CLAIMS

1. A hollow fiber module comprising a plurality of hollow fiber cartridges, wherein

a. each hollow fiber cartridge comprises a bundle of semi-permeable hollow fibers, said bundle being surrounded by a shell extending longitudinally along the length of the bundle and potted at both ends in a resin, thereby defining a lumen side volume for the treatment of a first solution and a shell side volume for the treatment of a second solution, said shell being provided with a port for receiving the second solution to be treated in the shell side volume and another port for discharging the treated second solution,

b. A first end cap comprising an inlet for the first solution and a distributer for distributing the first solution to a first end of each of the hollow fiber cartridges,

c. A second end cap comprising a collector for collecting the treated first solution from the second end of each of the hollow fiber cartridges and an outlet for the treated first solution,

d. A first connector comprising an inlet for the second solution and a distributer for distributing the second solution to a port of each of the hollow fiber cartridges,

e. A second connector comprising a collector for collecting the treated second solution from the other port of each of the hollow fiber cartridges and an outlet for the treated second solution,

wherein the first and second end cap are connected at their perimeter with a cover tube, said cover tube enclosing the plurality of cartridges in the longitudinal direction.

2. The hollow fiber module according to claim 1, wherein the first and second connector are connected by a central rod.

3. The hollow fiber module according to claims 1 or 2, wherein the distributor or the collector comprises a plurality of tubes in fluid connection with the inlet or the outlet, respectively, said tubes being adapted for accommodating a port of a hollow fiber cartridge.

4. The hollow fiber module according to any one of the claims 1 to 3, wherein the plurality of tubes is open to the circumference of the distributor or the collector, and wherein the position of the tubes open to the circumference is axially dispersed in two levels in relation to an axis of the distributor or the collector.

5. The hollow fiber module according to any one of the claims 1 to 4, wherein the side of the first or second end cap facing the cartridges are provided with cup-shaped receivers for accommodating the corresponding ends of the hollow fiber cartridges.

6. The hollow fiber module according to any one of the claims 1 to 5, wherein the cup-shaped receivers are provided with a peripheral flange on the inner wall of the cup-shaped receiver for abutment to the shell of a hollow fiber cartridge.

7. The hollow fiber module according to any one of the claims 1 to 6, wherein a sealing member, such as an O-ring, is provided between the inner surface of the cup-shaped receivers and the outer face of the hollow fiber shell.

8. The hollow fiber module according to anyone of the claims 1 to 7, wherein an adapter at an end proximal to the hollow fiber cartridge is fastened to the surface of the

hollow fiber shell and at the other end is provided with a sealing member, such as an O-ring, provided between the inner surface of the cup-shaped receivers and the outer face of the adapter.

9. The hollow fiber module according to any one of the claims 1 to 8, wherein the distributor of the first end cap and/or the collector of the second end cap comprises an opening between two neighboring cup-shaped receivers provided at the bottom of the cup-shaped receivers concerned for allowing exchange of liquid between the cup-shaped receivers.

10. The hollow fiber module according to any one of the claims 1 to 9, wherein the first or the second end cap is integral with the first or the second connector.

11. The hollow fiber module according to claim 10, wherein the connector distributer or collector comprises a second solution chamber delimited by a first tube plate with apertures for accommodating the plurality of hollow fiber cartridges, a second tube plate accommodating the ends of the plurality of hollow fiber cartridges and the end cap, said first and second tube plates being axially positioned on either side of the ports of the plurality of hollow fiber cartridges relative to the longitudinal extent of the cartridges.

12. The hollow fiber module according to claims 10 or 11, wherein the second tube plate at the circumference thereof is attached liquid tightly to the interior face of the end cap, said cap extending axially to the cover tube to circumscribe the second solution chamber.

13. The hollow fiber module according to any one of the claims 10 to 12, wherein the end cap distributor or collector comprises a first solution chamber delimited by the second

tube plate and the interior of the endcap, said first solution chamber being configured for fluid communication with the inlet or outlet of the first solution and the ends of the hollow fiber cartridges.

14. The hollow fiber module according to any one of the claims 1 to 13, wherein 3 or more hollow fiber cartridges are present in the hollow fiber module.

15. The hollow fiber module according to any one of the claims 1 to 14, wherein 6 or 7 hollow fiber cartridges are present in the hollow fiber module.