CLAIMS

1. A method for manufacturing a membrane valve comprising the steps of:

a. forming a planar body with a reed opening, said planar body including a plurality of extension members that each extend into said reed opening;

b. forming a planar membrane, said planar membrane having a front portion and a rear portion, said rear portion including a back end, a first side and a second side, said rear portion including a plurality of recesses, each of said recesses including an opening located at a perimeter of said rear portion, a width of said opening is less than a maximum width of said recess, said rear portion having a) first and second recesses located on said back end and spaced from said first and second sides, b) a first recess positioned on said first side and spaced from said back end, and a second recess positioned on said second side and spaced from said back end, and c) a combination of a) and b); and,

c. compressing said planar membrane to said planar body such that each of said extension members are connected by a connection arrangement to one of said recesses to secure said planar membrane to said planar body in said reed opening such that the planar membrane is in coplanar relationship with said planar body, said connection arrangement between said body and same membrane is a compression fit wherein each of said extension members is compressed into one of said recesses wherein said each of said extension members, said recesses, or combinations thereof deforms when said extension members are inserted into said recesses.

2. The method as defined in claim 1, wherein said compression fit is absent a weld, solder, braze, adhesive, or binding agent.

3. The method as defined in claim 1, wherein said body is formed of a different material than said membrane.

4. The method as defined in claim 3, wherein said body is formed of a different material than said membrane.

5. The method as defined in claim 4, wherein said body is formed of low or medium carbon or stainless material.

6. The method as defined in claim 5, wherein said body is formed of low or medium carbon or stainless material.

7. The method as defined in claim 1, further including the step of rounding said peripheral edge of said membrane.

8. The method as defined in claim 7, further including the step of rounding said peripheral edge of said membrane.

9. A method for manufacturing a membrane valve comprising the steps of:

a. forming a planar body with a reed opening, said planar body including a plurality of extension members that each extend into said reed opening;

b. forming a planar membrane, said planar membrane having a front portion and a rear portion, said rear portion including a back end, a first side and a second side, said rear portion including a plurality of recesses, each of said recesses including an opening located at a perimeter of said rear portion, a width of said opening is less than a maximum width of said recess, said rear portion having a) first and second recesses located on said back end and spaced from said first and second sides, b) a first recess positioned on said first side and spaced from said back end, and a second recess positioned on said second side and spaced from said back end, and c) a combination of a) and b); and,

c. compressing said planar membrane to said planar body such that each of said extension members are connected by a compression fit connection arrangement to one of said recesses to secure said planar membrane to said planar body in said reed opening such that the planar membrane is in coplanar relationship with said planar body, a top surface of said body lies in a same plane as a top surface of said membrane when said membrane is connected to said body, a bottom surface of said body lies in a same plane as a bottom surface of said membrane when said membrane is connected to said body, a top surface of a region of said compression fit connection arrangement lies in a same plane as said top surface of said membrane and body

when said membrane is connected to said body, a bottom surface of said region of said compression fit connection arrangement lies in a same plane as said top surface of said membrane and body when said membrane is connected to said body.

10. The method as defined in claim 9, wherein a top surface of said body lies in a same plane as a top surface of said membrane when said membrane is connected to said body, a bottom surface of said body lies in a same plane as a bottom surface of said membrane when said membrane is connected to said body, a top surface of said region of said compression fit lies in a same plane as said top surface of said membrane and body when said membrane is connected to said body, a bottom surface of said region of said compression fit lies in a same plane as said top surface of said membrane and body when said membrane is connected to said body.

11. A method for manufacturing a membrane valve comprising the steps of:

a. forming a planar body with a reed opening, said planar body including a plurality of extension members that each extend into said reed opening;

b. forming a planar membrane, said planar membrane having a front portion and a rear portion, said rear portion including a back end, a first side and a second side, said rear portion including a plurality of recesses, each of said recesses including an opening located at a perimeter of said rear portion, a width of said opening is less than a maximum width of said recess, said rear portion having a) first and second recesses located on said back end and spaced from said first and second sides, b) a first recess positioned on said first side and spaced from said back end, and a second recess positioned on said second side and spaced from said back end, and c) a combination of a) and b), said planar body is formed of a different material than said planar membrane; and,

c. compressing said planar membrane to said planar body such that each of said extension members are connected to one of said recesses to secure said planar membrane to said planar body in said reed opening by use of a compression fit connection such that said planar membrane is in coplanar relationship with said planar body, each of said extension members configured to friction fit in a corresponding recess to secure said planar membrane to said planar body, said connection between each of said extension members and said recesses is absent a weld, solder, braze, adhesive, or binding agent.

12. The method as defined in claim 11, wherein said compression fit connection causes each of said extension members, said recesses, or combinations thereof to deform when each of said extension members is inserted into each of said recesses.

13. The method as defined in claim 11, wherein a top surface of said planar body lies in a same plane as a top surface of said planar membrane when said planar membrane is connected to said planar body, a bottom surface of said planar body lies in a same plane as a bottom surface of said planar membrane when said planar membrane is connected to said planar body, a top surface of each of said extension members lies in a same plane as said top surface of said planar membrane when said planar membrane is connected to said planar body, a bottom surface of each of said extension members lies in a same plane as said top surface of said planar membrane when said planar membrane is connected to said planar body.

14. The method as defined in claim 12, wherein a top surface of said planar body lies in a same plane as a top surface of said planar membrane when said planar membrane is connected to said planar body, a bottom surface of said planar body lies in a same plane as a bottom surface of said planar membrane when said planar membrane is connected to said planar body, a top surface of each of said extension members lies in a same plane as said top surface of said planar membrane when said planar membrane is connected to said planar body, a bottom surface of each of said extension members lies in a same plane as said top surface of said planar membrane when said planar membrane is connected to said planar body.

15. The method as defined in claim 11, wherein said first side of said rear portion of said planar membrane includes said first recess, said second side of said rear portion of said planar membrane includes said second recess, a distance of said first recess from said back end is equal to a distance of said second recess from said back end, said first and second recesses having a same shape and size.

16. The method as defined in claim 14, wherein said first side of said rear portion of said planar membrane includes said first recess, said second side of said rear portion of said

planar membrane includes said second recess, a distance of said first recess from said back end is equal to a distance of said second recess from said back end, said first and second recesses having a same shape and size.

17. The method as defined in claim 11, wherein said back end of said rear portion of said planar membrane includes said first and second recesses, a distance of said first recess from said first side equal to a distance of said second recess from said second side, said first and second recesses having a same shape and size.

18. The method as defined in claim 16, wherein said back end of said rear portion of said planar membrane includes said first and second recesses, a distance of said first recess from said first side equal to a distance of said second recess from said second side, said first and second recesses having a same shape and size.

19. The method as defined in claim 17, wherein said first side of said rear portion of said planar membrane includes a third recess, said second side of said rear portion of said planar membrane includes a fourth recess, a distance of said third recess from said back end is equal to a distance of said fourth recess from said back end, said third and fourth recesses having a same shape and size.

20. The method as defined in claim 18, wherein said first side of said rear portion of said planar membrane includes a third recess, said second side of said rear portion of said planar membrane includes a fourth recess, a distance of said third recess from said back end is equal to a distance of said fourth recess from said back end, said third and fourth recesses having a same shape and size.

21. The method as defined in claim 11, further including the step of rounding a front region of said peripheral edge of said planar membrane.

22. The method as defined in claim 20, further including the step of rounding a front region of said peripheral edge of said planar membrane.