WHAT IS CLAIMED IS:

1. A system for bioprocessing, comprising:

a processing chamber having a plurality of sidewalls, a bottom surface, and a generally open top;

a bed plate positioned within the processing chamber adjacent to the bottom surface; and

a tray having:

a plurality of sidewalls and a bottom surface defining an interior compartment, and a generally open top; and

an opening formed in the bottom surface of the tray, the opening having a perimeter;

wherein the perimeter of the opening is shaped and/or dimensioned such that a bioreactor vessel can be positioned above the opening and supported by the bottom surface of the tray while a portion of the bioreactor vessel is accessible through the opening in the bottom surface;

wherein the tray is receivable within the processing chamber such that the bed plate extends through the opening in the bottom surface of the tray to support the bioreactor vessel.

2. The system of claim 1, wherein:

the perimeter of the opening includes at least one tab or projection for supporting the bioreactor vessel above the opening.

3. The system of claim 2, wherein:

the bed plate includes at least one relief area corresponding to the at least one tab or projection of the tray which allows the bottom surface of the tray and the at least one tab or projection to be seated at a location lower than a top surface of the bed plate so that the bioreactor vessel can be supported by the bed plate in spaced relationship to the bottom surface of the tray.

4. The system of claim 3, wherein:

the at least one tab or projection is at least two tabs that extend into the opening from opposing sides of the opening; and

the at least one relief area in the bed plate is at least two relief areas on opposing sides of the bed plate that correspond to the at least two tabs of the tray.

5. The system of claim 1, wherein:

the tray includes a plurality of bosses extending upwardly from the bottom surface of the tray for inhibiting lateral movement of the bioreactor vessel when it is received above the opening in the bottom surface of the tray.

6. The system of claim 1, further comprising:

a first tubing holder block associated with one of the sidewalls of the tray, the first tubing holder block being configured to receive at least one pump tube and hold the at least one pump at tube in position for selective engagement with a peristaltic pump.

7. The system of claim 6, further comprising:

a second tubing holder block associated with one of the sidewalls of the tray, the second tubing holder bock being configured to receive a plurality of pinch valve tubes and hold each pinch valve tube of the plurality of pinch valve tubes in position for selective engagement with a respective actuator of a pinch valve array.

8. The system of claim 7, wherein:

the second tubing holder block includes a plurality of slots for receiving the plurality of pinch valve tubes.

9. The system of claim 7, wherein:

the second tubing holder block includes a back plate having a plurality of apertures corresponding to the plurality of pinch valve tubes; and

wherein the apertures are each configured to allow passage of a respective actuator of the pinch valve array to selectively clamp a tube of the plurality of tubes against an anvil received through an anvil opening in the tray.

10. The system of claim 7, further comprising:

an opening formed in a rear wall of the tray;

wherein the first tubing holder block and the second tubing holder block are connected to an engagement plate received in the opening in the rear wall.

11. The system of claim 7, further comprising:

a peristaltic pump positioned in close association with the first tubing holder block when the tray is received in the processing chamber, the peristaltic pump being configured to engage the at least one pump tube held by the first tubing block; and

a plurality of actuators of the pinch valve array positioned in close association with the second tubing holder block when the tray is received in the processing chamber, each of the plurality of actuators being configured to selectively clamp a respective one of the plurality of pinch valve tubes held by the second tubing holder block against an anvil received through an anvil opening in the tray.

12. The system of claim 1, further comprising:

an anvil opening formed in the bottom surface of the tray for receiving an anvil therethrough, the anvil being configured to cooperate with an actuator to clamp a pinch valve tube therebetween; and

a shoe opening formed in the bottom surface of the tray for receiving a shoe, the shoe being configured to cooperate with a pump head for receiving a pump tube therebetween.

13. A system for bioprocessing, comprising:

a tray having a plurality of sidewalls and a bottom surface defining an interior compartment, and a generally open top; and

at least one opening formed in the bottom surface, the opening having a perimeter;

wherein the perimeter of the opening is shaped and/or dimensioned such that a bioreactor vessel can be positioned above the opening and supported by the bottom surface of the tray within the interior compartment while a portion of the bioreactor vessel is accessible through the opening in the bottom surface.

14. The system of claim 13, wherein:

the perimeter of the opening includes at least one tab or projection for supporting the bioreactor vessel above the opening.

15. The system of claim 14, wherein:

the at least one opening is at least two openings formed in the bottom surface, each opening having a perimeter shaped and/or dimensioned for supporting a bioreactor above each opening, respectively.

16. The system of claim 13, further comprising:

a plurality of bosses extending upwardly from the bottom surface of the tray for inhibiting lateral movement of the bioreactor vessel when it is received above the opening in the bottom surface of the tray.

17. The system of claim 13, further comprising:

a first tubing holder block associated with one of the sidewalls of the tray, the first tubing holder block being configured to receive at least one pump tube and hold the at least one pump at tube in position for selective engagement with a peristaltic pump.

18. The system of claim 17, further comprising:

a second tubing holder block associated with one of the sidewalls of the tray, the second tubing holder bock being configured to receive a plurality of pinch valve tubes and hold each pinch valve tube of the plurality of pinch valve tubes in position for selective engagement with a respective actuator of a pinch valve array.

19. The system of claim 18, wherein:

the second tubing block includes a plurality of slots for receiving the plurality of tubes.

20. The system of claim 18, wherein:

the second tubing holder block includes a plurality of staggered apertures arranged in a surface behind the plurality of pinch valve tubes, wherein the apertures are each configured to allow passage of a respective actuator of the pinch valve array to selectively clamp a pinch valve tube of the plurality of pinch valve tubes.

21. The system of claim 18, further comprising:

an opening formed in a rear wall of the tray;

wherein the first tubing holder block and the second tubing holder block are connected to an engagement plate received in the opening in the rear wall.

22. The system of claim 13, wherein:

the tray is thermoformed.

23. The system of claim 13, further comprising:

a support rib integrally formed with a bottom surface of the tray.

24. The system of claim 13, further comprising:

a removable cover attached a top of the tray and enclosing the open top.

25. The system of claim 24, further comprising:

a flange defining a top edge of the tray about the opening;

wherein the removable cover is attached to the flange.

26. A method of bioprocessing, comprising the steps of:

placing a bioreactor vessel in a disposable tray, the disposable tray having a plurality of sidewalls and a bottom surface defining an interior compartment, a generally open top, an opening in the bottom surface, and a plurality of tabs or projections extending into the opening the bottom surface;

arranging the bioreactor vessel within the tray such that the bioreactor vessel is supported by the plurality of tabs above the opening; and

placing the tray into a processing chamber having a bed plate such that the bed plate is received through the opening in the tray and supports the bioreactor vessel.

27. A system for bioprocessing, comprising:

a tray having a plurality of sidewalls and a bottom surface defining an interior compartment, and a generally open top;

at least one opening in the bottom surface, the at least one opening having a perimeter;

a first tubing holder block integrated with the tray and configured to receive at least one pump tube and hold the at least one pump tube in position for selective engagement with a pump;

a second tubing holder block integrated with the tray and configured to receive a plurality of pinch valve tubes and hold each pinch valve tube of the plurality of pinch valve tubes in position for selective engagement with a respective actuator of a pinch valve array; and

a bioreactor vessel positioned above the at least one opening within the interior compartment and supported by the bottom surface such that a portion of the bioreactor vessel is accessible through the opening in the bottom surface.