WATER FILTER

CLAIMS

1. A filter arrangement (1) comprising:

- a chamber (12) comprising a chamber inlet for unfiltered liquid (14), a chamber outlet for filtered liquid (16) and a wall (18) arranged to keep the unfiltered liquid and the filtered liquid separated;

- a filter element (2) having a longitudinal extension arranged inside of said chamber (12), wherein said filter element (2) comprises a semi-permeable filtration wall (22) comprising a folded filter (24) arranged in a zig-zag configuration between an inner perforated cylinder (26) and an outer perforated cylinder (28); and

- an internally located back-washing arrangement (3);

wherein said back-washing arrangement (3) comprises:

- an elongated and hollow body (32) having a longitudinal extension, which is substantially parallel to the longitudinal extension of the filter element (2);

- a mechanism configured to drive said body (32) in a rotational and/or an axial movement;

- a plurality of nozzles (34) arranged in fluid communication with a cavity inside of said body (32), said plurality of nozzles (34) projecting laterally from said body (32) such that a distal end (36) of each of said plurality of nozzles (34) is arranged in close proximity to said inner perforated cylinder (26); and

- an outlet (320) arranged in fluid communication with said cavity of said elongated and hollow body;

wherein said plurality of nozzles (34) are arranged parallel to each other along a straight line on said body (32) such that they all project in the same direction,

wherein each one of said plurality of nozzles (34) is arranged in contact with or in close proximity to at least another one of said plurality of nozzles (34),

wherein the filter arrangement comprises a cap which covers the distal end (36) of at least one of said plurality of nozzles (34).

2. The filter arrangement according to claim 1, wherein the distal end (36) of at least one of said plurality of nozzles (34) is arranged in close proximity or in contact with the inner perforated cylinder (26) by keeping said nozzles under spring load (342) such that the distal end (36) of said nozzle will follow the surface of said inner perforated cylinder (36) while the back-washing arrangement (3) is rotated.

3. The filter arrangement (1) according to any one of claims 1-2, wherein said plurality of nozzles (34) comprises 2-20 nozzles, or 5-15 nozzles, or 5-10 nozzles.

4. The filter arrangement (1) according to any one of claims 1-3, wherein said cap is common for all of said plurality of nozzles (34), covering each one of said distal ends (36).

5. The filter arrangement (1) according to anyone of claims 1-4, wherein said cap comprises at least one opening which is arranged over an opening of one of said plurality of nozzles (34) such that a liquid is allowed to flow into said nozzle from the opposite side of said filter wall (22).

6. The filter arrangement (1) according to anyone of the preceding claims, wherein said back-washing arrangement (3) further comprises a balancing piece or a plurality of balancing pieces arranged on said elongated body, said balancing piece or said plurality of balancing pieces projecting laterally from said elongated body (32) such that a distal end (36) of said balancing piece or

of each one of said plurality of balancing pieces (34) is arranged in close proximity to said inner perforated cylinder (26).

7. The filter arrangement according to claim 6, wherein said balancing piece is a dummy, or wherein said plurality of balancing pieces is a plurality of dummies.

8. The filter arrangement according to claim 6, wherein said plurality of nozzles is a first plurality of nozzles and wherein said plurality of balancing pieces is a second plurality of nozzles in fluid communication with said cavity inside of said body (32);

wherein said second plurality of nozzles (34) are arranged parallel to each other along a straight line on said body (32) such that they all project in the same direction.

9. The filter arrangement (1) according to any one of the preceding claims wherein perforations of said folded filter (24) have a size which is smaller than the perforations of said inner and outer perforated cylinder (26, 28).

10. The filter arrangement (1) according to any one of the preceding claims wherein said filter element (2) is a first filter element, wherein said filter arrangement (1) comprises additional filter elements having the same or corresponding features as said first filter element.

11. A method for back-washing a filter arrangement according to any one of the preceding claims

wherein said method comprises the steps of:

- creating a pressure difference between said chamber and the inside of each one of said plurality of nozzles such that a liquid is caused to flow in a reverse direction through the filter where each one of said plurality of nozzles are located; and
- moving said body rotationally and/or axially.

12. The method according to claim 11, wherein said step of creating a pressure difference is initiated when there is a pressure-drop over said filter of 0,2-1 bar, or 0,3-0,8 bar, or 0,4-0,6 bar.