WHAT IS CLAIMED IS:

1. A membrane filtration system, comprising:

a treatment tank;

a membrane support frame disposed in the treatment tank;

a separation membrane module coupled to the membrane support frame, the separation membrane module including an upper frame, a lower frame, and a membrane coupled between the upper frame and the lower frame;

a vane member disposed at a lower portion of the membrane support frame and at a lower part of the treatment tank; and

a reciprocating portion coupled to the membrane support frame and operable to reciprocate the membrane support frame, wherein the reciprocating portion is operable to adjust a reciprocating distance of the membrane support frame by selecting a hole from among a plurality of first holes of a link rod, and fastening the selected hole of the link rod into a connector selected from among a plurality of connectors of a rotor.

2. The membrane filtration system of claim 1, wherein the reciprocating portion includes:

a reciprocating frame coupled to the membrane support frame; and

a driver disposed in the treatment tank and coupled to a side of the reciprocating frame, the driver operable to move the reciprocating frame.

3. The membrane filtration system of claim 2, wherein the driver includes:

a motor disposed in the treatment tank;

a first pulley coupled to a shaft of the motor;

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a second pulley coupled to the first pulley;

the rotor coupled to a rotation shaft of the second pulley; and

the link rod coupled between the rotor and the reciprocating frame and operable to convert rotating motion of the motor into a reciprocating motion.

4. The membrane filtration system of claim 3, wherein the rotor includes the plurality of connectors coupled to the link rod.

5. The membrane filtration system of claim 4, wherein the plurality of connectors are disposed at different intervals from a center of the rotor.

6. The membrane filtration system of claim 5, wherein

the link rod includes a link body, the plurality of first holes disposed at a first side of the link body, and a second link hole disposed at a second side of the link body,

and at least one of the connectors included in the rotor is operable to couple to one of the first link holes, and

the reciprocating frame is operable to couple to the second link hole.

7. The membrane filtration system of claim 1, wherein an interior of the upper frame includes a water collecting portion that communicates with the membrane.

8. The membrane filtration system of claim 7, wherein the upper frame and the lower frame each include a protruding interval holding portion.

9. The membrane filtration system of claim 8, wherein the interval holding

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portions respectively include a coupling portion operable to couple to another interval holding portion.

10. The membrane filtration system of claim 1, wherein the membrane includes a plurality of hollow fiber bundles spaced apart from each other.

11. The membrane filtration system of claim 8, further comprising a plurality of separation membrane modules disposed adjacent to each other and in the membrane support frame.

12. The membrane filtration system of claim 8, further comprising:

a filtration pipe disposed in the membrane support frame; and

a plurality of separation membrane modules disposed adjacent each other and in the filtration pipe.

13. The membrane filtration system of claim 12, wherein

the filtration pipe includes a plurality of coupling holes,

a first end of the upper frame is operable to couples with one of the coupling holes, and

the water collecting portion and the filtration pipe are coupled to each other and in communicating with each other.

14. The membrane filtration system of claim 13, wherein

the filtration pipe is disposed at a central part of an upper side of the membrane support frame, and

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the plurality of separation membrane modules are symmetrically coupled to each other side by side at both sides of the filtration pipe.

15. A membrane filtration system, comprising:

a treatment tank;

a membrane support frame disposed in the treatment tank;

a separation membrane module coupled to the membrane support frame, the separation membrane module including an upper frame, a lower frame, and a membrane coupled between the upper frame and the lower frame;

a sludge lifting portion flexibly disposed at a lower end of the membrane support frame operable to lift sludge accumulated at a lower part of the treatment tank by using movement of membrane support frame in a forward direction and a backward direction;

a reciprocating portion including a reciprocating frame coupled to the membrane support frame, and a driver disposed in the treatment tank, the driver coupled to a first side of the reciprocating frame and operable to move the reciprocating frame in a forward direction and a backward direction; and

a sliding portion disposed in the treatment tank, coupled to the reciprocating portion, and operable to guide a moving direction of the membrane support frame, wherein the reciprocating portion is operable to adjust a reciprocating distance of the membrane support frame by selecting a hole from among a plurality of first holes of a link rod, and fastening the selected hole of the link rod into a connector selected from among a plurality of connectors of a rotor, and the link rod includes a link body, the plurality of first holes disposed at a first side of the link body, and a second link hole disposed at a second side of the link body.

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16. The membrane filtration system of claim 15, wherein the sliding portion includes:

a guide rail disposed along a longitudinal direction of the treatment tank;

a wheel block coupled to a lower end of the reciprocating frame;

a rolling wheel rotatably mounted on the wheel block; and

a support unit disposed to interlock between the rolling wheel and the guide rail to limit movement of the rolling wheel with respect to the guide rail.

17. The membrane filtration system of claim 16, wherein the support unit includes:

a first body portion disposed in a first protrusion of the guide rail; and

a second body portion disposed in a second protrusion of the rolling wheel.

18. The membrane filtration system of claim 17, wherein

the first protrusion is arranged a longitudinal direction of the guide rail, and

the second protrusion is disposed along a circumferential direction of the rolling wheel.

19. The membrane filtration system of claim 18, wherein the support unit includes:

a first support wheel disposed at the first body portion and operable to move along the first protrusion; and

a second support wheel disposed at the second body portion and operable to move along the second protrusion.

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20. A membrane bio reactor, comprising:

a biological treatment train operable to perform at least one of anaerobic, anoxic, and aerobic biological treatment processes; and

the membrane filtration system comprising:

a treatment tank;

a membrane support frame disposed in the treatment tank;

a separation membrane module coupled to the membrane support frame, the separation membrane module including an upper frame, a lower frame, and a membrane coupled between the upper frame and the lower frame;

a vane member disposed at a lower portion of the membrane support frame and at a lower part of the treatment tank;

and a reciprocating portion coupled to the membrane support frame and operable to reciprocate the membrane support frame, wherein the reciprocating portion is operable to adjust a reciprocating distance of the membrane support frame by selecting a hole from among a plurality of first holes of a link rod, and fastening the selected hole of the link rod into a connector selected from among a plurality of connectors of a rotor.

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