CLAIMS

1. A vessel comprising:

a first shell part having a first dimension, a second dimension and a third dimension, the first and second dimensions of the first shell part defining a first major surface area, the first major surface area comprising rounded corners, and a perimeter of the first shell part having a first swept rim profile and a first flange that is parallel to the first major surface area and extending outwardly from a perimeter edge of the first swept rim profile, wherein the third dimension of the first shell defines a distance from the first major surface to the first flange;

a second shell part having a first dimension, a second dimension and a third dimension, the first and second dimensions of the second shell part defining a second major surface area, the second major surface area comprising rounded corners, and a perimeter of the second shell part having a second swept rim profile and a second flange that is parallel to the second major surface area and extending outwardly from a perimeter edge of the second swept rim profile, wherein the third dimension of the second shell defines a distance from the second major surface to the second flange; and

an enclosed volume defined by a space interposed between an inner surface of the first shell part and an inner surface of the second shell part when a face surface of the first flange is joined together with a face surface of the second flange, wherein the enclosed volume is isolated from an exterior of the vessel,

wherein the first swept rim profile comprises a curvature configured to permit an increase or decrease in a distance between the first major surface area of the first shell part and the second major surface area of the second shell part while allowing the first and second major surface areas to remain planar through the increase or decrease.

2. The device of claim 1, wherein

i) the vessel is comprised of a thermoplastic material; optionally wherein the thermoplastic material is a copolyester; and/or

ii) the face surfaces of the first and second flanges are joined by a heat weld; and/or

iii)

the device further comprises a protective bumper in contact with a perimeter edge of the first and second flanges; optionally wherein the protective bumper encases a portion of the perimeter edge of the first and second flanges.

3. The device of any preceding claim, further comprising a depression formed in at least one of the first and second major surfaces; optionally wherein:

i) the depression comprises a single radially-symmetrical wall or comprises at least two walls, further optionally wherein the at least two walls comprise a subregion having a thickness less than a wall thickness of a remainder of the at least two walls; and/or

ii) the depression is located on a corner surface of at least one of the first and second major surfaces; and/or

iii) the device further comprises a through-hole in communication with the enclosed volume and joined to a solid material part via a heat weld, wherein the solid material part selectively seals the through-hole to isolate the though-hole from the exterior of the vessel; and/or

iv) wherein the depression is located on at least one of the first swept rim profile and the second swept rim profile of the vessel; and/or

v) the device further comprises an airtight label reversibly bonded to the exterior of the vessel and placed overtop the depression to isolate a volume of the depression from the exterior of the vessel.

4. The device of any preceding claim, wherein:

a ratio between the first dimension of the first shell part and a combined dimension of the second and third dimensions of the first shell part is from 1:1 to 4:1; and/or

a ratio between the first dimension of the first shell part and the third dimension of the first shell part is from 1:1 to 30:1 or is from 2:1 to 20:1; and/or

the first dimension of the first shell part multiplied by the second dimension of the first shell part is from 3 cm^2 to 300 cm^2 or from 300 cm^2 to 1000 cm^2; and/or

at least one of the first and second flanges have a width greater than 1 mm.

5. The device of any preceding claim, wherein:

i) the first shell part is a molded shell, the second shell part is a planar sheet, and the first and second shell parts are nominally rectangular; and/or

ii) the device further comprises a conduit forming a portion of at least one of the first and second swept rim profiles; optionally wherein a perimeter edge of the second flange of the second shell part extends beyond a perimeter edge of the first flange of the first shell part; and/or

iii) the device further comprises a cutout region provided in at least one of the first flange and the second flange; and/or

iv) the device further comprises at least one of an electrically conductive circuit and an electronic sensor interposed between a first lamination layer and a second lamination layer of the first or second shell part; optionally wherein i) the electronic sensor is a temperature sensor; and/or ii) a contact portion of the conductive circuit is exposed and/or accessible through the first or second lamination layer.

6. The device of any preceding claim, further comprising a driver element disposed within

the enclosed volume; optionally wherein the driver element comprises a ferritic sheet material laminated between two sheets of inert material.

7. The device of any preceding claim, wherein the enclosed volume comprises a plurality of chambers; optionally wherein:
i) at least two of the plurality of chambers are independent from one another; or
ii) at least two chambers of the plurality of chambers are interconnected, further optionally wherein the at least two chambers are interconnected by a pathway selected from the group consisting of a passageway, a conduit, a valve, a gate, an aperture, a lumen, a tube, a channel, and a tunnel.

8. A method for storing a liquid in a vessel described in any of claims 1 to 7, said method comprising:

locating a corner of the vessel, the corner having a depression;

elevating the corner to a position that is higher than any remaining corner of the vessel;

puncturing the depression;

accessing the enclosed volume of the vessel through the punctured depression;

inserting a filling needle into the punctured depression;

introducing a liquid into the enclosed volume via a first portion of the filling needle while simultaneously removing displaced gas from the enclosed volume via a second portion of the filling needle;

withdrawing the filling needle from the enclosed volume and punctured depression; and

occluding the punctured depression.

9. The method of claim 8, wherein:
i) the method further comprises applying a protective cover over the occluded punctured depression; or
ii) the method further comprises removing a protective cover from the depression prior to the step for puncturing the depression; or
iii) occluding the punctured depression comprises inserting a plug into the punctured depression, and optionally fusion sealing the plug to the depression, wherein the enclosed volume is isolated from an exterior of the vessel.

10. A method for withdrawing a liquid from a vessel described in any of claims 1 to 7, said method comprising:

locating a first corner of the vessel, the first corner having a first depression;

elevating the corner to a position that is higher than any remaining corner of the vessel;

puncturing the depression;

locating a second depression on a second corner of the vessel that is positioned opposite the first corner of the vessel;

puncturing the second depression; and

withdrawing the liquid from the vessel.

11. The method of claim 10, further comprising removing a protective cover from at least one of the first and second depressions prior to puncturing.

12. A method for thawing the solidified contents of a vessel described in claim 6, wherein said driver element is in contact with an interior surface of the first shell part that corresponds to the first major surface area, said method comprising:

clamping the vessel between a first heater block and a second heater block, wherein the first heater block is in contact with the first major surface area, and the second heater block is in contact with the second major surface area, the second heater block further comprising a magnetic source;

increasing a temperature of the first and second heater blocks;

activating the magnetic source;

magnetically attracting the driver element to an interior surface of the second shell part that corresponds to the second major surface area; and

biasing the solidified contents against the interior surface of the second shell part via the driver element and the magnetic source.

13. The method of claim 12, further comprising:

i) decreasing a temperature of the first heater block at a time in which a liquid phase of the solidified contents is present within the vessel; or

ii) removing the first and second heater blocks from the vessel.

14. A method for transferring cells from a cryoprotectant media to a recovery media using a vessel, the vessel comprising:

a first shell part having a first dimension, a second dimension and a third dimension, the first and second dimensions of the first shell part defining a first major surface area, the first major surface area comprising rounded corners, and a perimeter of the first shell part having a first swept rim profile and a first flange that is parallel to the first major surface area and extending outwardly from a perimeter edge of the first swept rim profile, wherein the third dimension of the first shell defines a distance from the first major surface to the first flange;

a second shell part having a first dimension, a second dimension and a third dimension, the first and second dimensions of the second shell part defining a second major surface area, the second major surface area comprising rounded corners, and a perimeter of the second shell part having a second swept rim profile and a second flange that is parallel to the second major surface area and extending outwardly from a perimeter edge of the second swept rim profile, wherein the third dimension of the second shell defines a distance from the second major surface to the second flange; and

an enclosed volume defined by a space interposed between an inner surface of the first shell part and an inner surface of the second shell part when a face surface of the first flange is joined together with a face surface of the second flange, wherein the enclosed volume is isolated from an exterior of the vessel, wherein the enclosed volume comprises a plurality of chambers,

the method comprising:

filling a first chamber of the vessel with a cell suspension;

filling a second chamber of the vessel with a media selected from the group consisting of a recovery media and an injection media;

interconnecting the first and second chambers by a first pathway having a gate comprising a closed state and an open state, wherein said closed state is changed to the open state by subjecting the vessel to a centrifugal force;

interconnecting the first and second chamber by a second pathway comprising a valve configured to permit passage of gas in response to the centrifugal force; and

subjecting the vessel to the centrifugal force, whereupon the cell suspension from the first chamber passes into the second chamber via the gate, and gas within the second chamber passes into the first chamber via the valve.

15. The method of claim 14, wherein:

i) the second pathway is positioned distal to the first chamber along a centrifugal force field vector of the vessel; or

ii) a portion of the second chamber is positioned distal to the gate and along a centrifugal force field vector of the vessel; or

iii) the method further comprises positioning a gas within the second chamber to a proximal end of the second chamber that runs parallel to the first chamber and connects the first chamber to the first chamber via the valve, such that only the media within the second chamber contacts the gate; or

iv) the centrifugal force simultaneously promotes the cell suspension to pass through the gate and into the second chamber, and the gas to pass from the second chamber and into the first chamber via the

valve; or

v) the method further comprises resuming the closed state of the gate and closing the valve by reducing the centrifugal force, optionally further comprising gently agitating the cell suspension and the media in the second chamber; optionally further comprising removing the cell suspension and media from the second chamber via an extraction port of the vessel.

16. A vessel comprising:

a first shell part having a first dimension, a second dimension and a third dimension, the first and second dimensions of the first shell part defining a first major surface area, the first major surface area comprising rounded corners, and a perimeter of the first shell part having a first swept rim profile and a first flange that is parallel to the first major surface area and extending outwardly from a perimeter edge of the first swept rim profile, wherein the third dimension of the first shell defines a distance from the first major surface to the first flange;

a second shell part having a first dimension, a second dimension and a third dimension, the first and second dimensions of the second shell part defining a second major surface area, the second major surface area comprising rounded corners, and a perimeter of the second shell part having a second swept rim profile and a second flange that is parallel to the second major surface area and extending outwardly from a perimeter edge of the second swept rim profile, wherein the third dimension of the second shell defines a distance from the second major surface to the second flange;

an enclosed volume defined by a space interposed between an inner surface of the first shell part and an inner surface of the second shell part when a face surface of the first flange is joined together with a face surface of the second flange, wherein the enclosed volume is isolated from an exterior of the vessel; and

a depression formed in at least one of the first major surface and the second major surface.

17. A vessel comprising:

a first shell part having a first dimension, a second dimension and a third dimension, the first and second dimensions of the first shell part defining a first major surface area, the first major surface area comprising rounded corners, and a perimeter of the first shell part having a first swept rim profile and a first flange that is parallel to the first major surface area and extending outwardly from a perimeter edge of the first swept rim profile, wherein the third dimension of the first shell defines a distance from the first major surface to the first flange;

a second shell part having a first dimension, a second dimension and a third dimension, the first and second dimensions of the second shell part defining a second major surface area, the

second major surface area comprising rounded corners, and a perimeter of the second shell part having a second swept rim profile and a second flange that is parallel to the second major surface area and extending outwardly from a perimeter edge of the second swept rim profile, wherein the third dimension of the second shell defines a distance from the second major surface to the second flange;

an enclosed volume defined by a space interposed between an inner surface of the first shell part and an inner surface of the second shell part when a face surface of the first flange is joined together with a face surface of the second flange, wherein the enclosed volume is isolated from an exterior of the vessel; and

a driver element disposed within the enclosed volume.