

FM - FA

■ ■ ■ PRESSURE SAND FILTERS - Manuals / Automatics



VII.I MACHINE DESCRIPTION

The physical filtration systems of the primary and effluent waters are divided in 2 categories:

- Filtration using quartz sand
- Filtration by adsorption using activated carbon

The quartz sand filter captures suspended particles having size as small as 1mm.

The activated carbon absorptive filter captures colloidal and suspended particles. The process is cyclical: filtration then washing. During filtration, the effluent is introduced inside the filter and forced through the filtering layer made of quartz sand and activated carbon in the bottom.

During the wash cycle, clean water (or air) is introduced inside the filter from the bottom of the container.

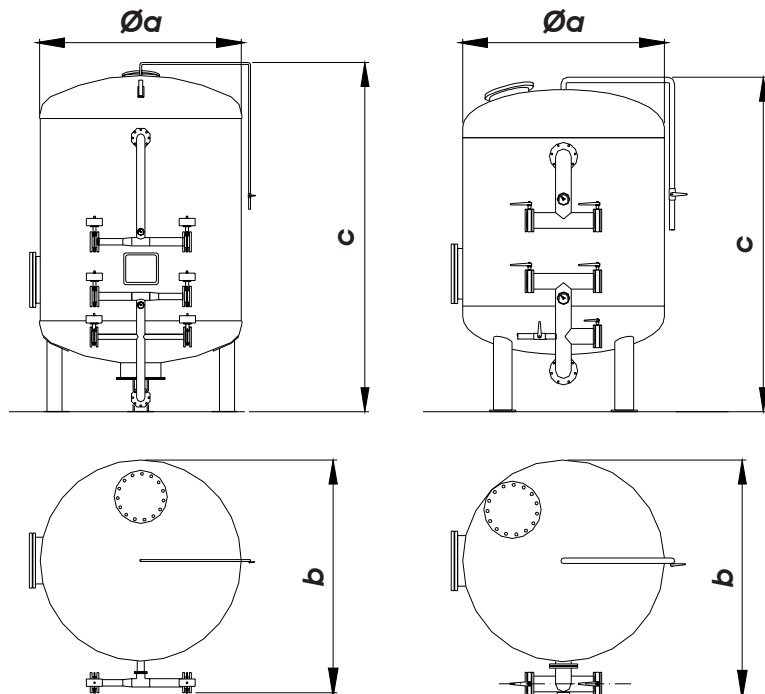
This injection causes the expansion of the filtering layer and its resultant washing.

The wash cycle is automatic for the FA type or manual for the FM type.

VII.II TECHNICAL DATA

n.b.: the manufacturer may modify some dimensions or sizes without prior information!

| | $\varnothing a$ - mm (Length) | b - mm (Width) | c - mm (Height) |
|------------|----------------------------------|-------------------|--------------------|
| FM/FA 600 | 600 | 750 | 1900 |
| FM/FA 800 | 800 | 950 | 2000 |
| FM/FA 900 | 900 | 1050 | 2300 |
| FM/FA 1000 | 1000 | 1300 | 2400 |
| FM/FA 1200 | 1200 | 1500 | 2600 |
| FM/FA 1400 | 1400 | 1700 | 2750 |
| FM/FA 1600 | 1600 | 2000 | 3000 |
| FM/FA 1800 | 1800 | 2200 | 3200 |
| FM/FA 2000 | 2000 | 2400 | 3300 |
| FM/FA 2200 | 2200 | 2600 | 3500 |
| FM/FA 2500 | 2600 | 2800 | 3600 |
| FM/FA 2800 | 2800 | 3200 | 3700 |
| FM/FA 3000 | 3000 | 3300 | 3800 |



| | FM/FA 600 | FM/FA 800 | FM/FA 900 | FM/FA 1000 | FM/FA 1200 | FM/FA 1400 | FM/FA 1600 | FM/FA 1800 | FM/FA 2000 | FM/FA 2200 | FM/FA 2500 | FM/FA 2800 | FM/FA 3000 |
|---------------------------------|-------------|-----------|-----------|------------|-------------|------------|-------------|------------|-------------|-------------|--------------|------------|------------|
| Inlet / Outlet Discharge | DN40 - PN16 | | | | DN50 - PN16 | | DN65 - PN16 | | DN80 - PN16 | | DN100 - PN16 | | |
| Air inlet | DN40 - PN10 | | | | | | DN50 - PN10 | | | DN65 - PN10 | | | |

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| | FM / FA models | | | | | | | | | | | | |
|----------------------------|----------------|-----|-----|------|------|------|------|------|------|------|------|------|------|
| | 600 | 800 | 900 | 1000 | 1200 | 1400 | 1600 | 1800 | 2000 | 2200 | 2500 | 2800 | 3000 |
| Q_w (m ³ /h) | 4 | 5 | 7 | 8 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 |
| Q_c (m ³ /h) | 6 | 8 | 10 | 16 | 20 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | 140 |
| Q_a (Nm ³ /h) | 15 | 30 | 35 | 40 | 50 | 75 | 100 | 125 | 150 | 200 | 250 | 300 | 350 |
| PR_w (bar) | 2 - 4 | | | | | | | | | | | | |
| H_f (mm) | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 1000 |
| G_3 (mm) | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| G_4 (mm) | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 |
| G_8 (mm) | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |

Sand and activated carbon pressure filters:
Data calculated at velocity $v=10$ m/h

Q_w : Working capacity;
 Q_c : Backwash flowrate;
 Q_a : Air flowrate (0.5 bar);

PR_w : Working pressure;
 H_f : Filtering bed high;
 G_8 : Bottom gravel size 8 – 11;

G_3 : Intermediate grave size 3 – 5;
 G_4 : Filtering gravel size 0.9 – 1;

VII.III SUPPLY COMPONENTS

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- 1 Cylindrical vertical pressure tank
- 2 Water distributor
- 3 Bottom plate perforated fitted with nozzles (No.50 filters/m²)
- 4 Inlet and outlet effluent connections
- 5 DN20 vent connection
- 6 Manual or pneumatic cast iron butterfly valves with 2-effects actuator (for automatic type only), (4)
- 7 Pilot distributor for pneumatic valves control with timer (automatic version only)
- 8 Bourdon pressure meters with stainless steel body, tubular spring and AISI316 movement, IP65 protection (2)
- 9 Pressure meters' supporting valves (2)
- 10 Control panel enclosed in PVC cabinet including: cyclic programmer, pilot distributor for pneumatic valves control, IP54 construction (4 valves automatic version only)



VII.IV ACCESSORIES and OPTIONS

- Food grade epoxy painting;
- AISI304 construction;
- Increased cylinder height;
- Filling material (quartz, anthracite or activated carbon);
- Backwash air valve with coupling;
- Extra valve (Fifth) for filtering media re-set;
- Volumetric washing system;
- Anti-plug control system.