Claims

1. A filtration apparatus, comprising:

a filtration module having an inner longitudinal chamber and an outer annular chamber surrounding the inner longitudinal chamber;

a base module coupled to an end of the filtration module; and

an integrated check valve module coupled to a corresponding end of the inner longitudinal chamber of the filtration module through the base module,

wherein the base module and the integrated check valve module are configured to define an annular base chamber adjacent to a corresponding end of the outer annular chamber of the filtration module,

wherein the integrated check valve module comprises a housing having a first port for external fluid communication, a second port to interface with the annular base chamber and a third port to interface with the inner longitudinal chamber,

wherein the integrated check valve module comprises a first check valve removably coupled to the first port and a second check valve removably coupled to the second port,

wherein the outer annular chamber of the filtration module comprises a plurality of membrane fibres, and

wherein the plurality of membrane fibres is attached at both ends to the filtration module.

2. The filtration apparatus as claimed in claim 1, wherein the housing of the integrated check valve module comprises an integrally formed housing.

3. The filtration apparatus as claimed in claim 1 or 2, further comprising a base cap removably coupled to the base module, the base cap and the base module configured to form an auxiliary base chamber adjacent to the annular base chamber.

4. The filtration apparatus as claimed in claim 3, wherein the base module comprises an opening in an external wall of the base module, the opening is configured to interface with the auxiliary base chamber.

5. The filtration apparatus as claimed in claim 3 or 4, further comprising a prefilter contained in the auxiliary base chamber, the prefilter comprising any one of a mesh, a cloth, a paper, or a sponge.

6. The filtration apparatus as claimed in any one of claims 3 to 5, further comprising a foot stand attached to the base cap.

7. The filtration apparatus as claimed in any one of claims 1 to 6, wherein the filtration module comprises an opening in an external wall of the filtration module.

8. The filtration apparatus as claimed in any one of claims 1 to 7, wherein the annular base chamber of the base module is concentric with the outer annular chamber of the filtration module.

9. The filtration apparatus as claimed in any one of claims 1 to 8, further comprising an annex module coupled to another end of the filtration module.

10. The filtration apparatus as claimed in claim 9, wherein the annex module is configured to define an annular annex chamber adjacent to a corresponding end of the outer annular chamber of the filtration module.

11. The filtration apparatus as claimed in claim 10, wherein the annular annex chamber of the annex module is concentric with the outer annular chamber of the filtration module.

12. The filtration apparatus as claimed in any one of claims 9 to 11, wherein the annex module comprises an opening in an external wall of the annex module.

13. The filtration apparatus as claimed in any one of claims 9 to 11, wherein the base module comprises a partition wall to divide the annular base chamber into two separate semi-annular base chambers, and wherein the second port of the integrated check valve module is configured to interface with one of the two semi-annular base chamber, and wherein the base module comprises an opening in an external wall of the base module to interface with another one of the two separate semi-annular base chambers.

14. The filtration apparatus as claimed in claim 13, wherein the annex module comprises an air valve.

15. The filtration apparatus as claimed in any one of claims 1 to 14, further comprising a piston module inserted into the inner longitudinal chamber of the filtration module.

16. The filtration apparatus as claimed in claim 15, wherein the piston module comprises a piston shaft, a handle at one end of the piston shaft and a piston head at another end of the piston shaft.

17. The filtration apparatus as claimed in claim 16, wherein the piston head comprises a double coned rubber piston head.

18. The filtration apparatus as claimed in any one of claims 1 to 14, further comprising a plug coupled to another end of the inner longitudinal chamber of the filtration module.