve, that allows the water evacuation when a process of self cleaning is triggered. The cleaning chamber is separated from the filtration chamber by a special close up.

At last, as the main element in this technology there is a **suction**. The scanner is in the central axle of the cylinder filter body, and it is connected to the cleaning chamber. At right angles with the scanner there are the **suction nozzles** with brushes in contact with the screen. The situation of these nozzles at the suction scanner is studied to obtain a sweeping of the complete inside surface of the screen, due to a movement in a spiral way, made by an electrical motor combining a lengthways and rotation movement.

## OPERATING

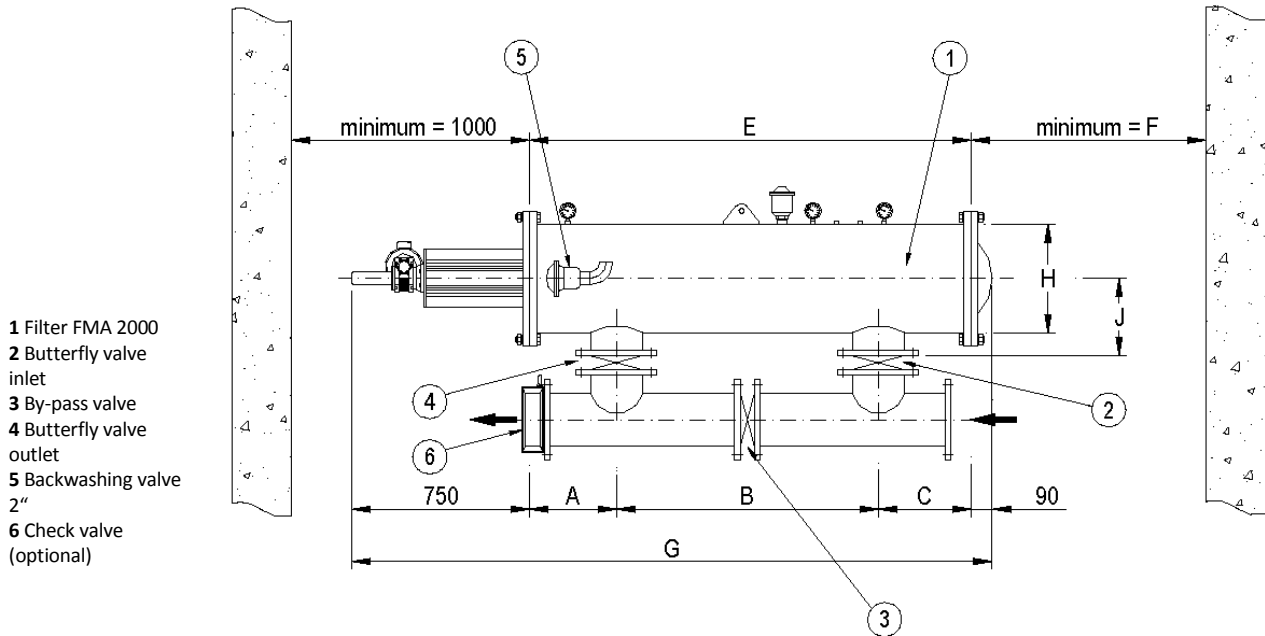
The water enters in the filter through the strainer chamber retaining any thick particles as stones. After, but already in the inner part of the filter, the water passes the FILTRATION SCREEN from inside to outside, producing a MECHANICAL FILTRATION AT THE SURFACE. Filtrated water is obtained according with the filtration degree of the screen, that can vary from 10 to 1000 microns.

As we have already formerly explained, the dirt will be retained and accumulated in the inner surface of the screen generating a pressure head loss between the inlet and outlet of the filter. A differential pressure sensor will trigger the flushing when it is reaching at  $\Delta P$  of 0,3 bar. Other possibilities to carry out the flushing are: by time, combination of time and pressure, and the option to continuous flushing. When the differential pressure sensor reaches 0,3 bar, the exhaust valve receives the order to open, generating a pressure difference between the outside (at atmospheric pressure) and the inner filter part (work pressure) so that, a great speed water flow passes through the screen and is conducted to the outside by the inner hole of the nozzles. Moreover at this precise moment a command is being sent to the motor to start up the working. The result of these joined actions are: the effect of suction from the nozzles on the dirt of the screen, and the movement in spiral way of the suction scanner inside the filter. During the flushing process that takes 25 seconds, the water will continuously be filtrated and will be flowing to the application system. This fact, caused by the design of these filters, will allow us to reach a minimum waste of water and also assures a continuous working.

## Product-details

Model	FMA 2003	FMA 2004	FMA 2006	FMA 2008	FMA 2010	FMA 2012	FMA 2014
Inlet / Outlet	DN 80 (3")	DN 100 (4")	DN 150 (6")	DN 200 (8")	DN 250 (10")	DN 300 (12")	DN 350 (14")
Working pressure	min. 2 bar / max. 10 bar (PN 16 or PN 25 on request)						
Working temperature	50 °C (95 °C on request)						
PVC Screen Data							
Max. Flow (m³/h)	75	150	290	450	800	920	1250
Screen area gross (cm²)	2450	4900	7350	9800	12250	16100	20100
Screen area net (cm²)	1600	3200	4800	6400	8000	10300	12800
Weight empty (kg)	245	280	340	390	430	595	668
Filtration degree	100, 125, 200, 300, 500, 1000 µm						
Stainless Steel Screen Data							
Max. Flow (m³/h)	120	235	500	700	1150	1400	1800
Screen area gross (cm²)	2650	5380	7990	10600	13210	16500	21300
Screen area net (cm²)	2200	4390	6900	9400	11900	14700	19150
Weight empty (kg)	261	304	382	439	495	675	753
Filtration degree	10, 20, 25, 50, 80, 100, 125, 200, 300, 500, 1000 µm						
Automatic Backflush							
Exhaust Valve	G-2" thread						
Flush time	22 - 30 sec.						
Flow for flushing (m³/h)	5	10	15	20	25	20	25
Reject water volume per cycle (liter)	35	70	105	140	175	140	175
Electrical Data							
Supply voltage	220 V AC 50 Hz Single-phase (Optional 400 V AC Three-phase and 12 V DC)						
Control voltage	24 V DC (12 V DC supply 12 V DC)						
Electric motor power	0,37 kW (0,25 kW if option 12 V)						
Electric motor consumption	1,4 A						
Standard Materials							
Filter housing and lids	S-235-JR Carbon steel						
Finish treatment	Kiln Polymerized epoxy-polyester powder coating						
Cleaning mechanism	AISI-304 Stainless steel						
Fine screen	AISI-316 Stainless steel						
Suction nozzles	PVC with AISI-316 stainless steel ring and nylon brushes						
Exhaust valve	Brass housing with spring and stainless steel axis and polyamide lid						
Joints and bolts	Bichromate quality 5.6 and 5.8						
Joints	NBR – EPDM – Viton						

## Dimension



## PVC Support Model

Model	DN	A	B	C	E	F	G	H	J
FMA-2003	80 (3")	302	360	219	881	400	1625	457	325
FMA 2004	100 (4")	314	770	220	1305	690	2140	457	325
FMA 2006	150 (6")	340	1000	240	1580	970	2415	457	325
FMA 2008	200 (8")	367	1100	388	1855	1240	2690	457	325
FMA 2010	250 (10")	419	1370	341	2130	1520	2965	457	325
FMA 2012	300 (12")	430	1100	325	1855	1240	2690	660	450
FMA 2014	350 (14")	433	1370	327	2130	1520	2965	660	450

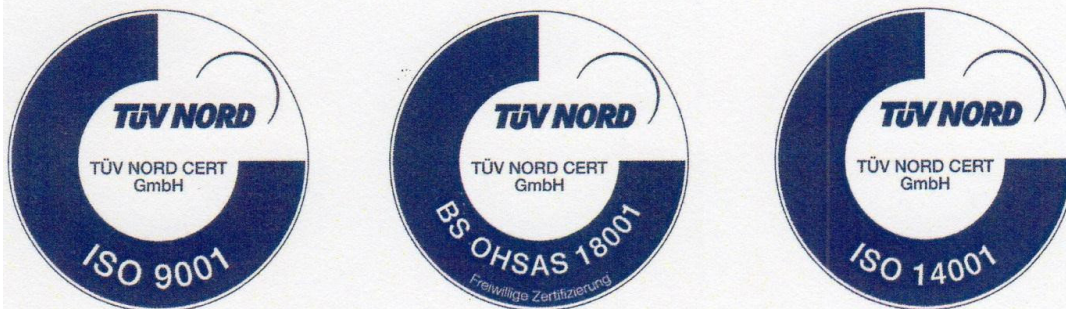
## Stainless Steel Support Model

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FMA 2008	200 (8")	367	1100	388	1855	1240	2690	457	325
FMA 2010	250 (10")	446	1370	314	2130	1520	2965	457	325
FMA 2012	300 (12")	430	1100	325	1855	1240	2707	660	450
FMA 2014	350 (14")	433	1370	327	2130	1520	2982	660	450

## GEFA Certificates

### ISO 9001 - OHSAS 18001 - ISO 14001

Zusätzlich zum Qualitätsmanagementsystem **ISO 9001** hat die GEFA Processtechnik GmbH jetzt auch für die Bereiche Arbeitsschutz (**OHSAS 18001**) und Umweltmanagement (**ISO 14001**) ein sichtbares Zeichen:



Die **OHSAS 18001** und **ISO 14001** Zertifizierungen sind weltweit anerkannte Standards mit dem Fokus auf Personenschutz, Arbeitssicherheit, Gesundheitsvorsorge und Umweltschutz.